PRELIMINARY SITE ASSESSMENT REPORT

MRS. MARY PETSAS
16035 EAST 14TH STREET
SAN LEANDRO, CA 94578

Submitted By:
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Of Northern California, Inc.
August 13, 1993

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This Site Assessment Report has been prepared by the staff of **Tank Protect Engineering of Northern California, Inc.** under direction of an Engineer and/or Geologist whose seal(s) and/or signature(s) appear hereon.

The findings, recommendations, specifications or professional opinions are presented, within the limits prescribed by the client, after being prepared in accordance with generally accepted professional engineering and geologic practice. We make no other warranty, either expressed or implied.

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1.0 INTRODUCTION

The subject site is located at 16035 East 14th Street in the City of San Leandro in Alameda County, California (see Figure 1). The site is occupied by a used car dealership and an automotive repair shop. Chemical analyses of soil samples collected during removal of 2 underground, fuel storage tanks and 1 underground, waste oil tank detected petroleum hydrocarbons in the vadose zone soil. Tank Protect Engineering of Northern California, Inc. (TPE) prepared a March 6, 1992 Tank Closure Report and Workplan for Overexcavation of Contaminated Soil and Installation of Groundwater Monitoring Wells (TCR/WP) documenting tank closure activities and proposing a workplan to investigate and remediate the horizontal and vertical extent of contaminated vadose zone soil and to investigate hydrocarbon impact to groundwater. The TCR/WP proposed to excavate and remediate contaminated vadose zone soil for on-site reuse or disposal at an appropriate landfill and to install up to 3 on-site groundwater monitoring wells to evaluate groundwater gradient and contamination. The TCR/WP was submitted to the client, the Alameda County Health Care Services Agency (ACHCSA), and the California Regional Water Quality Control Board - San Francisco Bay Region (CRWQCB) for their review, comment and approval. The TCR/WP was subsequently approved by the client and the ACHCSA.

This Preliminary Site Assessment Report (PSAR) reviews site history and documents: (1) excavation of contaminated vadose zone soil and associated verification soil sample analytical results, (2) sampling and disposal of stockpiled contaminated soil, (3) installation of 3 groundwater monitoring wells and associated analytical results of soil and groundwater sampling, (4) groundwater gradient determination, and (5) TPE's findings, interpretations, and recommendations.

2.0 SITE HISTORY

The following site history was provided to TPE by the client.

The subject site is owned by Mr. and Mrs. Petsas (Petsas) who purchased the property in 1979. The site contact person is Mrs. Mary Petsas, telephone number (510) 276-2828. According to Petsas, prior to their purchase of the property and to date, the

site has been occupied by a used automotive dealership. Also, since about 1985, an automotive repair business has been operating on the property. At the time of purchase of the property, Petsas was not aware of the existence of the underground tanks; however, Petsas did remove 2 disconnected and inoperable dispensers from the property in about 1985. In about 1986, Petsas learned of the existence of an underground waste oil tank at the site and emptied the tank of fluids.

2.1 Tank Removal

On February 4, 1992, TPE, under contract to Petsas, removed piping and two 1,000-gallon unleaded gasoline and one 750-gallon waste oil, steel, single-walled, underground storage tanks from the subject site (see Figure 2).

The tanks were removed after receiving an acceptance of an Underground Tank Closure Plan from the Alameda County Health Care Services Agency (ACHCSA), Department of Environmental Health, Hazardous Materials Division; a Fire Permit (No. 92-122) from Eden Consolidated Fire Protection District (ECFPD), City of San Lorenzo, California; and notifying the Bay Area Air Quality Management District (BAAQMD).

The two 1,000-gallon gasoline tanks were removed from a common excavation. The 750-gallon waste oil tank was removed from a separate excavation. No groundwater was encountered during tank removal activities. Holes were observed along the flanks and/or bottom of each tank and in the piping.

Soil excavated to uncover the tanks for their removal, was stockpiled as 2 piles; 1 pile consisted of about 50 cubic yards (cyds) from the gasoline tank excavation and the second pile consisted of about 15 cyds from the waste oil tank excavation.

Chemical analyses of discrete soil samples collected at the time of tank removal detected petroleum hydrocarbons in the vadose zone soil. Soil samples were collected from beneath each end of the gasoline tanks (S1-SE, S1-NW, S2-SE, and S2-NW), below the center of the waste oil tank (S3-BP), and beneath the piping [(S-P) see

Figure 2]. Discrete soil samples S1-1, S1-2, S1-3 and S1-4 were collected from the stockpiles and laboratory composited into 1 sample (S1-1, 2, 3, 4) prior to analysis (see Figure 2).

Total petroleum hydrocarbons as gasoline (TPHG) were detected at concentrations up to 880 parts per million (ppm) and 1,300 ppm in native soil in the fuel tanks excavation and waste oil tank excavation, respectively. Additionally, the soil sample from the waste oil tank excavation detected total petroleum hydrocarbons as diesel (TPHD), oil & grease (O&G), chromium, lead, nickel, and zinc at concentrations of 950 ppm, 54 ppm, 35 ppm, 10 ppm, 46 ppm, and 57 ppm, respectively. Soil contamination by 1 or more of the following chemicals: benzene, toluene, ethylbenzene, and xylenes (BTEX) was present in all soil samples with the exception of piping sample S-P. Composite sample S1-1, 2, 3, 4 detected TPHG, ethylbenzene and xylenes at concentrations of 160 ppm, .87 ppm, and 3.3 ppm, respectively (see Table 1).

The above analytical results are summarized in Table 1 and documented with an analytical report and chain-of-custody in Appendix C. TPE's March 6, 1992 TCR/WP provides a detailed discussion and documentation of tank removal activities, soil sampling, and results of chemical analyses at the subject site.

3.0 PRELIMINARY SITE ASSESSMENT

Because soil samples detected TPHG at concentrations up to 880 ppm in the native soil in the fuel tanks excavation, and because the soil sample collected from native soil in the floor of the waste oil tank excavation detected TPHD, TPHG, and O&G at concentrations of 950 ppm, 1,300 ppm, and 54 ppm, respectively, Petsas contracted with TPE to conduct excavation of contaminated vadose zone soil from the sidewalls and floor of the excavations, to remediate and/or dispose of contaminated stockpiled soil, and to install up to 3 groundwater monitoring wells to investigate groundwater contamination, if any, as a result of the waste oil and fuel leaks.

3.1 Remedial Excavation of Contaminated Soil

TPE's objective in this preliminary investigation was to investigate and excavate vadose zone contaminated soil in the sidewalls and floors of the former waste oil and gasoline tanks excavations. These areas, as evidenced by detectable concentrations of contaminants present in the tank removal soil samples, contained contamination by 2 or more BTEX chemicals, TPHG, and/or TPHD and O&G.

To meet the above objective TPE performed the following scope of work:

- Conducted excavation of contaminated vadose zone soil from the sidewalls and floors of the waste oil and gasoline tank excavations.

- Collected 7 discrete verification soil samples from the sidewalls of the excavation and samples for laboratory compositing from the gasoline fuel tanks stockpile and the waste oil tank stockpile for chemical analysis.

- Analyzed all the above soil samples for TPHG and BTEX. Additionally, analyzed 3 of the above samples for TPHD, O&G, and selected metals; 1 sample for semi-volatile organic compounds; and 1 sample for organic lead.

- Aerated the soil excavated and stockpiled from the waste oil tank area and collected soil samples for laboratory compositing and chemical analysis.

- Analyzed the above composite soil sample for total petroleum hydrocarbons as motor oil (TPHMO), and for soluble concentrations of BTEX, TPHG, and CAM 17 heavy metals.

- Disposed of all stockpiled soil at a Class 3 landfill.

- Backfilled and sealed the excavation.

Details of the above scope of work are presented below.

3.1.1 Excavation of Contaminated Vadose Zone Soil

On March 2 and 3, 1992, TPE conducted horizontal and vertical excavation of contaminated soil from the sidewalls and floors of the waste oil and gasoline tank excavations. The majority of contaminated soil was excavated from the area northeast of the location of the former waste oil tank. Groundwater, having an apparent hydrocarbon sheen, entered the excavation at a depth of about 8.0 feet below ground surface.

Horizontal excavation was conducted to distances of .5 feet, 6 feet, 1 foot, and 16 feet on the northwest, southwest, southeast, and northeast sidewalls of the waste oil tank excavation, respectively. Contaminated soil was excavated to maximum distances of 10 feet, 1.5 feet, 5 feet, and 2.5 feet on the northwest, southwest, southeast, and northeast sidewalls of the gasoline tanks excavation, respectively (see Figure 3). Vertical excavation was conducted to an estimated maximum depth of about 10 feet in areas where contamination was found beneath the water's surface.

The extent of excavation activities was based on the presence of soil staining; hydrocarbon odors; and GasTech, Inc. Trace-Techtor Hydrocarbon Vapor Tester (HVT) field screening, by headspace analysis, of excavated vadose zone soil samples. Headspace analysis was conducted by sealing soil samples in quart size plastic bags and warming the bagged samples in the sun to promote volatilization of any hydrocarbons that may be present in the soil. The headspace in the plastic bags was tested by inserting the probe of the HVT into the bag (while minimizing the entry of new air into the bag) and recording the response in ppm.

Approximately 40 cyds of gasoline-contaminated soil and 50 cyds of waste oil-contaminated soil were excavated and stockpiled separately on site. The stockpiles were covered by plastic.

3.1.2 Sidewall and Stockpile Soil Sampling

On March 2 and 3, 1992, seven discrete verification soil samples (see sample names beginning with "V" prefix, Figure 3 and Table 2) were collected from the excavation

sidewalls at depths of about .5 feet above the soil-groundwater interface for chemical analysis to document cleanup concentrations of the remedial excavation activities, and 8 discrete samples were collected for laboratory compositing and analyses to document excavation of contaminated soil.

Verification soil samples VSSW-2, VSSW-1, VSSE-1, VSNE-1, and VSNE-2 were collected from native soil, about 1 to 2 feet into the sidewalls, by excavating a block of soil with a backhoe bucket and collecting the soil sample from the bucket in a clean 2-inch diameter by 6-inch long brass tube driven by a slide-hammer corer. Verification soil samples VSNW-1 and VSNW-2 were collected directly from the northwest sidewall by scraping off about 1 foot of soil and using a brass tube-lined slide-hammer corer with handle extensions. Discrete soil samples SW1-1, SW1-2, S2-1, S2-2, S1-1, S1-2, S1-3, and S1-4 were collected directly from the backhoe bucket while excavating contaminated soil from the floor of the excavation at the locations shown in Figure 3; these samples were collected to document the concentrations of contaminants in stockpiled soil. Samples SW1-1, SW1-2, S2-1, and S2-2 were collected to characterize soil being excavated from the waste oil tank area and samples S1-1 through S1-4 were collected to characterize soil being excavated from the gasoline fuel tanks area.

material removed from excavation; samples composited

After collecting each sample, the brass tube ends were covered with aluminum foil and capped with plastic end-caps which were taped to the tubes with duct tape. The tubes were labeled and placed in an iced-cooler for transport to California Department of Health Services (DHS) certified Trace Analysis Laboratory, Inc. (TAL) located in Hayward, California and accompanied by chain-of-custody documentation (see Appendix B for TPE's protocol relative to sample handling procedures).

3.1.2.1 Results of Chemical Analyses

Prior to analysis, TAL composited discrete soil samples SW1-1, SW1-2, S2-1, and S2-2 into sample SW1-(1-2) S2-(1-2), and discrete soil samples S1-1, S1-2, S1-3, and S1-4 into sample S1-(1-4).

All soil samples were analyzed for TPHG and BTEX by the DHS Method and by the United States Environmental Protection Agency (EPA) Method 8020, respectively. Additionally, soil samples VSNW-1, VSSW-2, and SW1-(1-2) S2-(1-2) were analyzed for TPHD by the DHS Method; O&G by Standard Method 5520 EF; and cadmium, chromium, lead, nickel, and zinc by various EPA Methods. Sample VSNW-1 was also analyzed for semi-volatile organics by EPA Method 8270. Composite sample S1-(1-4) was additionally analyzed for organic lead by the DHS Method.

TPHG was detected in discrete sidewall samples VSNW-1, VSNW-2, VSNE-1, and VSSE-1 at concentrations of 750 ppm, 4.1 ppm, 1.4 ppm, and 1.8 ppm, respectively. TPHG was detected in composite samples SW1-(1-2) S2-(1-2) and S1-(1-4), collected to characterize stockpiled soil, at concentrations of 260 ppm and 89 ppm, respectively.

One or more BTEX chemicals were detected in all soil samples, with the exception of samples VSSW-1 and VSNE-2; see Table 2 for analytical results.

TPHD was detected in samples VSNW-1 and SW1-(1-2) S2-(1-2) at concentrations of 980 ppm and 1,700 ppm, respectively.

O&G was detected at a concentration of 230 ppm in composite sample SW1-(1-2) S2-(1-2).

No semi-volatile organics were detected in sample VSNW-1 and no organic lead was detected in composite sample S1-(1-4).

Low concentrations of chromium, lead, nickel, and zinc were detected in samples VSNW-1, VSSW-2, and SW1-(1-2) S2-(1-2); no concentrations exceeded California's Total Threshold Limit Concentrations.

Analytical results are summarized in Tables 2 and 3 and documented with analytical reports and chain-of-custodies in Appendix C.

3.1.3 Removal of Drummed Water and Pumping of Groundwater From Excavation

On March 3, 1992, Alviso Independent Oil, Inc. (Alviso) removed about 420 gallons of drummed water pumped from the tanks prior to their removal. Because groundwater in the excavation contained apparent contamination, Alviso was contracted to pump about 1,000 gallons of water from the excavation on March 4, 1992. All water was transported off site by Alviso under State Manifest Document Numbers 91554479 and 91554317 (see Appendix A).

3.1.4 Aeration and Sampling of Waste Oil-Contaminated Soil Stockpile

On April 14, 1992, TPE aerated the waste oil-contaminated soil stockpile by turning with a front-end loader and shaking the soil from its bucket while in an elevated position. The volume of the soil stockpile was calculated to be about 65 cyds. Four discrete soil samples, SW3-1 through SW3-4, were collected with a slide-hammer corer from the stockpile's surface at a depth of about 1.5 feet (see Figure 4). The stockpile soil samples were collected in brass tubes and handled in the manner described above in section 3.1.2 Sidewall and Stockpile Soil Sampling. The samples were placed in an iced-cooler for transport to TAL and accompanied by chain-of-custody documentation.

3.1.4.1 Results of Chemical Analyses

The 4 discrete stockpile soil samples were composited into 1 sample, SW3-(1-4), and analyzed according to landfill requirements for TPHMO by the DHS Method, for waste extraction test (WET) for California 17 metals by various EPA Methods, and Toxicity Characteristic Leaching Procedure (TCLP) for TPHG and BTEX by EPA Method 5030/8015/8020, respectively.

Sample SW3-(1-4) detected benzene, toluene, xylenes, arsenic, barium, copper, lead, vanadium, and zinc at concentrations of .0077 ppm, .0067 ppm, .023 ppm, .11 ppm, 1.8 ppm, .20 ppm, .35 ppm, .20 ppm, and .65 ppm, respectively. All other results were nondetectable.

All analyses were performed by TAL with the exception of analysis for TPHG and BTEX which was performed by DHS certified Sequoia Analytical, located in Concord, California. Analytical results are summarized in Tables 4 and 5 and documented with analytical reports and chain-of-custodies in Appendix C.

3.1.5 Disposition of Stockpiled Soil

On March 25 and 26, 1992, approximately 132 cyds of gasoline-contaminated soil from the gasoline tank removal and overexcavation activities were transported by truck off site for disposal at Redwood Landfill, Inc. (Redwood) located in Novato, California. Redwood accepted the soil for disposal based on the results of chemical analyses presented in section 3.1.2.1 Results of Chemical Analyses. The soil was disposed of at Redwood, on March 25 and 26, 1992. On May 20, 1992, approximately 65 cyds of waste oil-contaminated soil from waste oil tank removal and overexcavation activities were transported and disposed of at BFI's Vasco Road Sanitary Landfill, located in Livermore, California.

All landfill disposal receipts are documented in Appendix D.

3.1.6 Excavation Closure

On March 18, 1992, TPE backfilled the excavation with approximately 63 tons of imported pea gravel followed by approximately 123 tons of imported aggregate base material. The aggregate base material was placed in the excavation in 2 to 3-foot compacted lifts to within 3 inches of ground surface. On March 24, 1992, the excavation was sealed to ground surface with a 3 to 5-inch layer of asphalt. An asphalt sealer was applied to the surface of the asphalt on March 26, 1992.

3.2 Preliminary Groundwater Investigation

TPE's objectives in this preliminary groundwater investigation were 1) to determine the hydraulic gradient of the groundwater beneath the site and 2) to investigate possible

hydrocarbon impact on the groundwater in the vicinity of the former underground storage tanks.

Additionally, during the drilling of soil borings for construction of groundwater monitoring wells, TPE's objective was to further investigate the horizontal and vertical limits of vadose zone soil contamination.

To meet the above objectives, TPE performed the following scope of work.

- Conducted a file review at the CRWQCB's office to determine if any documented, off-site contamination may be impacting the subject site and to investigate vicinity and site groundwater flow direction.

- Drilled 3 soil borings for the construction of groundwater monitoring wells MW-1 through MW-3. Collected 1 soil sample at a depth of 5 feet in soil boring MW-1. Collected soil samples continuously from a depth of 7.5 feet to 16.5 feet in soil boring MW-2 and at 5-foot depth intervals in soil boring MW-3.

- Collected 1 vadose zone soil sample from borings MW-1, MW-2, and MW-3 for chemical analysis.

- Analyzed vadose zone soil samples from MW-1 and MW-3 for TPHD, TPHG, BTEX and O&G. Analyzed the vadose zone soil sample from MW-2 for TPHG and BTEX.

- Converted the above soil borings into groundwater monitoring wells.

- Developed, purged, and sampled each monitoring well.

- Analyzed groundwater samples from wells MW-1 and MW-3 for TPHD, TPHG, BTEX, and O&G. Analyzed the groundwater sample from well MW-2 for TPHG and BTEX.

- Surveyed top-of-casings (TOCs) to the nearest .01 foot above mean sea level (MSL).

- Measured depth to stabilized groundwater in each well and calculated direction and gradient of groundwater flow.

- Prepared this PSAR documenting work performed and analytical results with findings and recommendations.

Details of the above scope of work are presented below.

3.2.1 Predrilling Activities

On April 9, 1992, TPE met with Mr. Scott O. Seery of the ACHCSA to modify and addend the March 6, 1992 TCR/WP. A letter dated April 13, 1992 titled April 9, 1992 Meeting Regarding Addenda to March 6, 1992 Workplan for Mrs. Mary Petsas, 16035 East 14th Street, San Leandro, CA 94578 confirms final well locations, soil sample collection intervals and soil and groundwater analyses (see Appendix E).

3.2.1.1 File Review

On March 31, 1992, a representative of TPE visited the CRWQCB's office in Oakland, California to conduct a file review. The purpose of the file review was to research documented fuel leak sites within about a half-mile radius of the subject site. Information obtained during this file review would be useful in evaluating aquifer lithology, depth-to-groundwater, groundwater flow direction in the area of the subject site, and the potential for the site to be impacted by upgradient sources of contamination.

During the file review, 4 sites with documented fuel leaks were found to be within about a half-mile radius of the subject site. The files for 3 of the above sites were either unavailable for review or contained no useful information. The file for the fourth site contained information regarding subsurface soil lithologies encountered

during the installation of 4 groundwater monitoring wells and 2 soil borings, depth to groundwater, and groundwater flow direction. The location of this site is 15803 East 14th Street, San Leandro, California. The site is occupied by a Unocal service station. Depth to stabilized groundwater at this site was 11 to 12 feet below ground surface and groundwater flow direction was generally northwest to north. Most recently, on September 10, 1991, groundwater flow direction was northwest with a gradient of about .0021 feet per foot. In general, the soil beneath the above site included fill material to a depth of about 2 to 5 feet below grade followed by silty clay to a depth of about 25 feet.

The subject site does not appear to be impacted by any upgradient contaminant sources.

3.2.1.2 Permits

On April 8, 1993, TPE obtained well installation permits from the Alameda County Flood Control and Water Conservation District, Water Resources Management Zone 7 (see Appendix F). On April 13, 1993, TPE filed notices of intent with the California Department of Water Resources.

3.2.1.3 Soil Boring/Monitoring Well Locations

Soil boring locations were chosen based on the meeting of April 9, 1992 with the ACHCSA and an estimated north to northwest groundwater flow direction. This estimated flow direction was based on information gathered during the above file review at the CRWQCB. These soil boring/monitoring well locations were estimated to place at least 1 well within 10 feet and downgradient of the former underground storage tanks according to recommendations in the CRWQCB's "Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Storage Tank Sites", dated August 10, 1990. Based on information gathered during the file review, it was assumed that the shallow, confined groundwater gradient would be similar to the Unocal site at 15803 East 14th Street, San Leandro, California.

3.2.2 Soil Boring and Sampling Procedures

The following discusses soil boring and soil sampling procedures and results of chemical analyses. Appendices B, G, and H document TPE's protocols relative to sample handling procedures, hollow-stem auger drilling and soil sampling procedures, and waste handling and decontamination procedures.

On April 16, 1993, TPE drilled exploratory borings for 3 groundwater monitoring wells (MW-1, MW-2, and MW-3) in the area of the former underground fuel tanks (see Figure 6). Exploratory borings MW-1, MW-2, and MW-3 were hand dug to a depth of about 2.5 feet to minimize the potential of encountering utilities. The remainder of the borings was drilled using 8-inch diameter, hollow-stem, auger, drilling equipment. The augers and sampling equipment were steam-cleaned before drilling each boring to prevent cross contamination between borings or the introduction of off-site contamination for the initial boring. Representative soil samples were collected for use in constructing the geological profile at each boring location, for field screening for hydrocarbon contamination by headspace analysis, and for potential chemical analysis. The vadose zone soil samples were collected in each of the borings by advancing a California split-spoon sampler, equipped with three 6-inch long by 2-inch diameter brass tubes, into the undisturbed soil beyond the tip of the augers. One discrete soil sample was collected for chemical analysis from each of the borings at a depth of about 5 feet. The soil boring for well MW-2 was sampled continuously from 7.5 feet to 16.5 feet below ground surface in an attempt to identify the aquifer's geologic characteristics. Soil from all borings was described in detail using the Unified Soil Classification System and was logged under the direction of a California registered geologist.

The sampling equipment was cleaned before each sampling event by washing in a trisodium phosphate (TSP) solution and rinsing in tap water. Soil samples collected for chemical analysis were preserved in the brass tubes by quickly covering the open ends with Teflon tape and capping the tube ends with plastic end-caps. The tubes were labeled to show site address, project number, sample number, sample depth, date, time, and sampler and stored in individual plastic bags in an iced cooler for transport to TAL accompanied by chain-of-custody documentation.

Headspace analysis was conducted by sealing soil samples in quart size plastic bags and warming the bagged samples in the sun to promote volatilization of any hydrocarbons that may be present in the soil. The headspace in the plastic bags was tested by inserting the probe of a HVT into the bag (while minimizing the entry of new air into the bag) and recording the response in ppm.

Drill cuttings were stored in 55-gallon steel drums labeled to show contents, date stored, suspected contaminant, expected date of removal, contact, and telephone number.

3.2.2.1 Results of Chemical Analyses

Soil samples collected from the borings of wells MW-1 and MW-3 were analyzed for TPHD and TPHG by the DHS Method, and for BTEX and O&G by EPA Method 8020 and EPA Standard Method 5520 F, respectively. The soil sample collected from the boring of well MW-2 was analyzed for TPHG and BTEX by the DHS Method and EPA Method 8020, respectively.

TPHG, ethylbenzene, and xylenes were detected in the soil sample obtained from MW-3 at concentrations of 1.5 ppm, 0.0099 ppm, and 0.017 ppm, respectively. Soil sample analytical results from wells MW-1 and MW-2 were nondetectable.

Analytical results are summarized in Table 6 and documented with an analytical report and chain-of-custody in Appendix C.

3.2.3 Groundwater Monitoring Well Construction

The following discusses groundwater monitoring well construction, development, and sampling procedures; and results of chemical analyses. Appendices I, J, and K document TPE's protocols relative to groundwater monitoring well construction, development, and sampling procedures.

The borings for monitoring wells MW-1, MW-2, and MW-3 were each drilled to total depths of 15 feet, 18 feet, and 17 feet, respectively. Each boring was converted into a monitoring well by installing 2-inch diameter, flush-threaded, schedule 40, polyvinyl chloride (PVC) casing and .010-inch, machine-slotted screen. Depth of each boring and screen length were determined by the geologic profile and the depth of occurrence of groundwater in the boring at each location. In well MW-2, the boring encountered a water-bearing, light brown, poorly graded, clayey sand beneath an overlying confining clay at a depth of 7.5 feet to 9.0 feet. This sand is interpreted by TPE to be a confined aquifer beneath the site. Since well MW-2 was the only boring continuously sampled and water was encountered at approximately the same depth (7.5 feet) in the borings of wells MW-1 and MW-3, all wells were built similar to MW-2. These sands were probably encountered in the borings of wells MW-1 and MW-3, but were not recognized in the drill cuttings and missed by the split spoon samples.

Wells MW-2 and MW-3 were screened from 7 feet to 17 feet below ground surface. Well MW-1 was screened from 7 feet to 15 feet below ground surface. The lengths of screen and blank PVC well casing were threaded together above ground and lowered inside the hollow-stem augers. After each well was set at the predetermined depth, the annular space between the well screen and borehole was backfilled to about 2 feet above the top of the well screens with Lone Star #2/16 Monterey filter sand. The sand was slowly tremied down the inside of the hollow-stem augers while the augers were slowly withdrawn. This method minimized the possibility of bridging and helped assure that the filter sand would surround the well casing before the native material could collapse into the borehole. After the screened portion of the annular space of the borehole was backfilled with filter sand, the hole was sealed with a 1-foot thick bentonite plug and then filled with a cement grout to within 0.58 feet of the ground surface. The monitoring wells were protected with water tight, traffic-rated vault boxes with locking steel covers. The vault boxes were set in concrete about an inch above the existing ground surface to help divert surface water away from the well.

All wells were constructed under the direction of a California registered geologist. See Appendix L for soil boring logs and well construction details.

The TOC of each well was surveyed relative to MSL by a professional civil engineer.

3.2.4 Groundwater Monitoring Well Development

On April 21 and 22, 1993, each of the wells was developed by TPE. Prior to development, each well was checked for floating product using a dedicated polyethylene bailer; no floating product, sheen or odor was detected in the wells. Odor and sheen were later apparent in the water purged from well MW-1.

Each well was developed by surging with a surge block and using a 1.7", positive displacement, PVC hand pump until 55 gallons of water had been purged from each well. After development, the water from each well was clear to slightly turbid.

All well development tools and equipment were steam-cleaned immediately before starting each well development. Development water was stored on site in 55-gallon drums. The drums were labeled to show contents, suspected contaminant, date filled, expected removal date, company name, contact person, and telephone number.

3.2.5 Groundwater Monitoring Well Sampling

Groundwater samples were collected from all 3 wells on May 5 and 7, 1993. Depth-to-groundwater was measured in each well from the TOC to the nearest 0.01 foot using an electronic Solinst water level meter. A minimum of 3 repetitive measurements were made for each level determination to ensure accuracy. The elevation of the groundwater level in each well was calculated by subtracting depth-to-groundwater from each well's respective TOC. Next, immediately prior to sampling, the wells were purged a minimum of 3 wetted well volumes with dedicated polyethylene bailers and until temperature, pH, and electrical conductivity of the purged water stabilized. Since dedicated bailers were used for each well sampled, no decontamination was necessary between sampling events. After purging was completed, the water samples were collected in sterilized glass vials/bottles with teflon lined screw caps, immediately sealed, and labeled to include: date, time, sample location, project number, and sampler. The samples were immediately stored in an iced cooler for transport to TAL accompanied by chain-of-custody documentation. See Appendix M for quality assurance and quality control procedures (QA/QC).

Purge water was stored on site in 55-gallon drums. The drums were labeled to show contents, suspected contaminant, date filled, expected removal date, company name, contact person, and telephone number.

3.2.5.1 Results of Chemical Analyses

Groundwater samples from wells MW-1 and MW-3 were analyzed for TPHD and TPHG by the DHS Method and for BTEX and O&G by Modified EPA Method 8020 and EPA Standard Method 5520 F, respectively. The groundwater sample from well MW-2 and a trip blank sample were analyzed for TPHG and BTEX by the DHS Method and Modified EPA Method 8020, respectively.

TPHD, TPHG, and benzene were detected in wells MW-1 and MW-3 at concentrations of 460 parts per billion (ppb), 720 ppb, 54 ppb, and 130 ppb, 73 ppb, 22 ppb, respectively. Benzene was detected in well MW-2 at a concentration of 47 ppb. Ethylbenzene and xylenes were detected in MW-1 at concentrations of 19 ppb, and 13 ppb, respectively. All other analytes were reported nondetectable.

TPHG and BTEX were not detected in the trip blank.

A certified analytical report and a chain-of-custody are documented in Appendix C and results of chemical analyses are summarized in Table 7.

3.3 Hydrogeology

3.3.1 Regional Hydrogeology

The site is located in the East Bay Plain of the Coast Range physiographic province. The surface of the Bay Plain in the general area of the site is gently sloping to the southwest and the site is at an elevation of about 33 feet above MSL. The East Bay Plain is an area comprised of flat alluvial lowlands and bay and tidal marshes lying between the bedrock hills of the Diablo Range to the east and San Francisco Bay to the west. Geologic materials underlying the plain are classified as consolidated and

unconsolidated. The consolidated materials beneath the site are estimated to be present at a depth of about 1,000 feet below the ground surface and are not considered to be aquifers. The unconsolidated materials, occurring from ground surface to a depth of about 1,000 feet, contain the groundwater aquifers of the East Bay Plain. These materials consist of a heterogeneous mixture of clay, silt, sand, and gravel mainly derived by erosion of the Diablo Range. According to USGS Professional Paper 943, the subject site is located on Quaternary age medium to coarse-grained alluvium consisting of unconsolidated, moderately sorted, permeable fine sand, silt, and clayey silt with a few thin beds of coarse sand, and plastic, moderately to poorly sorted carbonaceous silt and clay.

Major groundwater-bearing materials beneath the East Bay Plain occur at depths ranging from 50 feet to 1,000 feet below ground surface. Groundwater from these aquifers is presently used mostly for irrigation and industrial purposes. Groundwater flow is generally in a direction from the Diablo Range toward San Francisco Bay.

The nearest bodies of surface water to the site are San Francisco Bay and Lake Chabot located about 6 miles west of the site and 2 miles north of the site, respectively. San Francisco Bay is interpreted to be located hydraulically downgradient from the site.

3.3.2 Site Hydrogeology

The site hydrogeology has been interpreted from soil boring logs constructed by TPE and the stabilized groundwater elevations in the 3 on-site groundwater monitoring wells. Boring logs and well construction details are presented in Appendix L. Geologic cross section A-A' (Figure 5) has been constructed from the boring logs to illustrate the site's stratigraphy. The location of cross section A-A' is shown in Figure 6.

Cross section A-A' illustrates that the stratigraphy, in general, consists of the following sequence: 1) a damp orange-brown, medium to coarse-grained, sandy gravel (aggregate base) that underlays the asphalt to a depth of 2.5 feet; 2) a damp, black clay at a depth of 2.5 feet to 4.0 feet; 3) a damp light grey clay at a depth of 4 feet to 7.5 feet below grade; 4) a water bearing light brown clayey sand at a depth of 7.5 feet

to 9.0 feet below grade; 5) a damp, dark brown to black clay at a depth 9 feet to 11 feet below grade; 6) a light brown, wet, sandy silt at a depth of 11 feet to 13 feet below grade; and 7) a mottled dark grey to black damp silty clay at a depth of 13 feet to the total depth explored.

During drilling activities, groundwater was encountered in borings MW-1, MW-2, and MW-3 at depths of about 7.5.

TPE interprets the clayey sand (SP) logged in the boring of MW-2, at a depth of 7.5 feet to 9.0 feet, and the sandy silt, at a depth of about 11 feet to 12 feet to be the sources of groundwater in the monitoring wells. The groundwater is considered to be confined.

The groundwater gradient was evaluated by triangulation of stabilized depth-to-groundwater in the 3 wells on April 19 and May 5, 1993 (see Figures 7 and 8 and Tables 8 and 9). On these dates, groundwater flow direction was northerly and north-northwest and with gradients of .0031 and .0025 feet per foot, respectively. The variability in flow direction and gradient may be due to well development, as the wells were developed on April 21 and 22, 1993.

On May 5, 1993, the average groundwater elevation among the 3 wells decreased .22 feet as compared to the average elevation calculated for April 19, 1993 (see Table 9).

The probable source for contamination to groundwater, the former fuel tanks, were up and cross-gradient and within about 10 feet of groundwater monitoring well MW-1 on April 19 and May 5, 1993. Well MW-3 was upgradient and cross-gradient of the location of the former fuel tanks on those dates, respectively, and well MW-2 was upgradient on both dates.

Depth-to-groundwater measurements and elevation calculations are documented in Tables 8 and 9.

4.0 SUMMARY AND CONCLUSIONS

Vadose zone soil contamination has been remediated within physical constraints present at the site. Sidewall sample VSNW-1, collected adjacent to the building's foundation and in the area of the former waste oil tank, detected TPHD and TPHG at concentrations of 980 ppm and 750 ppm, respectively; all BTEX chemicals were also detected. Sidewall samples VSNW-2, VSNE-1, and VSSE-1 detected TPHG at concentrations of 4.1 ppm, 1.4 ppm, and 1.8 ppm, respectively; some BTEX chemicals were also detected. Sidewall sample VSSW-2 detected ethylbenzene and xylenes at concentrations of .020 ppm and .024 ppm, respectively.

Soil boring soil samples detected only TPHG, ethylbenzene, and xylenes in well MW-3 at concentrations of 1.5 ppm, .0099 ppm, and .017 ppm, respectively.

Results of groundwater analyses indicate the presence of a groundwater contaminant plume beneath the site. TPHD, TPHG, and benzene were detected in wells MW-1 and MW-3 at concentrations of 460 ppb, 720 ppb, and 54 ppb; and 130 ppb, 73 ppb, and 22 ppb, respectively. Ethylbenzene and xylenes were reported in concentrations of 19 ppb and 13 ppb, respectively, in well MW-1. Benzene was reported in concentrations of 47 ppb in upgradient well MW-2 suggesting the possiblility of off-site contaminants moving onto the site from an upgradient source. ?

The groundwater flow direction on April 19 and May 5, 1993 was northerly and north-northwesterly, respectively.

The extent of vadose zone soil contamination has not been defined under the sales office building.

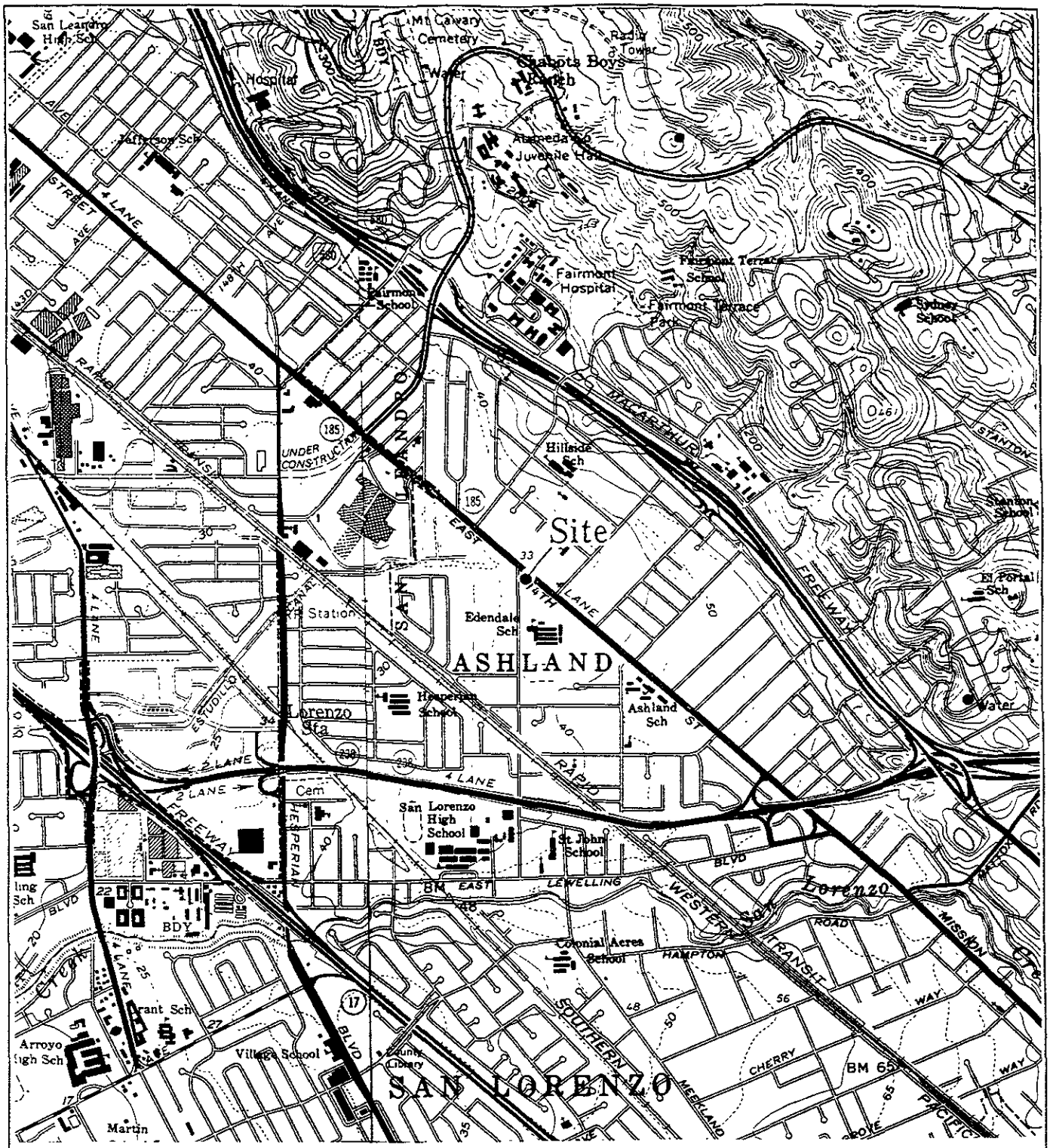
5.0 RECOMMENDATIONS

TPE recommends a further investigation of TPHD contaminated soil beneath the sales office building to assess a cost effective method to remediate the soil.

TPE recommends quarterly groundwater sampling and quarterly gradient determination of the 3 groundwater monitoring wells for a period of 1 year to establish a trend and flow direction of groundwater quality, with respect to the above hydrocarbons, beneath the site. TPE recommends that groundwater samples from wells MW-1 and MW-3 be analyzed for TPHD, TPHG, BTEX, and O&G and groundwater samples from well MW-2 be analyzed for only TPHG and BTEX. This sampling scheme will conform with the letter dated April 13, 1992 April 9, 1992 Meeting Regarding Addenda to March 6, 1992 Workplan for Mrs. Mary Petsas, 16035 East 14th Street, San Leandro, CA 94578.

6.0 STUDY LIMITATIONS

This PSAR is based on subsurface exploration, laboratory analyses of soil and groundwater samples, and subsurface geologic correlations. The chemical analytical results for the samples are considered applicable to that borehole or location from which they were collected. The soil encountered in the borings and during excavation is believed to be representative of the site; however, the soil may vary in character between observation points. The conclusions contained herein are based on the field observations, analytical data, and professional judgement which is in accordance with current standards of professional practice. No other warranty is expressed or implied. The findings and conclusions of this report are valid as of the present time; however, the passing of time could change the conditions of the subsurface due to natural processes or the influence of man. Accordingly, the findings of this report may be invalidated, wholly or partly, by changes beyond TPE's control. Therefore, this report should not be relied upon after an extended period of time without being reviewed by a Civil Engineer or Registered Geologist.



LEGEND

REFERENCE: USGS 7.5 MINUTE SERIES QUADRANGLE MAPS
SAN LEANDRO AND HAYWARD, CA
PHOTOREVISED 1980

0 2,000
SCALE IN FEET

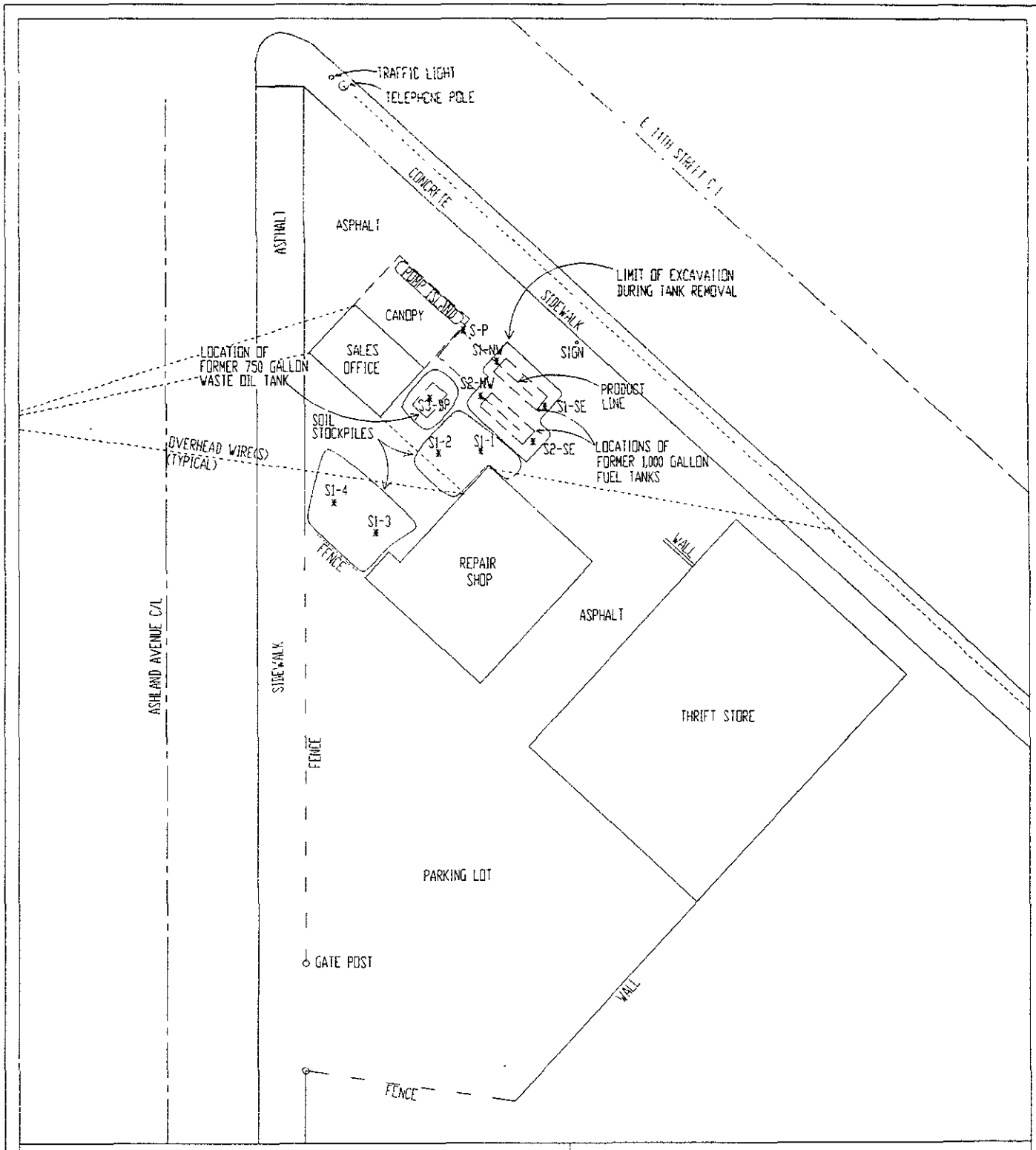
-N-

TANK PROTECT ENGINEERING

SITE VICINITY MAP

16035 EAST 14TH STREET
SAN LEANDRO, CA 94578

DATE	8/4/93
FIGURE	1
FILE #	218A-6
DRAWN BY	MAC
CHECKED BY	JVN



LEGEND

S1-NW NAME AND LOCATION OF SOIL SAMPLE

NOTE: HEIGHT OF OVERHEAD WIRES IS APPROXIMATELY 15 FEET.

-N-

0 30

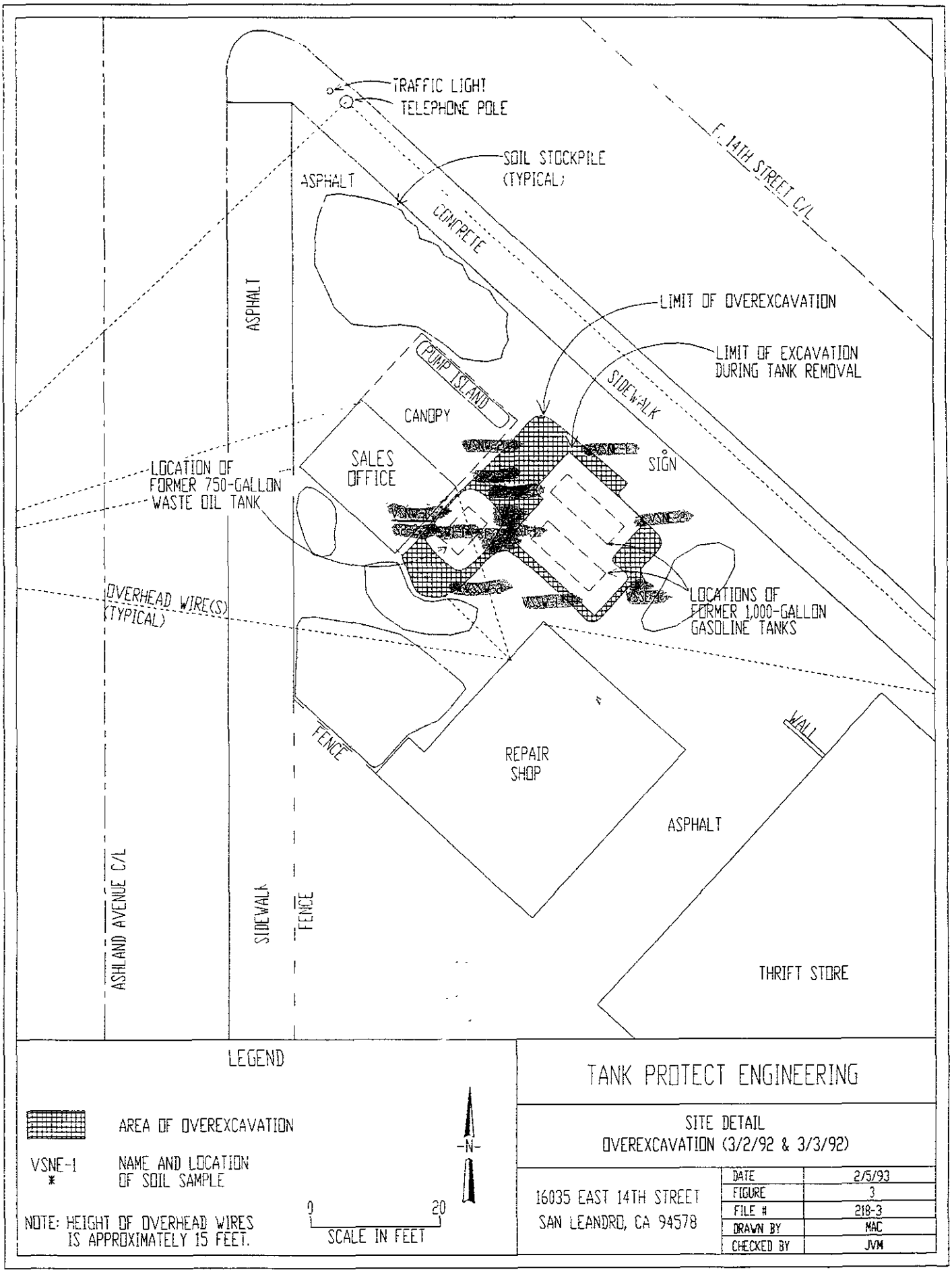
SCALE IN FEET

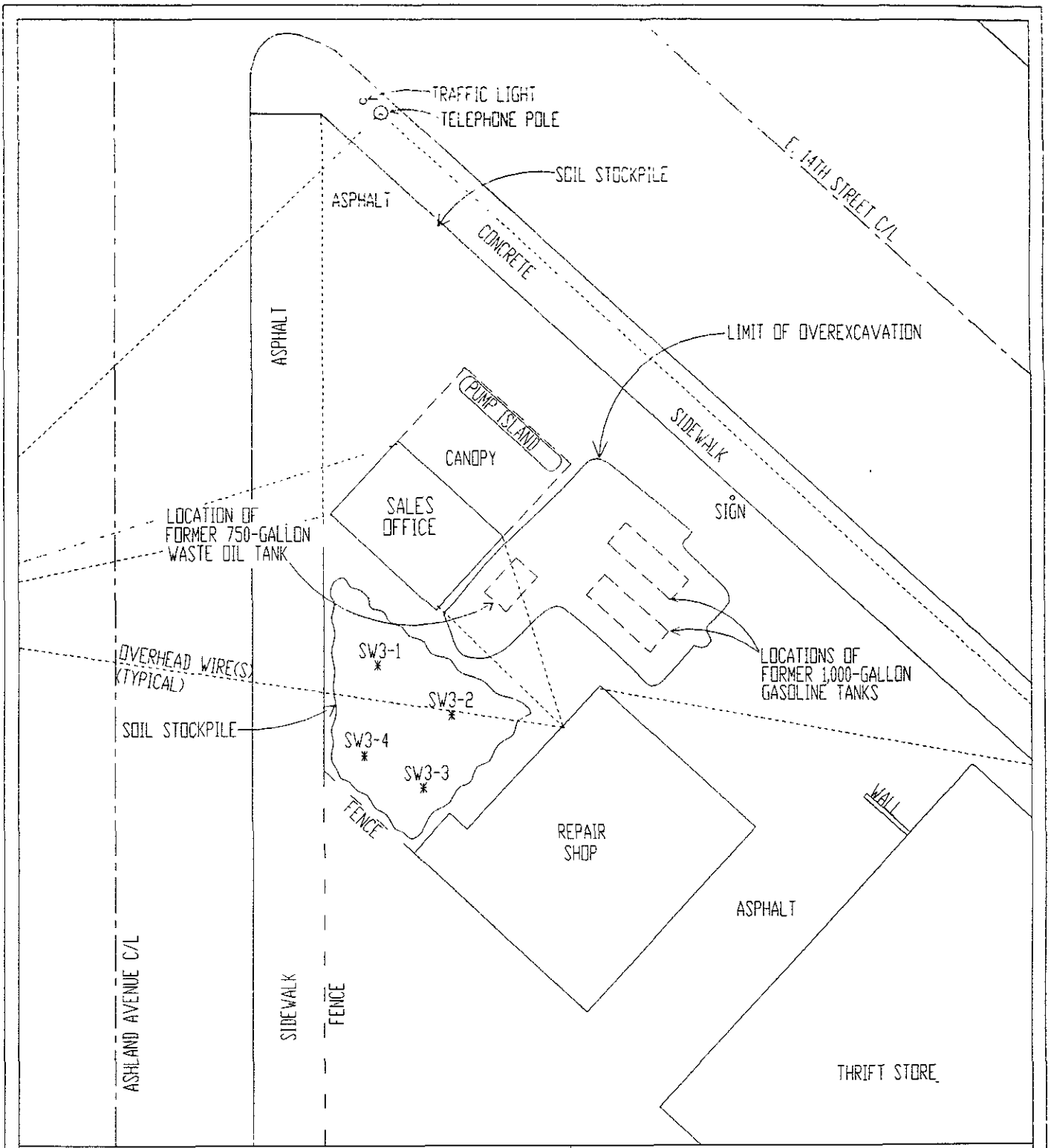
TANK PROTECT ENGINEERING

SITE DETAIL
TANK REMOVALS (2/4/92 & 2/5/92)

16035 EAST 14TH STREET
SAN LEANDRO, CA 94578

DATE	12/18/91
FIGURE	2
FILE #	218-2
DRAWN BY	MAC
CHECKED BY	JVM


TRAFFIC LIGHT
TELEPHONE POLE
SOIL STOCKPILE (TYPICAL)
ASPHALT
CONCRETE
E. 14TH STREET C/L
ASPHALT
LIMIT OF OVEREXCAVATION
LIMIT OF EXCAVATION DURING TANK REMOVAL
PUMP ISLAND
CANOPY
SIDEWALK
SALES OFFICE
SIGN
LOCATION OF FORMER 750-GALLON WASTE OIL TANK
OVERHEAD WIRE(S) (TYPICAL)
LOCATIONS OF FORMER 1,000-GALLON GASOLINE TANKS
FENCE
REPAIR SHOP
WALL
ASPHALT
ASHLAND AVENUE C/L
SIDEWALK
FENCE
THRIFT STORE
LEGEND
AREA OF OVEREXCAVATION
VSNE-1
NAME AND LOCATION OF SOIL SAMPLE
NOTE: HEIGHT OF OVERHEAD WIRES IS APPROXIMATELY 15 FEET.
N
0
20
SCALE IN FEET
TANK PROTECT ENGINEERING
SITE DETAIL
OVEREXCAVATION (3/2/92 & 3/3/92)
16035 EAST 14TH STREET
SAN LEANDRO, CA 94578
DATE 2/5/93
FIGURE 3
FILE # 218-3
DRAWN BY MAC
CHECKED BY JVM



LEGEND

SW3-1 * NAME AND LOCATION OF SOIL SAMPLE

NOTE: HEIGHT OF OVERHEAD WIRES IS APPROXIMATELY 15 FEET.

-N-

0 20

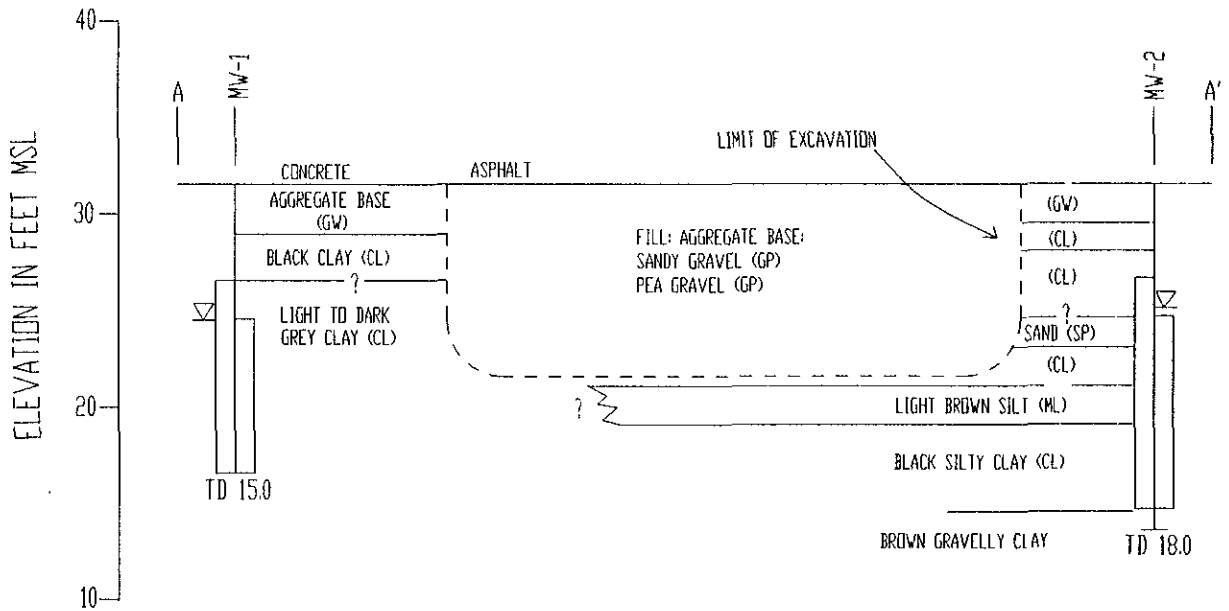
SCALE IN FEET

TANK PROTECT ENGINEERING

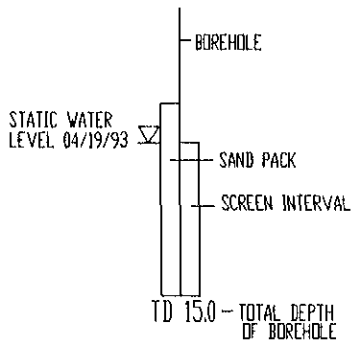
SITE DETAIL
WASTE OIL TANK STOCKPILE SOIL SAMPLING (4/14/92)

16035 EAST 14TH STREET
SAN LEANDRO, CA 94578

DATE	2/5/93
FIGURE	4
FILE #	218-4
DRAWN BY	MAC
CHECKED BY	JVM



LEGEND



0 10

SCALE IN FEET

NO VERTICAL EXAGGERATION

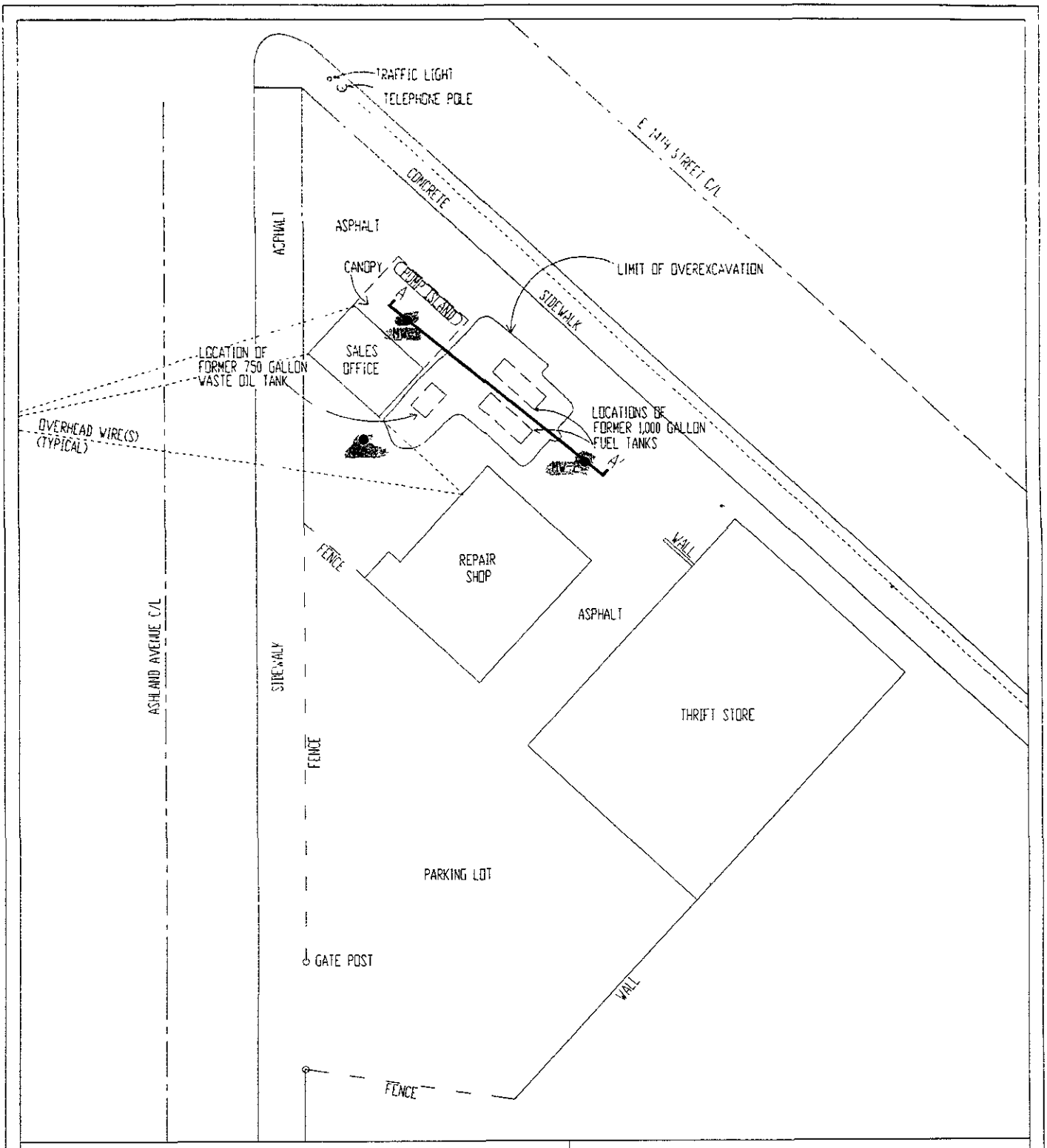
NOTE: SEE FIGURE 6 FOR LOCATION OF CROSS SECTION

TANK PROTECT ENGINEERING

GEOLOGIC CROSS SECTION A-A'

16035 EAST 14TH STREET
SAN LEANDRO, CA 94578

DATE	4/19/93
FIGURE	5
FILE #	218
DRAWN BY	LHH
CHECKED BY	JVM



LEGEND

MW-1 ● NAME AND LOCATION OF GROUNDWATER MONITORING WELL

A A' LOCATION OF GEOLOGIC CROSS SECTION

NOTE: HEIGHT OF OVERHEAD WIRES IS APPROXIMATELY 15 FEET.

-N-

0 30

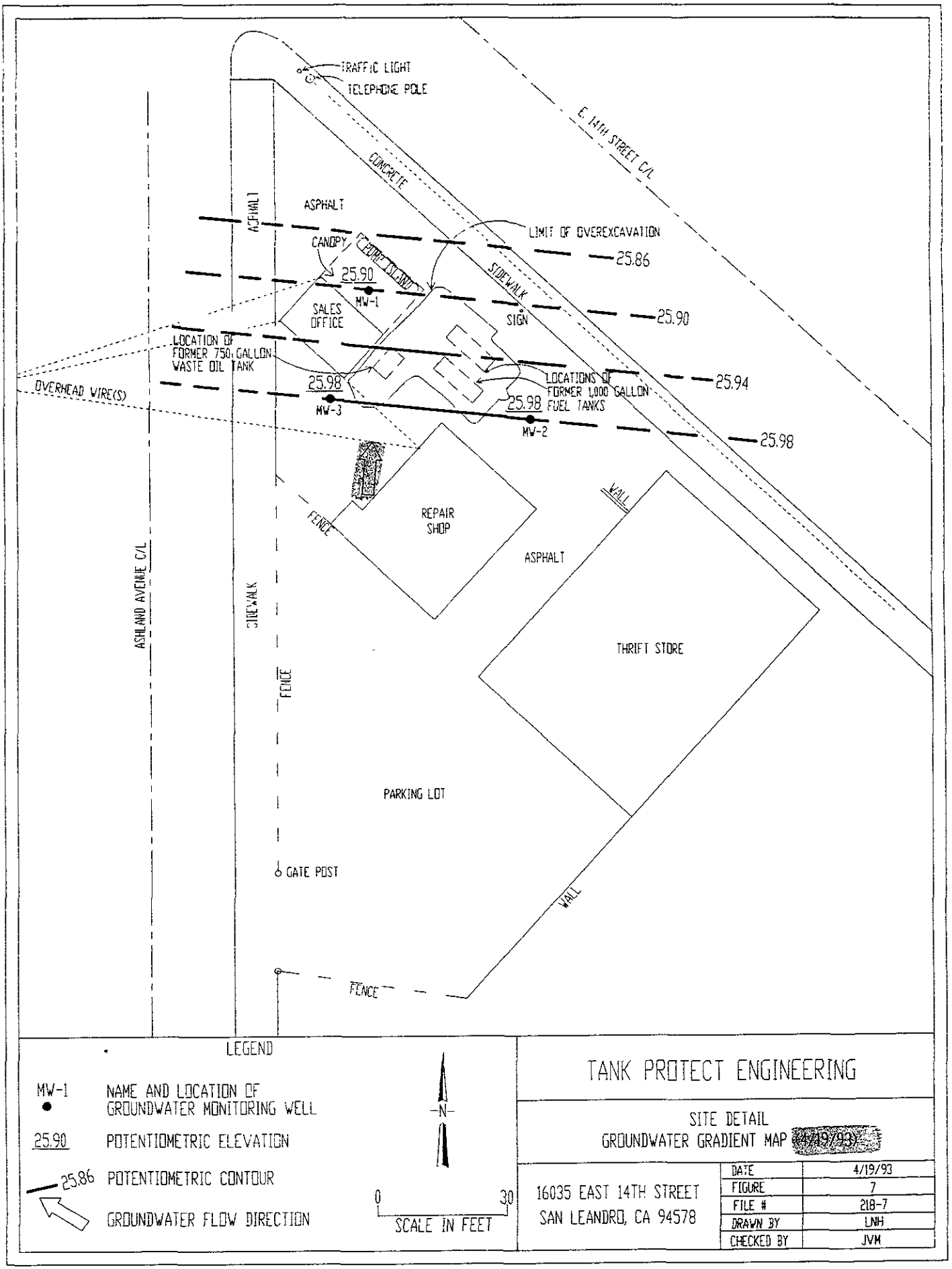
SCALE IN FEET

TANK PROTECT ENGINEERING

SITE DETAIL
LOCATION OF CROSS SECTION A-A'

16035 EAST 14TH STREET
SAN LEANDRO, CA 94578

DATE	4/16/93
FIGURE	6
FILE #	218-5
DRAWN BY	LNH
CHECKED BY	JVM

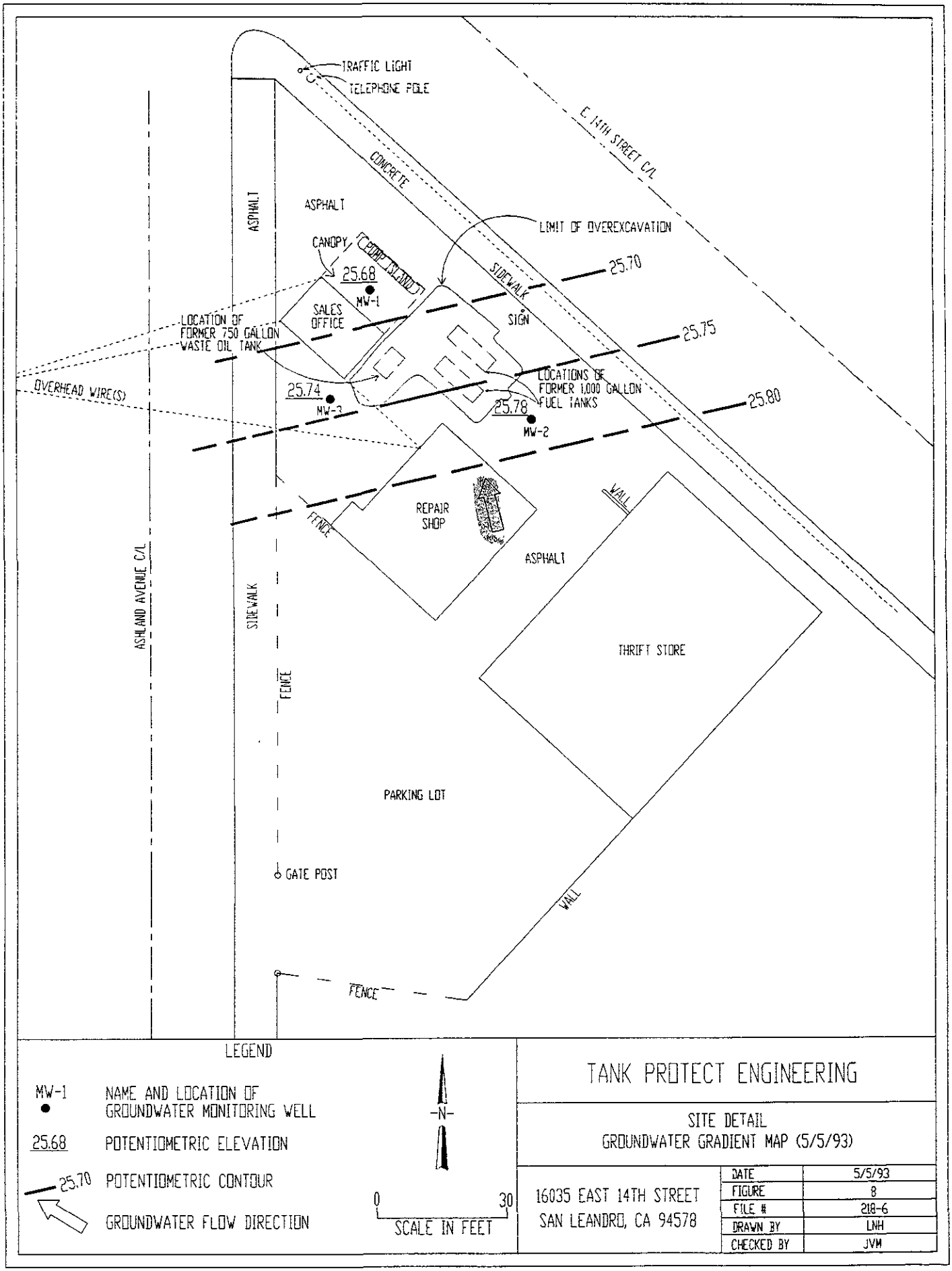


TANK PROTECT ENGINEERING

SITE DETAIL
GROUNDWATER GRADIENT MAP (4/19/93)

16035 EAST 14TH STREET
SAN LEANDRO, CA 94578

DATE	4/19/93
FIGURE	7
FILE #	218-7
DRAWN BY	LNH
CHECKED BY	JVH



TANK PROTECT ENGINEERING

SITE DETAIL
GROUNDWATER GRADIENT MAP (5/5/93)

16035 EAST 14TH STREET
SAN LEANDRO, CA 94578

DATE	5/5/93
FIGURE	8
FILE #	218-6
DRAWN BY	LNH
CHECKED BY	JVM

INITIAL UST REMOVAL

TABLE 1
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
SAMPLES COLLECTED DURING TANK REMOVAL ACTIVITIES
(ppm[1])

Sample ID Name	Date	Depth (feet)	TPHD	TPHG	Benzene	Toluene	Ethyl-Benzene	Xylenes	Oil & Grease
S1-SE	02/05/92	8.5	NA[2]	220	<.048	.19	1.9	1.1	NA
S2-SE	02/05/92	8.5	NA	330	<.048	.39	1.8	3.6	NA
S1-NW	02/05/92	8.5	NA	660	<.048	.59	9.1	33	NA
S2-NW	02/05/92	8.5	NA	880	<.24	<.66	17	55	NA
waste oil UST S3-BP[3]	02/05/92	8.5	950	1,300	3.2	39	14	78	54
S-P	02/05/92	1.5	NA	.72	<.005	<.0066	<.005	<.03	NA
S1-1, 2, 3, 4	02/05/92	---	NA	160	<.048	<.13	.87	3.3	NA

1 PARTS PER MILLION

2 NOT ANALYZED

3 ALSO ANALYZED FOR VOLATILE ORGANICS BY EPA METHOD 8010 AND SELECTED METALS; NO VOLATILE ORGANICS WERE DETECTED. CHROMIUM, LEAD, NICKEL AND ZINC WERE DETECTED AT CONCENTRATIONS OF 35 ppm, 10 ppm, 46 ppm AND 57 ppm, RESPECTIVELY

TABLE 2
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
SAMPLES COLLECTED DURING EXCAVATION ACTIVITIES
(ppm[1])

Sample ID Name	Date	Depth (feet)	TPHD	TPHG	Benzene	Toluene	Ethyl-Benzene	Xylenes	Oil & Grease
VSNW1[2]	03/02/92	7.5	980	750	2.1	31	18	67	<50
SW1-(1-2) S2-(1-2)[3]	03/02/92	5.0-7.0	1,700	260	.610	3.9	8.3	30	230
VSNW2	03/03/92	7.0	NA[4]	4.1	.0086	<.0050	.054	.028	NA
VSSW1	03/03/92	7.0	NA	<.50	<.0050	<.0050	<.0050	<.015	NA
VSSW2	03/03/92	7.0	<1.0	<.50	<.0050	<.0050	.020	.024	<50
VSNE1	03/03/92	7.0	NA	1.4	<.0050	<.0050	<.0050	.029	NA
VSNE2	03/03/92	7.0	NA	<.50	<.0050	<.0050	<.0050	<.015	NA
VSSE1	03/03/92	7.0	NA	1.8	<.0050	<.0050	<.0050	.024	NA
S1-(1-4[5])	03/03/92	5.0-7.5	NA	89	<.022	.140	1.2	1.8	NA

1 PARTS PER MILLION

2 ALSO ANALYZED BY EPA METHOD 8270; ALL RESULTS WERE NONDETECTABLE AT THE REPORTING LIMIT.

3 ALSO ANALYZED FOR SELECTED METALS; SEE TABLE 3.

4 NOT ANALYZED

5 ALSO ANALYZED FOR ORGANIC LEAD BY THE DHS METHOD; NO ORGANIC LEAD WAS DETECTED AT A REPORTING LIMIT OF 2.5 ppm.

TABLE 3
SUMMARY OF SOIL SAMPLE
ANALYTICAL RESULTS FOR METALS
(ppm[1])

Sample ID Name	Date	Cadmium	Chromium	Lead	Nickel	Zinc
VSNW-1	03/02/92	<.250	45	11	62	63
SW1-(1-2) S2-(1-2)	03/02/92	<.250	26	48	30	120
VSSW-2	03/03/92	<.250	33	5	42	39

[1] PARTS PER MILLION

TABLE 4
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS OF
TOXICITY CHARACTERISTIC LEACHING PROCEDURE, WASTE OIL STOCKPILE
(ppm[1])

Sample ID Name	Date	Depth (feet)	TPHG	Benzene	Toluene	Ethyl-Benzene	Xylenes
SW3-(1-4)[2]	04/14/92	1.5	< .600	.0077	.0067	< .006	.023

1 PARTS PER MILLION

2 ALSO ANALYZED FOR SOLUBLE METALS (SEE TABLE 5) AND FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL. NO MOTOR OIL WAS DETECTED AT REPORTING LIMIT OF 1.0 ppm.

TABLE 5
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS OF WASTE EXTRACTION TEST, WASTE OIL STOCKPILE FOR CAM 17 METALS
(ppm[1])

Sample Name is SW3-(1-4)		
ANALYTE	DETECTION LIMIT	ANALYSIS RESULT
Antimony	.270	<.270
Arsenic	.0050	.110
Barium	1	1.8
Beryllium	.005	<.005
Cadmium	.010	<.010
Chromium	.050	<.050
Cobalt	.500	<.500
Copper	.200	.200
Lead	.100	.350
Mercury	.0020	<.0020
Molybdenum	1	<1
Nickel	.300	<.300
Selenium	.0050	<.0050
Silver	.010	<.010
Thallium	.150	<.150
Vanadium	.200	.200
Zinc	.050	.650

1 PARTS PER MILLION

TABLE 6
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
SAMPLES COLLECTED FROM SOIL BORINGS
(ppm[1])

Sample ID Name	Date	Depth (feet)	TPHD	TPHG	Benzene	Toluene	Ethyl-Benzene	Xylenes	Oil & Grease
MW-1	04/16/93	5.0	<1.0	<.500	<.0050	<.0050	<.0050	<.015	<50
MW-2	04/16/93	5.0	NA[2]	<.500	<.0050	<.0050	<.0050	<.015	NA
MW-3	04/16/93	5.0	<1.0	1.5	<.0050	<.0050	.0099	.017	<50

1 PARTS PER MILLION

2 NOT ANALYZED

TABLE 7
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS
(ppb[1])

Sample ID Name	Date	TPHD	TPHG	Benzene	Toluene	Ethyl-Benzene	Xylenes	Oil & Grease
MW-1	05/05/93	460	720	54	<1.5	19	13	<1,000[2]
MW-2	05/05/93	NA[3]	<50	47	<0.50	<0.87	<1.5	NA
MW-3	05/05/93	130	73	22	<0.50	<0.87	<1.5	<1,000[2]
MW-4[4]	05/05/93	NA	<50	<0.50	<0.50	<0.50	<1.5	NA

1 PARTS PER BILLION

2 WELL SAMPLED ON 5/7/93

3 NOT ANALYZED

4 TRIP BLANK

TABLE 8
GROUNDWATER ELEVATION

Well Name	Date	Elevation TOC[1] (feet MSL[2])	Depth-to-Water From TOC (feet)	Groundwater Elevation (feet MSL)
MW-1	04/19/93	32.72	6.82	25.90
	05/05/93		7.04	25.68
MW-2	04/19/93	32.40	6.42	25.98
	05/05/93		6.62	25.78
MW-3	04/19/93	32.56	6.58	25.98
	05/05/93		6.82	25.74

1 TOP OF CASING

2 MEAN SEA LEVEL

TABLE 9
GROUNDWATER ELEVATION AND GRADIENT DATA

Date	Average Groundwater Elevation (feet MSL[1])	Change in Average Groundwater Elevation (feet)	Groundwater Gradient	Flow Direction
04/19/93	25.95		0.0031	N
05/05/93	25.73	-0.22	0.0025	NW

1 MEAN SEA LEVEL

APPENDIX A

ALVISO INDEPENDENT OIL, INC., STATE MANIFESTS

ALVISO INDEPENDENT OIL, INC.
P.O. Box 184
ALVISO, CALIFORNIA 95002
(408) 262-2715

E.P.A. ID.# CAD980695340
STATE MANAFEST DOCUMENT NUMBER 9155447

CUSTOMER'S ORDER NO.	PHONE	DATE
510	429-8088	3-3 1992

NAME TANK PROTECT ENGINEERING
ADDRESS 6035 E 44TH

CASH	C.O.D.	CHARGE	ON ACCT.	MDSE RET'D.	PAID OUT
2821					

420	GAL WATER & TRACES	GAS	315.00

Destination
Demenno Kerdoon
2000 Alameda
Compton, CA 90222

TAX

SOLD BY Larry Rosa RECEIVED BY

TOTAL 315.00

All claims and returned goods MUST be accompanied by this bill.

Thank You

7591

ALVISO INDEPENDENT OIL, INC.

P O. Box 184
ALVISO, CALIFORNIA 95002
(408) 262-2715

E.P.A ID.# **CAD980695340**

STATE MANAFEST DOCUMENT NUMBER 91554312

CUSTOMER'S ORDER NO.	PHONE	DATE
	510 429-8088	3-4 1992

NAME: TANK PROTECT ENGINEERING

ADDRESS: 2831 WHIPPLE RD UNION CITY

CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RET'D	PAID OUT	
						94587

1000	GAL WATER W/TRACES OF GAS		750.00
	Destination Demenno Kerdoon 2000 Alameda Compton CA 90222	TAX	
SOLD BY	RECEIVED BY	TOTAL	750.00
Barry Sanders	Santeandrew Texas		

All claims and returned goods MUST be accompanied by this bill.

Thank You

7597

APPENDIX B

SAMPLE HANDLING PROCEDURES

APPENDIX B

SAMPLE HANDLING PROCEDURES

Soil and groundwater samples will be packaged carefully to avoid breakage or contamination, and will be delivered to the laboratory in an iced cooler. The following sample packaging requirements will be followed.

- Sample bottle/sleeve lids will not be mixed. All sample lids will stay with the original containers and have custody seals affixed to them.

- Samples will be secured in coolers to maintain custody, control temperature, and prevent breakage during transportation to the laboratory.

- A chain-of-custody form will be completed for all samples and accompany the sample cooler to the laboratory.

- Ice, blue ice, or dry ice (dry ice will be used for preserving soil samples collected for the Alameda County Water District) will be used to cool samples during transport to the laboratory.

- Each sample will be identified by affixing a pressure sensitive, gummed label, or standardized tag on the container(s). This label will contain the site identification, sample identification number, date and time of sample collection, and the collector's initials.

- Soil samples collected in brass tubes will be preserved by covering the ends with teflon tape and capped with plastic end caps. The tubes will be labeled, sealed in quart size bags, and placed in an iced-cooler for transport to the laboratory.

All groundwater sample containers will be precleaned and will be obtained from a State Department of Health Services certified analytical laboratory.

Sample Control/Chain-of-Custody: All field personnel will refer to this work plan to verify the methods to be employed during sample collection. All sample gathering activities will be recorded in the site log book; all sample transfers will be documented in the site log book; samples are to be identified with TPE labels and all sample

bottles are to be custody-sealed. All information is to be recorded in waterproof ink. All TPE field personnel are personally responsible for sample collection and the care and custody of collected samples until the samples are transferred or properly dispatched.

The custody record will be completed by the field technician who has been designated by the TPE project manager as being responsible for sample shipment to the appropriate laboratory. The custody record will include, among other things, the following information: site identification, name of person collecting the samples, date and time samples were collected, type of sampling conducted (composite/grab), location of sampling station, number and type of containers used, and signature of the TPE person relinquishing samples to a non-TPE person with the date and time of transfer noted. The relinquishing individual will also put all the specific shipping data on the custody record.

Site log books will be maintained by a designated TPE field employee to record, for each sample, site identification, sampling locations, station numbers, dates, times, sampler's name, designation of the samples as a grab or composite, notation of the type of sample (e.g. groundwater, soil boring, etc.), preservatives used, on-site measurement data, and other observations or remarks.

APPENDIX C

CERTIFIED ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

February 13, 1992

Mr. Marc Zomorodi
Tank Protect Engineering
2821 Whipple Road
Union City, California 94587

Dear Mr. Zomorodi:

Trace Analysis Laboratory received ten soil samples on February 6, 1992 for your Project No. 218A-020692, 16035 East 14th Street, San Leandro, CA (our custody log number 1768).

These samples were composited and analyzed according to your chain of custody. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Jennifer Pekol
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard. #8 • Hayward. California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 1768
DATE SAMPLED: 02/05/92
DATE RECEIVED: 02/06/92
DATE EXTRACTED: 02/07/92
DATE ANALYZED: 02/12/92
DATE REPORTED: 02/13/92

CUSTOMER: Tank Protect Engineering

REQUESTER: Marc Zomorodi

PROJECT: No. 218A-020692, 16035 East 14th Street, San Leandro, CA

Sample Type: Soil

Method and Constituent:	Units	S3-BP Concentration	S3-BP Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:					
Total Petroleum Hydrocarbons as Diesel	ug/kg	950,000	8,000	ND	1,000

QC Summary:

% Recovery: 103*
% RPD: 24

Concentrations reported as ND were not detected at or above the reporting limit.

Sample, S3-BP contains compounds eluting earlier than the diesel standard.

* The Recovery is for the Laboratory Control Sample, due to the high concentration in the spiked sample.

LOG NUMBER: 1768
DATE SAMPLED: 02/05/92
DATE RECEIVED: 02/06/92
DATE EXTRACTED: 02/06/92
DATE ANALYZED: 02/11/92
DATE REPORTED: 02/13/92
PAGE: Two

Sample Type: Soil

Method and Constituent:	Units	Composite of S1-1, S1-2, S1-3 and S1-4 Concentration	Composite of S1-1, S1-2, S1-3 and S1-4 Reporting Limit	S1-NW Concentration	S1-NW Reporting Limit	S1-SE Concentration	S1-SE Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/kg	160,000	1,300	660,000	1,300	220,000	1,300
EPA Method 8020 for:							
Benzene	ug/kg	ND	48	ND	48	ND	48
Toluene	ug/kg	ND	130	590	130	190	130
Ethylbenzene	ug/kg	870	92	9,100	92	1,900	92
Xylenes	ug/kg	3,300	600	33,000	600	1,100	600

Method and Constituent:	Units	S2-NW Concentration	S2-NW Reporting Limit	S2-SE Concentration	S2-SE Reporting Limit	S3-BP Concentration	S3-BP Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/kg	880,000	6,400	330,000	1,300	1,300,000	1,300
EPA Method 8020 for:							
Benzene	ug/kg	ND	240	ND	48	3,200	48
Toluene	ug/kg	ND	660	390	130	39,000	130
Ethylbenzene	ug/kg	17,000	460	1,800	92	14,000	92
Xylenes	ug/kg	55,000	3,000	3,600	600	78,000	600

Concentrations reported as ND were not detected at or above the reporting limit.

LOG NUMBER: 1768
DATE SAMPLED: 02/05/92
DATE RECEIVED: 02/06/92
DATE EXTRACTED: 02/06/92
DATE ANALYZED: 02/11/92
DATE REPORTED: 02/13/92
PAGE: Three

Sample Type: Soil

Method and Constituent:	Units	S-P Concentration	S-P Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:					
Total Petroleum Hydrocarbons as Gasoline	ug/kg	720	500	ND	500
EPA Method 8020 for:					
Benzene	ug/kg	ND	5.0	ND	5.0
Toluene	ug/kg	ND	6.6	5.3	5.0
Ethylbenzene	ug/kg	ND	5.0	ND	5.0
Xylenes	ug/kg	ND	30	ND	15

QC Summary:

% Recovery: 66
% RPD: 9.1

Concentrations reported as ND were not detected at or above the reporting limit.

LOG NUMBER: 1768
DATE SAMPLED: 02/05/92
DATE RECEIVED: 02/06/92
DATE EXTRACTED: 02/10/92
DATE ANALYZED: 02/13/92
DATE REPORTED: 02/13/92
PAGE: Four

Sample Type: Soil

Method and Constituent:	Units	S3-BP Concentration	S3-BP Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
Standard Method 5520 Hydrocarbons:					
Oil and Grease	ug/kg	54,000	50,000	ND	50,000

QC Summary:

% Recovery: 62
% RPD: 7.4

Concentrations reported as ND were not detected at or above the reporting limit.

LOG NUMBER: 1768
DATE SAMPLED: 02/05/92
DATE RECEIVED: 02/06/92
DATE EXTRACTED: 02/07/92
DATE ANALYZED: 02/08/92
DATE REPORTED: 02/13/92
PAGE: Five

Sample Type: Soil

Method and Constituent	Units	S3-BP Concentration	S3-BP Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
EPA Method 8010:					
Benzyl Chloride	ug/kg	ND	50	ND	50
Bis (2-Chloroethoxy) Methane	ug/kg	ND	50	ND	50
Bis (2-Chloroisopropyl) Ether	ug/kg	ND	50	ND	50
Bromobenzene	ug/kg	ND	50	ND	50
Bromodichloromethane	ug/kg	ND	50	ND	50
Bromoform	ug/kg	ND	50	ND	50
Bromomethane	ug/kg	ND	50	ND	50
Carbon Tetrachloride	ug/kg	ND	50	ND	50
Chloracetaldehyde	ug/kg	ND	50	ND	50
Chloral	ug/kg	ND	50	ND	50
Chlorobenzene	ug/kg	ND	50	ND	50
Chloroethane	ug/kg	ND	50	ND	50
Chloroform	ug/kg	ND	50	ND	50
1-Chlorohexane	ug/kg	ND	50	ND	50
2-Chloroethyl Vinyl Ether	ug/kg	ND	50	ND	50

Concentrations reported as ND were not detected at or above the reporting limit.

LOG NUMBER: 1768
DATE SAMPLED: 02/05/92
DATE RECEIVED: 02/06/92
DATE EXTRACTED: 02/07/92
DATE ANALYZED: 02/08/92
DATE REPORTED: 02/13/92
PAGE: Six

Sample Type: Soil

Method and Constituent	Units	S3-BP Concentration	S3-BP Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
EPA Method 8010 (Continued):					
Chloromethane	ug/kg	ND	50	ND	50
Chloromethyl Methyl Ether	ug/kg	ND	50	ND	50
Chlorotoluene	ug/kg	ND	50	ND	50
Dibromochloromethane	ug/kg	ND	50	ND	50
Dibromomethane	ug/kg	ND	50	ND	50
1,2-Dichlorobenzene	ug/kg	ND	50	ND	50
1,3-Dichlorobenzene	ug/kg	ND	50	ND	50
1,4-Dichlorobenzene	ug/kg	ND	50	ND	50
Dichlorodifluoromethane	ug/kg	ND	50	ND	50
1,1-Dichloroethane	ug/kg	ND	50	ND	50
1,2-Dichloroethane	ug/kg	ND	50	ND	50
1,1-Dichloroethylene	ug/kg	ND	50	ND	50
Trans-1,2-Dichloro-ethylene	ug/kg	ND	50	ND	50
Dichloromethane	ug/kg	ND	50	ND	50
1,2-Dichloropropane	ug/kg	ND	50	ND	50
1,3-Dichloropropylene	ug/kg	ND	50	ND	50
1,1,2,2-Tetrachloro-ethane	ug/kg	ND	50	ND	50

Concentrations reported as ND were not detected at or above the reporting limit.

LOG NUMBER: 1768
DATE SAMPLED: 02/05/92
DATE RECEIVED: 02/06/92
DATE EXTRACTED: 02/07/92
DATE ANALYZED: 02/08/92
DATE REPORTED: 02/13/92
PAGE: Seven

Sample Type: Soil

Method and Constituent	Units	S3-BP Concentration	S3-BP Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
EPA Method 8010 (Continued):					
1,1,1,2-Tetrachloroethane	ug/kg	ND	50	ND	50
Tetrachloroethylene	ug/kg	ND	50	ND	50
1,1,1-Trichloroethane	ug/kg	ND	50	ND	50
1,1,2-Trichloroethane	ug/kg	ND	50	ND	50
Trichloroethylene	ug/kg	ND	120	ND	120
Trichlorofluoromethane	ug/kg	ND	50	ND	50
Trichloropropane	ug/kg	ND	50	ND	50
Vinyl Chloride	ug/kg	ND	50	ND	50

QC Summary:

% Recovery: 106
% RPD: 25

Concentrations reported as ND were not detected at or above the reporting limit.

LOG NUMBER: 1768
DATE SAMPLED: 02/05/92
DATE RECEIVED: 02/06/92
DATE EXTRACTED: 02/11/92
DATE ANALYZED: 02/11/92 and 02/12/92
DATE REPORTED: 02/13/92
PAGE: Eight

Sample Type: Soil

Method and Constituent:	Units	S3-BP Concentration	S3-BP Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit	QC Summary % Recovery	QC Summary % RPD
EPA Method 7130:							
Cadmium	ug/kg	ND	250	ND	250	82	**
EPA Method 7190:							
Chromium	ug/kg	35,000	1,200	ND	1,200	117	0.7
EPA Method 7420:							
Lead	ug/kg	10,000	2,500	ND	2,500	75*	9.5
EPA Method 7520:							
Nickel	ug/kg	46,000	7,500	ND	7,500	112	2.4
EPA Method 7950:							
Zinc	ug/kg	57,000	1,200	ND	1,200	75	1.0

Concentrations reported as ND were not detected at or above the reporting limit.

* The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample.
** The RPD is not reportable since the sample prepared in duplicate was not detectable.

for

Louis W. DuPuis
Quality Assurance/Quality Control Manager

TANK PROTECT ENGINEERING
2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: TAL
TURNAROUND: NORMAL
P.O. #: 374

PAGE 1 OF 2

CHAIN OF CUSTODY

1768

PROJECT NO.: 018A-020692
SITE NAME & ADDRESS: 16035 EAST 14TH STREET, SAN LEANDRO, CA

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER:
LYLE THOMAS G. TRAVIS
TANK PROTECT ENGINEERING
2821 WHIPPLE ROAD, UNION CITY, CA 94587 ~~(415)~~ 510 429-8088

	ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN	OTHER
✓	S1-SE	2/5/92	10:18	✓		S1-SE @ 8.5'	BRASS TUBE	✓	✓				
✓	S2-SE		10:32			S2-SE @ 8.5'							
✓	S1-NW		10:43			S1-NW @ 8.5'							
✓	S2-NW		10:55			S2-NW @ 8.5'							
✓	S3-BP		11:10			S3-BP @ 8.5'				✓	✓	✓	✓
✓	S-P		2:42			S-P @ 1.5'							
✓	S1-1		2:47			@ STOCKPILE #1							
✓	S1-2		2:51			@ STOCKPILE #1							
✓	S1-3		2:54			@ STOCKPILE #2							

OTHER: Any for metals (Cd, Cr, Pb, Ni, Zn) CAM 17 GC/MS

4 SAMPLES → COMPOSITE

COMPOSITE

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Michael Casso	2/6/92 1:28	[signature]			
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
		[signature]			
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				Pick-up 5-Day	

soil, 1-btg, ice, Y-1

DATE: 2/6/92

TANK PROTECT ENGINEERING
2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: T.A.L.

TURNAROUND: NORMAL

P.O. #: 3744

CHAIN OF CUSTODY

PROJECT NO.	SITE NAME & ADDRESS
2BA-0206.92	16035 EAST 14th STREET SAN LEANDRO, CA

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER
LYLE THOMAS G. TRAVIS
TANK PROTECT ENGINEERING
2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	ANALYTES REQUESTED: TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER	REMARKS
S1-4	2/5/92	2:57	✓		S1-4 @ STOCKPILE #2	BRASS TUBE	✓						J COMPOSITE W/ OTHER 3 ON PREVIOUS PAGE

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Michael Cass	2/6/92 1:28				
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

DATE: 2/6/92

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

March 12, 1992

Mr. Marc Zomorodi
Tank Protect Engineering
2821 Whipple Road
Union City, California 94587

Dear Mr. Zomorodi:

Trace Analysis Laboratory received six soil samples on March 6, 1992 for your Project No. 218C-030492, 16035 E. 14th Street, San Leandro (our custody log number 1871).

These samples were composited and analyzed according to your chain of custody. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Jennifer Pekol
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 1871
DATE SAMPLED: 03/02/92 and 03/03/92
DATE RECEIVED: 03/06/92
DATE EXTRACTED: 03/11/92
DATE ANALYZED: 03/12/92
DATE REPORTED: 03/12/92

CUSTOMER: Tank Protect Engineering

REQUESTER: Marc Zomorodi

PROJECT: 218C-030492, 16035 E. 14th Street, San Leandro, California

		Sample Type: Soil					
		Composite of SW1-1, SW1-2, S2-1 and S2-2		VSNW-1		VSSW-2	
Method and Constituent:	Units	Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Diesel	ug/kg	1,700,000	9,000	980,000	1,000	ND	1,000

		Method Blank	
Method and Constituent:	Units	Concentration	Reporting Limit
DHS Method:			
Total Petroleum Hydrocarbons as Diesel	ug/kg	ND	1,000

QC Summary:

% Recovery: 99
% RPD: 0.0

Concentrations reported as ND were not detected at or above the reporting limit.

Samples, Composite of SW1-1, SW1-2, S2-1 and S2-2 and VSNW-1 contain compounds eluting earlier than the diesel standard.

LOG NUMBER: 1871
DATE SAMPLED: 03/02/92 and 03/03/92
DATE RECEIVED: 03/06/92
DATE EXTRACTED: 03/10/92
DATE ANALYZED: 03/11/92 and 03/12/92
DATE REPORTED: 03/12/92
PAGE: Two

Sample Type: Soil

Method and Constituent:	Units	Composite of SW1-1, SW1-2, S2-1 and S2-2 Concentration	Composite of SW1-1, SW1-2, S2-1 and S2-2 Reporting Limit	VSNW-1 Concentration	VSNW-1 Reporting Limit	VSSW-2 Concentration	VSSW-2 Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/kg	260,000	9,400	750,000	1,900	ND	500
EPA Method 8020 for:							
Benzene	ug/kg	610	220	2,100	44	ND	5.0
Toluene	ug/kg	3,900	240	31,000	48	ND	5.0
Ethylbenzene	ug/kg	8,300	940	18,000	190	20	5.0
Xylenes	ug/kg	30,000	740	67,000	150	24	15

Method and Constituent:	Units	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:			
Total Petroleum Hydrocarbons as Gasoline	ug/kg	ND	500
EPA Method 8020 for:			
Benzene	ug/kg	ND	5.0
Toluene	ug/kg	ND	5.0
Ethylbenzene	ug/kg	ND	5.0
Xylenes	ug/kg	ND	15

QC Summary:

% Recovery: 102
% RPD: 5.9

Concentrations reported as ND were not detected at or above the reporting limit.

LOG NUMBER: 1871
DATE SAMPLED: 03/02/92 and 03/03/92
DATE RECEIVED: 03/06/92
DATE EXTRACTED: 03/11/92
DATE ANALYZED: 03/12/92
DATE REPORTED: 03/12/92
PAGE: Three

Sample Type: Soil

Method and Constituent:	Units	Composite of SW1-1, SW1-2, S2-1 and S2-2 Concentration	Composite of SW1-1, SW1-2, S2-1 and S2-2 Reporting Limit	VSNW-1 Concentration	VSNW-1 Reporting Limit	VSSW-2 Concentration	VSSW-2 Reporting Limit
Standard Method 5520EF Hydrocarbons:							
Oil and Grease	ug/kg	230,000	50,000	ND	50,000	ND	50,000

Method and Constituent:	Units	Method Blank Concentration	Method Blank Reporting Limit
Standard Method 5520EF Hydrocarbons:			
Oil and Grease	ug/kg	ND	50,000

QC Summary:

% Recovery: 82
% RPD: 0.0

Concentrations reported as ND were not detected at or above the reporting limit.

LOG NUMBER: 1871
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/06/92
DATE EXTRACTED: 03/06/92
DATE ANALYZED: 03/11/92
DATE REPORTED: 03/12/92
PAGE: Four

Sample Type: Soil

Method and Constituent:	Units	VSNW-1 Concentration	VSNW-1 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
EPA Method 8270:					
N-Nitrosodimethylamine	ug/kg	ND	330	ND	330
Phenol	ug/kg	ND	330	ND	330
Bis (-2-Chloroethyl) ether	ug/kg	ND	330	ND	330
2-Chlorophenol	ug/kg	ND	330	ND	330
1,3-Dichlorobenzene	ug/kg	ND	330	ND	330
1,4-Dichlorobenzene	ug/kg	ND	330	ND	330
1,2-Dichlorobenzene	ug/kg	ND	330	ND	330
N-Nitroso-Di-N-Propylamine	ug/kg	ND	330	ND	330
Hexachloroethane	ug/kg	ND	330	ND	330
Nitrobenzene	ug/kg	ND	330	ND	330
Isophorone	ug/kg	ND	330	ND	330
2-Nitrophenol	ug/kg	ND	330	ND	330
2,4-Dimethylphenol	ug/kg	ND	330	ND	330
Bis(-2-Chloroethoxy) Methane	ug/kg	ND	330	ND	330
2,4-Dichlorophenol	ug/kg	ND	330	ND	330
1,2,4-Trichlorobenzene	ug/kg	ND	330	ND	330
Naphthalene	ug/kg	ND	330	ND	330

Concentrations reported as ND were not detected at or above the reporting limit.

LOG NUMBER: 1871
DATE SAMPLED: 03/02/92
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DATE EXTRACTED: 03/06/92
DATE ANALYZED: 03/11/92
DATE REPORTED: 03/12/92
PAGE: Five

Sample Type: Soil

Method and Constituent	Units	VSNW-1 Concentration	VSNW-1 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
EPA Method 8270 (Continued):					
Hexachlorobutadiene	ug/kg	ND	330	ND	330
4-Chloro-3-Methyl-phenol	ug/kg	ND	330	ND	330
Hexachlorocyclo-pentadiene	ug/kg	ND	330	ND	330
2,4,6-Trichlorophenol	ug/kg	ND	330	ND	330
2-Chloronaphthalene	ug/kg	ND	330	ND	330
Dimethyl Phthalate	ug/kg	ND	330	ND	330
Acenaphthylene	ug/kg	ND	330	ND	330
Acenaphthene	ug/kg	ND	330	ND	330
2,4-Dinitrophenol	ug/kg	ND	330	ND	330
4-Nitrophenol	ug/kg	ND	330	ND	330
2,4-Dinitrotoluene	ug/kg	ND	330	ND	330
2,6-Dinitrotoluene	ug/kg	ND	330	ND	330
Diethylphthalate	ug/kg	ND	330	ND	330
4-Chlorophenylphenyl Ether	ug/kg	ND	330	ND	330
Fluorene	ug/kg	ND	330	ND	330
N-Nitrosodiphenylamine	ug/kg	ND	330	ND	330
4-Bromophenylphenyl Ether	ug/kg	ND	330	ND	330
Hexachlorobenzene	ug/kg	ND	330	ND	330
Pentachlorophenol	ug/kg	ND	330	ND	330
Phenanthrene	ug/kg	ND	330	ND	330
Anthracene	ug/kg	ND	330	ND	330

Concentrations reported as ND were not detected at or above the reporting limit.

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DATE REPORTED: 03/12/92
PAGE: Six

Sample Type: Soil

Method and Constituent:	Units	VSNW-1 Concentration	VSNW-1 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
EPA Method 8270 (Continued):					
Di-N-Butylphthalate	ug/kg	ND	330	ND	330
Fluoranthene	ug/kg	ND	330	ND	330
Benzidine	ug/kg	ND	330	ND	330
Pyrene	ug/kg	ND	330	ND	330
Butylbenzylphthalate	ug/kg	ND	330	ND	330
3,3'-Dichlorobenzidine	ug/kg	ND	330	ND	330
Benzo(a)Anthracene	ug/kg	ND	330	ND	330
Bis(2-Ethylhexyl) Phthalate	ug/kg	ND	330	ND	330
Chrysene	ug/kg	ND	330	ND	330
Di-N-Octyl Phthalate	ug/kg	ND	330	ND	330
Benzo(b)Fluoranthene	ug/kg	ND	330	ND	330
Benzo(k)Fluoranthene	ug/kg	ND	330	ND	330
Benzo(a)Pyrene	ug/kg	ND	330	ND	330
Indeno(1,2,3-cd)Pyrene	ug/kg	ND	330	ND	330
Dibenzo(a,h)Anthracene	ug/kg	ND	330	ND	330
Benzo(g,h,i)Perylene	ug/kg	ND	330	ND	330
Surrogate % Recovery:					
Pentafluorophenol		77		60	
4-Fluoroaniline		84		49	
Decafluorobiphenyl		111		128	

Concentrations reported as ND were not detected at or above the reporting limit.

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PAGE: Seven

Sample Type: Soil

Method and Constituent:	Units	Composite of SW1-1, SW1-2, S2-1 and S2-2		VSNW-1		VSSW-2	
		Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit
EPA Method 7130:							
Cadmium	ug/kg	ND	250	ND	250	ND	250
EPA Method 7190:							
Chromium	ug/kg	26,000	1,200	45,000	1,200	33,000	1,200
EPA Method 7420:							
Lead	ug/kg	48,000	2,500	11,000	2,500	5,000	2,500
EPA Method 7520:							
Nickel	ug/kg	30,000	7,500	62,000	7,500	42,000	7,500
EPA Method 7950:							
Zinc	ug/kg	120,000	1,200	63,000	1,200	39,000	1,200

Concentrations reported as ND were not detected at or above the reporting limit.

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PAGE: Eight

Sample Type: Soil

Method and Constituent:	Units	Method Blank Concentration	Method Blank Reporting Limit	QC Summary % Recovery	QC Summary % RPD
EPA Method 7130:					
Cadmium	ug/kg	ND	250	80	*
EPA Method 7190:					
Chromium	ug/kg	ND	1,200	78	2.3
EPA Method 7420:					
Lead	ug/kg	ND	2,500	65	0.0
EPA Method 7520:					
Nickel	ug/kg	ND	7,500	84	1.8
EPA Method 7950:					
Zinc	ug/kg	ND	1,200	100	0.2

Concentrations reported as ND were not detected at or above the reporting limit.

* The RPD is not reportable since the sample prepared in duplicate was not detectable.

Louis W. DuPuis
Quality Assurance/Quality Control Manager

TANK PROTECT ENGINEERING
2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: TAL

TURNAROUND: Normal

P.O. #:

CHAIN OF CUSTODY

PAGE ____ OF ____

1871

PROJECT NO.	SITE NAME & ADDRESS
218C-0304.2	16035 E 4th Street S.L

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER
Ahmad Shah Tank Protect Engineering
2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	ANALYTES REQUESTED: TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	8270	OTHER AA FOR METALS (Cd, Cr, Pb, Ni, Zn)	REMARKS
													initiate from 3/5/92 jf
VSNW-1	03/02	2:25	✓		VSNW-1 @ 7.5' From G.L	BRSS TUBE	✓	✓	✓	✓	✓	✓	For Oil and Grease Use D&F or E+F
VSSW-2	03/02	4:30	✓		VSSW-2 @ 7' From G.L		✓	✓	✓	✓		✓	
SW1-1	03/02	1:25	✓		SW1-1 @ 6' From G.L		✓	✓	✓	✓		✓	
SW1-2	03/02	1:35	✓		SW1-2 @ 5' From G.L		✓	✓	✓	✓		✓	
S2-1	03/02	3:20	✓		S2-1 @ 7' From G.L		✓	✓	✓	✓		✓	COMPOSITE
S2-2	03/02	3:30	✓		S2-2 @ 7' From G.L		✓	✓	✓	✓		✓	
													pick up Soil 1-lot ea y-3 on ice

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Ahmad Sh	03/06 1:25				
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		for TAL	3/6/92 1:35pm		

DATE: 03/03/92

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

March 23, 1992

Mr. Marc Zomorodi
Tank Protect Engineering
2821 Whipple Road
Union City, California 94587

Dear Mr. Zomorodi:

Trace Analysis Laboratory received nine soil samples on March 6, 1992 for your Project No. 218C-030492, 16035 E. 14th Street, San Leandro (our custody log number 1872A).

Four of these samples were composited and analyzed for Organic Lead. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Jennifer Pekol
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 1872A
DATE SAMPLED: 03/03/92
DATE RECEIVED: 03/06/92
DATE EXTRACTED: 03/20/92
DATE ANALYZED: 03/23/92
DATE REPORTED: 03/23/92

CUSTOMER: Tank Protect Engineering

REQUESTER: Marc Zomorodi

PROJECT: No. 218C-030492, 16035 E. 14th Street, San Leandro

Sample Type: Soil

Method and Constituent:	Units	Composite of S1-1, S1-2, S1-3 and S1-4 Concentration	Composite of S1-1, S1-2, S1-3 and S1-4 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:					
Organic Lead	ug/kg	ND	2,500	ND	2,500

QC Summary:

% Recovery: 80
% RPD: *

Concentrations reported as ND were not detected at or above the reporting limit.

The RPD is not reportable since the sample prepared in duplicate was not detectable.

for

Louis W. DuPuis
Quality Assurance/Quality Control Manager

TANK PROTECT ENGINEERING

2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: TAL

TURNAROUND: Normal

P.O. #: 0401

CHAIN OF CUSTODY

PAGE 1 OF 1

1872A

PROJECT NO.	SITE NAME & ADDRESS
218C-030492	16035 E 14th Street S.L

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER
Ahmad Shah Tank protect Engineering
2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CON-TAINER	ANALYTES REQUESTED: TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER	organic Pb - 1872	REMARKS
VSNW-2	03/03	3:35	✓		VSNW-2 @ 7' From G.L	Brass tube	✓	✓						1872A: initiate organic Pb for the composite on a 2-day TAT per Ahmad 3/19/92
VSNE-1	03/03	3:55	✓		VSNE-1 @ 7' From G.L		✓	✓						
VSNE-2	03/03	4:05	✓		VSNE-2 @ 7' From G.L		✓	✓						
VSSE-1	03/03	4:10	✓		VSSE-1 @ 7' From G.L		✓	✓						
VSSW-1	03/03	4:20	✓		VSSW-1 @ 7' From G.L		✓	✓						
S1-1	03/03	9:35	✓		S1-1 @ 5' From G.L		✓	✓				X		pick up soil 1-lot on ice Y-3
S1-2	03/03	9:40	✓		S1-2 @ 6' From G.L		✓	✓				X		COMPOSITE
S1-3	03/03	9:50	✓		S1-3 @ 7' From G.L		✓	✓				X		
S1-4	03/03	9:55	✓		S1-4 @ 7.5'		✓	✓				X		

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Ahmad Shah	03/06/1:25				
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		TAL Jennifer Pekol	3/6/92 1:25pm		

DATE: 03/03/92

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

March 12, 1992

Mr. Marc Zomorodi
Tank Protect Engineering
2821 Whipple Road
Union City, California 94587

Dear Mr. Zomorodi:

Trace Analysis Laboratory received nine soil samples on March 6, 1992 for your Project No. 218C-030492, 16035 E. 14th Street, San Leandro (our custody log number 1872).

These samples were composited according to your chain of custody and analyzed for Total Petroleum Hydrocarbons as Gasoline, and Benzene, Toluene, Ethylbenzene and Xylenes. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Jennifer Pekol
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 1872
DATE SAMPLED: 03/03/92
DATE RECEIVED: 03/06/92
DATE EXTRACTED: 03/10/92
DATE ANALYZED: 03/11/92 and 03/12/92
DATE REPORTED: 03/12/92

CUSTOMER: Tank Protect Engineering

REQUESTER: Marc Zomorodi

PROJECT: 218C-030492, 16035 E. 14th Street, San Leandro

Method and Constituent:	Units	Sample Type: Soil Composite of S1-1, S1-2, S1-3 and S1-4 Concentration	 Reporting Limit	 VSNE-1 Concentration	 Reporting Limit	 VSNE-2 Concentration	 Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/kg	89,000	940	1,400	500	ND	500
EPA Method 8020 for:							
Benzene	ug/kg	ND	22	ND	5.0	ND	5.0
Toluene	ug/kg	140	24	ND	5.0	ND	5.0
Ethylbenzene	ug/kg	1,200	94	ND	5.0	ND	5.0
Xylenes	ug/kg	1,800	74	29	15	ND	15

Method and Constituent:	Units	VSNW-2 Concentration	 Reporting Limit	 VSSE-1 Concentration	 Reporting Limit	 VSSW-1 Concentration	 Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/kg	4,100	500	1,800	500	ND	500
EPA Method 8020 for:							
Benzene	ug/kg	8.6	5.0	ND	5.0	ND	5.0
Toluene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Ethylbenzene	ug/kg	54	19	ND	5.0	ND	5.0
Xylenes	ug/kg	28	15	24	15	ND	15

Concentrations reported as ND were not detected at or above the reporting limit.

LOG NUMBER: 1872
DATE SAMPLED: 03/03/92
DATE RECEIVED: 03/06/92
DATE EXTRACTED: 03/10/92
DATE ANALYZED: 03/11/92 and 03/12/92
DATE REPORTED: 03/12/92
PAGE: Two

Sample Type: Soil

Method and Constituent:	Units	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:			
Total Petroleum Hydrocarbons as Gasoline	ug/kg	ND	500
EPA Method 8020 for:			
Benzene	ug/kg	ND	5.0
Toluene	ug/kg	ND	5.0
Ethylbenzene	ug/kg	ND	5.0
Xylenes	ug/kg	ND	15

QC Summary:

% Recovery: 102
% RPD: 5.9

Concentrations reported as ND were not detected at or above the reporting limit.

Louis W. DuPuis
Quality Assurance/Quality Control Manager

TANK PROTECT ENGINEERING
2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: TAL
TURNAROUND: Normal
P.O. #: 0401

CHAIN OF CUSTODY

PAGE 1 OF 1

1872

PROJECT NO.	SITE NAME & ADDRESS
218C-030492	16035 E 14th Street S.L

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER
Ahmad Shah Tank protect Engineering
2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	ANALYTES REQUESTED: TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER	REMARKS
VSNW-2	03/03	3:35	✓		VSNW-2 @ 7' From G.L	Brass tube	✓	✓					
VSNE-1	03/03	3:55	✓		VSNE-1 @ 7' From G.L		✓	✓					
VSNE-2	03/03	4:05	✓		VSNE-2 @ 7' From G.L		✓	✓					
VSSE-1	03/03	4:10	✓		VSSE-1 @ 7' From G.L		✓	✓					
VSSW-1	03/03	4:20	✓		VSSW-1 @ 7' From G.L		✓	✓					
S1-1	03/03	9:35	✓		S1-1 @ 5' From G.L		✓	✓					pick up soil 1-int ea on ice Y-3
S1-2	03/03	9:40	✓		S1-2 @ 6' From G.L		✓	✓					COMPOSITE
S1-3	03/03	9:50	✓		S1-3 @ 7' From G.L		✓	✓					
S1-4	03/03	9:55	✓		S1-4 @ 7.5'		✓	✓					

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Ahmad Shah	03/06 1:25				
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature) TAL	Date / Time	Remarks	
			3/6/92 1:25 pm		

DATE: 03/03/92

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

April 29, 1992

Mr. Marc Zomorodi
Tank Protect Engineering
2821 Whipple Road
Union City, California 94587

Dear Mr. Zomorodi:

Trace Analysis Laboratory received four soil samples on April 15, 1992 for your Project No. 218C-041492, 16035 E. 14th Street (our custody log number 2013A).

These samples were composited and analyzed for a Waste Extraction Test for California 17 Metals. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Jennifer Pekol
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 2013A
DATE SAMPLED: 04/14/92
DATE RECEIVED: 04/15/92
DATE EXTRACTED: 04/22/92 and 04/25/92
DATE ANALYZED: 04/27/92, 04/28/92 and 04/29/92
DATE REPORTED: 04/29/92

CUSTOMER: Tank Protect Engineering

REQUESTER: Marc Zomorodi

PROJECT: No. 218C-041492, 16035 E. 14th Street

		Sample Type:	Waste Extraction Test Extract of Soil				
		Composite of SW3-1, SW3-2, SW3-3 and SW3-4		Method Blank		QC Summary	
Method and Constituent:	Units	Concentration	Reporting Limit	Concentration	Reporting Limit	% Recovery	% RPD
EPA Method 7040:							
Antimony	ug/l	ND	270	ND	270	64	**
EPA Method 7060:							
Arsenic	ug/l	110	5.0	ND	5.0	91*	12
EPA Method 7080:							
Barium	ug/l	1,800	1,000	ND	1,000	92	0.0
EPA Method 7090:							
Beryllium	ug/l	ND	5.0	ND	5.0	95	**
EPA Method 7130:							
Cadmium	ug/l	ND	10	ND	10	91	**
EPA Method 7190:							
Chromium	ug/l	ND	50	56	50	96	**
EPA Method 219.1:							
Cobalt	ug/l	ND	500	ND	500	92	**
EPA Method 7210:							
Copper	ug/l	200	200	ND	200	92	0.0
EPA Method 7420:							
Lead	ug/l	350	100	160	100	71	**

Concentrations reported as ND were not detected at or above the reporting limit.
* The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample.
** The RPD is not reportable since the sample prepared in duplicate was not detectable.

TAL Trace Analysis Laboratory, Inc.

LOG NUMBER: 2013A
DATE SAMPLED: 04/14/92
DATE RECEIVED: 04/15/92
DATE EXTRACTED: 04/22/92, 04/25/92 and 04/29/92
DATE ANALYZED: 04/27/92, 04/28/92 and 04/29/92
DATE REPORTED: 04/29/92
PAGE: Two

Waste Extraction Test

Method and Constituent:	Units	Sample Type: Extract of Soil Composite of SW3-1, SW3-2, SW3-3 and SW3-4 Concentration	 Reporting Limit	 Method Blank Concentration	 Reporting Limit	QC Summary % Recovery	 % RPD
EPA Method 7471:							
Mercury	ug/l	ND	2.0	ND	2.0	104	**
EPA Method 246.1							
Molybdenum	ug/l	ND	1,000	ND	1,000	78	**
EPA Method 7520:							
Nickel	ug/l	ND	300	ND	300	94	**
EPA Method 7741:							
Selenium	ug/l	ND	5.0	ND	5.0	68*	**
EPA Method 7760:							
Silver	ug/l	ND	10	ND	10	101*	18
EPA Method 7840:							
Thallium	ug/l	ND	150	ND	150	82	**
EPA Method 7910:							
Vanadium	ug/l	200	200	ND	200	66	**
EPA Method 7950:							
Zinc	ug/l	650	50	ND	50	94	2.0

Concentrations reported as ND were not detected at or above the reporting limit.
* The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample.
** The RPD is not reportable since the sample prepared in duplicate was not detectable.

for

Louis W. DuPuis
Quality Assurance/Quality Control Manager

TANK PROTECT ENGINEERING

2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: Trace Analysis Laboratory

TURNAROUND: Normal

P.O. #: 0382

2013A

CHAIN OF CUSTODY

Change to 10-day TAT per John Mrakovich 4/15/92

PAGE 1 OF 1

PROJECT NO.	SITE NAME & ADDRESS
218C-04192	Mary Petsas 16035 E. 14th Street San Leandro, CA

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER
Michael Cooper, TPE
2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	ANALYTES REQUESTED: TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER if Metals (STLC)	TPH-Motor Oil (TCLP)	REMARKS
SW3-1	4/14/92	12:36	✓		Stockpile @ 1.5' Depth	BRASS TUBE					✓	✓		Composite into one sample
SW3-2	↓	12:44	↓		↓	↓					↓	↓		↓
SW3-3	↓	12:53	↓		↓	↓					↓	↓		↓
SW3-4	↓	1:01	↓		↓	↓					↓	↓		↓
														Dirt-up soil 16 tea. 4-8 5-day TAT

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Michael Cooper	4/15/92 8:30				
	4/15/92 3:11pm				

Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		TAL Jeannette Lupt	4/15/92 3:11pm	

DATE: April 14, 1992

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

April 22, 1992

Mr. Marc Zomorodi
Tank Protect Engineering
2821 Whipple Road
Union City, California 94587

Dear Mr. Zomorodi:

Trace Analysis Laboratory received four soil samples on April 15, 1992 for your Project No. 218C-041492, 16035 E. 14th Street (our custody log number 2013).

These samples were composited and analyzed for Total Petroleum Hydrocarbons as Motor Oil. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Jennifer Pekol

Jennifer Pekol
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 2013
DATE SAMPLED: 04/14/92
DATE RECEIVED: 04/15/92
DATE EXTRACTED: 04/17/92
DATE ANALYZED: 04/19/92
DATE REPORTED: 04/22/92

CUSTOMER: Tank Protect Engineering

REQUESTER: Marc Zomorodi

PROJECT: No. 218C-041492, 16035 E. 14th St.

Sample Type: Soil

Method and Constituent:	Units	Composite of SW3-1, SW3-2, SW3-3 and SW3-4 Concentration	Composite of SW3-1, SW3-2, SW3-3 and SW3-4 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:					
Total Petroleum Hydrocarbons as Motor Oil	ug/kg	ND	1,000	ND	1,000

QC Summary:

% Recovery: 40
% RPD: 8.0

Concentrations reported as ND were not detected at or above the reporting limit.

This sample contains compounds eluting earlier than the motor oil standard.

Toxicity Characteristic Leaching Procedure was not performed since Total Petroleum Hydrocarbons as Motor Oil was not detectable.

Louis W. DuPuis
Quality Assurance/Quality Control Manager

TANK PROTECT ENGINEERING

2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: Trace Analysis Laboratory

TURNAROUND: Normal

P.O. #: 0382

2013

PAGE 1 OF 1

CHAIN OF CUSTODY

Change to 10-day TAT per John Mrakovich 4/15/92

PROJECT NO.	SITE NAME & ADDRESS
218C-041492	Mary Petsas 16035 E. 14th Street San Leandro, CA

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER
Michael Cooper, TPE
2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	ANALYTES REQUESTED: TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER ~~8270's~~ Methods (STLC)	TPH-Motor Oil (TCLP)	REMARKS
SW3-1	4/14/92	12:36	✓		Stockpile @ 1.5' Depth	BRASS TUBE					✓	✓		Composite into one sample
SW3-2	↓	12:44	↓		↓	↓					↓	↓		
SW3-3		12:53												
SW3-4	↓	1:01	↓		↓	↓					↓	↓		

Pick-up soil
16 tea.
4-8
5-day TAT

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Michael Cooper	4/15/92 8:30				
	4/15/92 3:11 pm				
		Received for Laboratory by: (Signature) TAL Jonnette Luyt	4/15/92 3:11	Remarks	

DATE: April 14, 1992

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Tank Protect Engineering	Client Project ID:	218C-041492	Sampled:	Apr 14, 1992
2821 Whipple Road	Sample Descript.:	TCLP Extract of SW3 (1-4)	Received:	May 1, 1992
Union City, CA 94587	Analysis Method:	EPA 5030/ 8015/8020	Analyzed:	May 6, 1992
Attention: Michael Casso	Lab Number:	205-0098	Reported:	May 13, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit ug/L (ppb)	Sample Results ug/L (ppb)
Low to Medium Boiling Point Hydrocarbons	600	N.D.
Benzene	**6.0**	**7.7**
Toluene	**6.0**	**6.7**
Ethyl Benzene	6.0	N.D.
Xylenes	**6.0**	**23**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

for Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Tank Protect Engineering
2821 Whipple Road
Union City, CA 94587
Attention: Michael Casso

Client Project ID: 218C-041492

QC Sample Group: 205-0098

Reported: May 13, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	L.L.	L.L.	L.L.	L.L.
Reporting Units:	ug/L	ug/L	ug/L	ug/L
Date Analyzed:	May 6, 1992	May 6, 1992	May 6, 1992	May 6, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	10	10	10	30
Conc. Matrix Spike:	9.4	9.5	9.3	28
Matrix Spike % Recovery:	94	95	93	93
Conc. Matrix Spike Dup.:	9.7	9.7	9.6	29
Matrix Spike Duplicate % Recovery:	97	97	96	97
Relative % Difference:	3.1	2.1	3.2	3.5

SEQUOIA ANALYTICAL

for Scott A. Chieffo
Project Manager

$$\text{\% Recovery:} \quad \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$

TANK PROTECT ENGINEERING

TANK PROTECT ENGINEERING
Environmental Management

2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: Trace Analysis Laboratory
TURNAROUND: Normal
P.O. #: 0382

2013

Change to Wodeg? TAT per John Hrakovich 4/15/92

PAGE 1 OF 1

CHAIN OF CUSTODY

PROJECT NO.: 218C-041492

SITE NAME & ADDRESS: Mary Petsas, 16035 E. 14th Street, San Leandro, CA

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER: Michael Cosso, TPE, 2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER / Metals (CAM)	TPH-Motor Oil (TCLP)	REMARKS
SW3-1	4/14/92	12:36	✓		Stockpile @ 1.5' Depth	BRASS TUBE					✓	✓		Composite into one sample 2050098 A
SW3-2	↓	12:44	↓		↓	↓					↓	↓		B
SW3-3	↓	12:53	↓		↓	↓					↓	↓		C
SW3-4	↓	1:01	↓		↓	↓					↓	↓		D
														pick-up soil
														1 bt ea.
														4-8
														5-day TAT

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Michael Cosso	4/15/92 8:30	[signature]			
[signature]	4/15/92 5:11 pm				
		Received for Laboratory by: (Signature) TAL Jonnette Swift	4/15/92 3:11	Remarks	
Relinquished by Jonnette Swift	5/1/92 2:15pm	Received by: [signature]	5-1-92 2:15PM		

DATE: April 14, 1992

MAY 13 '92 07:55 SEQUOIA ANALYTICAL P.7

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

April 30, 1993

Mr. Marc Zomorodi
Tank Protect Engineering
2821 Whipple Road
Union City, California 94587

Dear Mr. Zomorodi:

Trace Analysis Laboratory received three soil samples on April 19, 1993 for your Project No. 218D041693, 16035 E. 14th Street (our custody log number 3175).

These samples were analyzed for Total Petroleum Hydrocarbons as Diesel and Gasoline, Benzene, Toluene, Ethylbenzene, Xylenes, and Oil and Grease. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Rachel Dolbier
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 3175
DATE SAMPLED: 04/16/93
DATE RECEIVED: 04/19/93
DATE EXTRACTED: 04/22/93
DATE ANALYZED: 04/30/93
DATE REPORTED: 04/30/93

CUSTOMER: Tank Protect Engineering

REQUESTER: Marc Zomorodi

PROJECT: No. 218D041693, 16035 E. 14th Street

Sample Type: Soil

Method and Constituent:	Units	MW-1 Concentration	MW-1 Reporting Limit	MW-3 Concentration	MW-3 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Diesel	ug/kg	ND	1,000	ND	1,000	ND	1,000

QC Summary:

% Recovery: 120
% RPD: 17

Concentrations reported as ND were not detected at or above the reporting limit.

These samples contain compounds eluting later than the diesel standard.

LOG NUMBER: 3175
DATE SAMPLED: 04/16/93
DATE RECEIVED: 04/19/93
DATE EXTRACTED: 04/20/93
DATE ANALYZED: 04/21/93
DATE REPORTED: 04/30/93
PAGE: Two

Sample Type: Soil

Method and Constituent:	Units	MW-1 Concentration	MW-1 Reporting Limit	MW-2 Concentration	MW-2 Reporting Limit	MW-3 Concentration	MW-3 Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/kg	ND	500	ND	500	1,500	500
Modified EPA Method 8020 for:							
Benzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Toluene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Ethylbenzene	ug/kg	ND	5.0	ND	5.0	9.9	5.0
Xylenes	ug/kg	ND	15	ND	15	17	15

Method and Constituent:	Units	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:			
Total Petroleum Hydrocarbons as Gasoline	ug/kg	ND	500
Modified EPA Method 8020 for:			
Benzene	ug/kg	ND	5.0
Toluene	ug/kg	8.2	5.0
Ethylbenzene	ug/kg	ND	5.0
Xylenes	ug/kg	ND	15

QC Summary:

% Recovery: 112
% RPD: 7.6

Concentrations reported as ND were not detected at or above the reporting limit.

Trace Analysis Laboratory, Inc.

LOG NUMBER: 3175
DATE SAMPLED: 04/16/93
DATE RECEIVED: 04/19/93
DATE EXTRACTED: 04/22/93
DATE ANALYZED: 04/28/93
DATE REPORTED: 04/30/93
PAGE: Three

Sample Type: Soil

Method and Constituent:	Units	MW-1 Concentration	MW-1 Reporting Limit	MW-3 Concentration	MW-3 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
Standard Method 5520 F Hydrocarbons:							
Oil and Grease	ug/kg	ND	50,000	ND	50,000	ND	50,000

QC Summary:

% Recovery: 58
% RPD: 2.9

Concentrations reported as ND were not detected at or above the reporting limit.

Louis W. DuPuis
Quality Assurance/Quality Control Manager

3175

TANK PROTECT ENGINEERING
2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: Trace Analysis
TURNAROUND: Normal
P.O. #: 0593

PAGE 1 OF 1

CHAIN OF CUSTODY

PROJECT NO.: 21BD041693
SITE NAME & ADDRESS: 16035 E. 14th Street
SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER: Lee Huckins, 2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER	REMARKS
MW-1	4-16	1559	X		5.0	Brass	X	X	X	X			
MW-2	4-16	1400	X		5.0	"	"	"					
MW-3	4-16	1245	X		5.0	"	"	"	X	X			

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Lee Huckins					
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		[illegible] TAT	4/19/93 4:10		

Pick-up
Soil
1 BT EACH, on ice
10-day TAT

DATE: 4/16/93

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard. #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

May 13, 1993

Mr. Marc Zomorodi
Tank Protect Engineering
2821 Whipple Road
Union City, California 94587

Dear Mr. Zomorodi:

Trace Analysis Laboratory received four water samples on May 6, 1993 and two water samples on May 7, 1993 for your Project Nos. 218D-050593 and 218C-050793, Petsas, 16035 E. 14th Avenue (our custody log numbers 3217 and 3222).

These samples were analyzed for Total Petroleum Hydrocarbons as Diesel and Gasoline, Benzene, Toluene, Ethylbenzene, Xylenes and Oil and Grease. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Rachel Dolbier
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 3217 and 3222
DATE SAMPLED: 05/05/93
DATE RECEIVED: 05/06/93
DATE EXTRACTED: 05/06/93
DATE ANALYZED: 05/12/93
DATE REPORTED: 05/13/93

CUSTOMER: Tank Protect Engineering

REQUESTER: Marc Zomorodi

PROJECT: No. 218D-050593 and 218C-050793, Petsas, 16035 E. 14th Avenue

Sample Type: Water

Method and Constituent:	Units	MW-1 Concentration	MW-1 Reporting Limit	MW-3 Concentration	MW-3 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Diesel	ug/l	460	50	130	50	ND	50

QC Summary:

% Recovery: 51*
% RPD: 18

Concentrations reported as ND were not detected at or above the reporting limit.

Sample MW-1 contains compounds eluting earlier than the diesel standard.

* The Recovery is for the Laboratory Control Sample.

TAL Trace Analysis Laboratory, Inc.

LOG NUMBER: 3217 and 3222
DATE SAMPLED: 05/05/93
DATE RECEIVED: 05/06/93
DATE ANALYZED: 05/12/93
DATE REPORTED: 05/13/93
PAGE: Two

Sample Type: Water

Method and Constituent:	Units	MW-1 Concentration	MW-1 Reporting Limit	MW-2 Concentration	MW-2 Reporting Limit	MW-3 Concentration	MW-3 Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/l	720	50	ND	50	73	50
Modified EPA Method 8020 for:							
Benzene	ug/l	54	2.0	47	0.50	22	0.50
Toluene	ug/l	ND	1.5	ND	0.50	ND	0.50
Ethylbenzene	ug/l	19	4.3	ND	0.87	ND	0.87
Xylenes	ug/l	13	5.5	ND	1.5	ND	1.5

Method and Constituent:	Units	MW-4 Concentration	MW-4 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:					
Total Petroleum Hydrocarbons as Gasoline	ug/l	ND	50	ND	50
Modified EPA Method 8020 for:					
Benzene	ug/l	ND	0.50	ND	0.50
Toluene	ug/l	ND	0.50	ND	0.50
Ethylbenzene	ug/l	ND	0.50	ND	0.50
Xylenes	ug/l	ND	1.5	ND	1.5

QC Summary:

% Recovery: 102
% RPD: 2.6

Concentrations reported as ND were not detected at or above the reporting limit.

TAL Trace Analysis Laboratory, Inc.

LOG NUMBER: 3217 and 3222
DATE SAMPLED: 05/07/93
DATE RECEIVED: 05/07/93
DATE EXTRACTED: 05/11/93
DATE ANALYZED: 05/13/93
DATE REPORTED: 05/13/93
PAGE: Three

Sample Type: Water

Method and Constituent:	Units	MW-1 Concentration	MW-1 Reporting Limit	MW-3 Concentration	MW-3 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
Standard Method 5520 F Hydrocarbons:							
Oil and Grease	ug/l	ND	1,000	ND	1,000	ND	1,000

QC Summary:

% Recovery: 86
% RPD: 2.4

Concentrations reported as ND were not detected at or above the reporting limit.

Louis W. DuPuis
Quality Assurance/Quality Control Manager

TANK PROTECT ENGINEERING

2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

3217

LAB: Trace Analysis

TURNAROUND: normal 5-day

P.O. #: 610

CHAIN OF CUSTODY

PAGE 1 OF 1

PROJECT NO.	SITE NAME & ADDRESS
218D05D593	16035 E 14th Ave

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER
Lee Huckins
2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER	REMARKS
MW-1	5-5-93	1445	X	X		2-40ml VOA	X	X	X				2-40ml HCl + 1L Unp
MW-2		1400	X			1L glass			X				2-40ml HCl + 1L Unp Cancelled TPHD 5/6
MW-3		1515							X				2-40ml HCl + 1L Unp
MW-4		1600				2-40ml							2-40 ml HCl

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Lee Huckins	5/5/93 8:04	Teri Miller	Teri Miller	5/5/93	
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: [Signature] Maureen Negrete for TAL	Date / Time 5/6/93 3:25pm	Remarks Pick-up, water see above	

White 5-day TAT DATE: 5/5/93
RD

3222

TANK PROTECT ENGINEERING
2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: TAL

TURNAROUND: normal

P.O. #: 613

CHAIN OF CUSTODY

PAGE 1 OF 1

PROJECT NO.	SITE NAME & ADDRESS
218C050793	Petsas 16035 E. 14th Ave

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER

2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER	REMARKS
MW-1	05/07	1450	HF	X		1-liter				X			Location from 5-6-93 +
MW-3	05/07	1405	HF	X		1-liter				X			report with Log 3217

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by . (Signature)	Date / Time	Received by : (Signature)
Lee Hutchins	5-7-93 1558				
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature) TAL	Date / Time	Remarks	
			5-7-93 1538		

Remarks: walk-in water
1 liter HCl preserved
White
5 day TAT
RD

DATE: _____

APPENDIX D

LANDFILL DISPOSAL RECEIPTS

REDWOOD LANDFILL INC.
8950 REDWOOD HIGHWAY
P.O. BOX 793
NOVATO, CALIFORNIA 94948
TEL: (415) 892-2851
FAX: (415) 898-1354

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

X _____
DRIVER'S SIGNATURE

RK DP
RECEIVED BY

ACCOUNT NUMBER: 8190 CUSTOMER: TANK PROTECT ENGINEERING
JOB NUMBER: SAN LEANDRO DESC: 14TH STREET
VEHICLE: JET TIME: 11:34:56 DATE: 3/25/92

COMMODITY: O.C./P. C. DIRT YARDS: 16.00 LOAD # : 160

PER YARD 10.00 FEE 160.00

B2/S2-2 *** CHARGE *** CUSTOMER COPY TOTAL 160.00
INVOICE: 35249

REDWOOD LANDFILL INC.
8950 REDWOOD HIGHWAY
P.O. BOX 793
NOVATO, CALIFORNIA 94948
TEL: (415) 892-2851
FAX: (415) 898-1354

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

X _____
DRIVER'S SIGNATURE

RK DP
RECEIVED BY

ACCOUNT NUMBER: 8190 CUSTOMER: TANK PROTECT ENGINEERING
JOB NUMBER: SAN LEANDRO
VEHICLE: REDING TIME: 12:23:15 DATE: 3/25/92

COMMODITY: O.C./P. C. DIRT YARDS: 16.00 LOAD # : 184

PER YARD 10.00 FEE 160.00

B1/S1-1 *** CHARGE *** CUSTOMER COPY TOTAL 160.00
INVOICE: 35258

REDWOOD LANDFILL INC.

8950 REDWOOD HIGHWAY
P.O. BOX 793
NOVATO, CALIFORNIA 94948
TEL: (415) 892-2851
FAX: (415) 898-1354

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

X Diana Clark
DRIVER'S SIGNATURE

RK DP
RECEIVED BY

ACCOUNT NUMBER: 8190 CUSTOMER: TANK PROTECT ENGINEERING
JOB NUMBER: SAN LEANDRO DESC: 14TH STREET
VEHICLE: REDDING TIME: 12:35:35 DATE: 3/25/92

COMMODITY: O.C./P. C. DIRT YARDS: 16.00 LOAD # : 188

PER YARD 10.00 FEE 160.00

TOTAL 160.00
INVOICE: 35260

B2/S2-2 *** CHARGE CUSTOMER COPY

REDWOOD LANDFILL INC.

8950 REDWOOD HIGHWAY
P.O. BOX 793
NOVATO, CALIFORNIA 94948
TEL: (415) 892-2851
FAX: (415) 898-1354

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

X
DRIVER'S SIGNATURE

RK LZ DP
RECEIVED BY

ACCOUNT NUMBER: 8190 CUSTOMER: TANK PROTECT ENGINEERING
JOB NUMBER: SAN LEANDRO DESC: 14TH ST.
VEHICLE: JET TIME: 9:52:24 DATE: 3/26/92

COMMODITY: O.C./P. C. DIRT YARDS: 16.00 LOAD # : 94

PER YARD 10.00 FEE 160.00

#2523

TOTAL 160.00
INVOICE: 35362

B2/S2-2 *** CHARGE CUSTOMER COPY

REDWOOD LANDFILL INC.

8950 REDWOOD HIGHWAY
P.O. BOX 793
NOVATO, CALIFORNIA 94948
TEL: (415) 892-2851
FAX: (415) 898-1354

1324 @ 10.00
1320

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

X _____
DRIVER'S SIGNATURE

LZ, DP
RECEIVED BY

ACCOUNT NUMBER: 8190 CUSTOMER: TANK PROTECT ENGINEERING
JOB NUMBER: SAN LEANDRO DESC: 14TH ST
VEHICLE: JET TIME: 10:59:54 DATE: 3/26/92

COMMODITY: O.C./P. C. DIRT YARDS: 18.00 LOAD # : 138

PER YARD 10.00 FEE 180.00

TOTAL 180.00
INVOICE: 35388

B0/S0-0 *** CHARGE CUSTOMER COPY

REDWOOD LANDFILL INC.

8950 REDWOOD HIGHWAY
P.O. BOX 793
NOVATO, CALIFORNIA 94948
TEL: (415) 892-2851
FAX: (415) 898-1354

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

X _____
DRIVER'S SIGNATURE

LZ, DP
RECEIVED BY

ACCOUNT NUMBER: 8190 CUSTOMER: TANK PROTECT ENGINEERING
JOB NUMBER: SAN LEANDRO DESC: 14TH ST
VEHICLE: JET TIME: 10:47:40 DATE: 3/26/92

COMMODITY: O.C./P. C. DIRT YARDS: 18.00 LOAD # : 123

PER YARD 10.00 FEE 180.00

TOTAL 180.00
INVOICE: 35381

B2/S2-2 *** CHARGE CUSTOMER COPY ***

REDWOOD LANDFILL INC.
8950 REDWOOD HIGHWAY
P.O. BOX 793
NOVATO, CALIFORNIA 94948
TEL: (415) 892-2851
FAX: (415) 898-1354

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

X _____
DRIVER'S SIGNATURE

RK DP
RECEIVED BY

ACCOUNT NUMBER: 8190 CUSTOMER: TANK PROTECT ENGINEERING
JOB NUMBER: SAN LEANDRO DESC: 14TH STREET
VEHICLE: JET TIME: 11:11: 9 DATE: 3/25/92

COMMODITY: D.C./P. C. DIRT YARDS: 16.00 LOAD # : 147

PER YARD 10.00 FEE 160.00

TOTAL 160.00
INVOICE: 35243

B2/S2-2 *** CHARGE *** CUSTOMER COPY

REDWOOD LANDFILL INC.
8950 REDWOOD HIGHWAY
P.O. BOX 793
NOVATO, CALIFORNIA 94948
TEL: (415) 892-2851
FAX: (415) 898-1354

- PERSONS USING THESE PREMISES DO SO AT THEIR OWN RISK.
- CHILDREN AND PETS ARE NOT ALLOWED OUT OF VEHICLES.
- NO RUMMAGING IN DUMP AREA.
- NO SMOKING ON DUMP SITE.
- PLEASE NOTIFY OFFICE OF ANY COMPLAINT.

X _____
DRIVER'S SIGNATURE

RK DP
RECEIVED BY

ACCOUNT NUMBER: 8190 CUSTOMER: TANK PROTECT ENGINEERING
JOB NUMBER: SAN LEANDRO DESC: 14TH STREET
VEHICLE: JET TIME: 11:19: 2 DATE: 3/25/92

COMMODITY: D.C./P. C. DIRT YARDS: 16.00 LOAD # : 152

PER YARD 10.00 FEE 160.00

TOTAL 160.00
INVOICE: 35245

B1/S1-1 *** CHARGE *** CUSTOMER COPY

VASCO ROAD SANITARY LANDFILL No: 377175

A DIVISION OF BFI® BROWNING-FERRIS INDUSTRIES

4001 VASCO ROAD
LIVERMORE, CA 94550
(415) 447-0491

.cket : A73121 05/20/92 I: 10:22 am
istomer: TANK PROTECT ENGINEERING
:count : 1008002 LMS# 2 O: 10:22 am
'uck : 1
anifest: 797056
.O. No : PETSAS
iecker : MARK

Volume	Contents	Rate	Charge
18.00 yd	SPECIAL	20.00	360.00
TAL		$	360.00

WARNING: Transporting any unauthorized hazardous waste to this facility for disposal is prohibited by law. Persons violating this prohibition are subject to civil and criminal prosecution.

All children must remain in vehicles. Absolutely no salvaging allowed.

Ninõs deben de permaneceren en los carros a todas horas.

No se permite llevar cosas del dompe absolutamente.

HAVE A NICE DAY!!!

70,720
30

DRIVER

DRIVER

VASCO ROAD SANITARY LANDFILL No: 377188

A DIVISION OF BFI® BROWNING-FERRIS INDUSTRIES

4001 VASCO ROAD
LIVERMORE, CA 94550
(415) 447-0491

.cket : A73135 05/20/92 I: 10:40 am
istomer: TANK PROTECT ENGINEERING
:count : 1008002 LMS# 2 O: 10:41 am
'uck : 1
anifest: 797059
.O. No : PETSAS
iecker : MARK

Volume	Contents	Rate	Charge
18.00 yd	SPECIAL	20.00	360.00
TAL		$	360.00

WARNING: Transporting any unauthorized hazardous waste to this facility for disposal is prohibited by law. Persons violating this prohibition are subject to civil and criminal prosecution.

All children must remain in vehicles. Absolutely no salvaging allowed.

Ninõs deben de permaneceren en los carros a todas horas.

No se permite llevar cosas del dompe absolutamente.

HAVE A NICE DAY!!!

63,020
31

DRIVER

DRIVER

VASCO ROAD SANITARY LANDFILL No: 377219

A DIVISION OF BFI BROWNING-FERRIS INDUSTRIES

4001 VASCO ROAD
LIVERMORE, CA 94550
(415) 447-0491

icket : A73165 05/20/92 I: 11:20 am
istomer: TANK PROTECT ENGINEERING
ccount : 1008002 LMS# 2 O: 11:21 am
ruck : 1
anifest: 797057
.O. No : PETSAS
ecker : MARK

Volume	Contents	Rate	Charge
18.00 yd	SPECIAL	20.00	360.00
OTAL		$	360.00

WARNING: Transporting any unauthorized hazardous waste to this facility for disposal is prohibited by law. Persons violating this prohibition are subject to civil and criminal prosecution.

All children must remain in vehicles. Absolutely no salvaging allowed.

Ninõs deben de permanecerén en los carros a todas horas.

No se permite llevar cosas del dompe absolutamente.

HAVE A NICE DAY!!!

69580
31

DRIVER

DRIVER

VASCO ROAD SANITARY LANDFILL No: 377295

A DIVISION OF BFI BROWNING-FERRIS INDUSTRIES

4001 VASCO ROAD
LIVERMORE, CA 94550
(415) 447-0491

icket : A73241 05/20/92 I: 12:43 pm
istomer: TANK PROTECT ENGINEERING
ccount : 1008002 LMS# 2 O: 12:43 pm
ruck : 1
anifest: 797058
.O. No : PETSAS
ecker : RAYMOND

Volume	Contents	Rate	Charge
11.00 yd	SPECIAL	20.00	220.00
OTAL		$	220.00

WARNING: Transporting any unauthorized hazardous waste to this facility for disposal is prohibited by law. Persons violating this prohibition are subject to civil and criminal prosecution.

All children must remain in vehicles. Absolutely no salvaging allowed.

Ninõs deben de permanecerén en los carros a todas horas.

No se permite llevar cosas del dompe absolutamente.

HAVE A NICE DAY!!!

56080
30

DRIVER

DRIVER

APPENDIX E

ADDENDA TO MARCH 6,1992 WORKPLAN FOR MRS. MARY PETSAS, 16035 EAST 14TH STREET, SAN LEANDRO

TANK PROTECT ENGINEERING
2821 Whipple Road
Union City, CA 94587
(415) 429-8088 • (800) 523-8088
FAX (415) 429-8089

April 13, 1992

Mr. Scott O. Seery
Alameda County Health Agency
Division of Hazardous Materials
Department of Environmental Health
80 Swan Way, Room 350
Oakland, California 94621

Re: April 9, 1992 Meeting Regarding Addenda to March 6, 1992 Workplan for Mrs. Mary Petsas, 16035 East 14th Street, San Leandro, CA 94578

Dear Mr. Seery:

As a result of the subject meeting, this letter presents addenda to Tank Protect Engineering's (TPE) March 6, 1992 Tank Closure Report and Workplan for Overexcavation of Contaminated Soil and Installation of Groundwater Monitoring Wells.

The addenda are:

- Locations of the 3 proposed groundwater monitoring wells have been moved based on the results of a file review conducted by a representative of TPE in the office of the California Regional Water Quality Control Board-San Francisco Bay Region. The new locations are presented in the attached figure.

- When collecting soil samples from the soil borings for lithologic logging and chemical analysis, samples will be collected at about 5-foot depth intervals and at any changes in lithology.

- Soil and groundwater samples collected for chemical analysis from groundwater monitoring wells MW-1 and MW-3, estimated to be in a downgradient direction from the former location of the underground tanks (see attached figure), will be analyzed for total petroleum hydrocarbons as diesel and gasoline (TPHD and TPHG); benzene, toluene, ethylbenzene, and xylenes; and oil and grease. Soil and groundwater samples collected for chemical analysis from groundwater monitoring well MW-2 will be analyzed for TPHG and BTEX.

- Drill cuttings will be added to the on-site soil stockpile consisting of soil excavated from around the former waste oil tank during tank removal and overexcavation activities. If the stockpile has been disposed of prior to well installation activities, the drill cuttings will be stored on site, contained in plastic or 55-gallon steel drums labeled to show contents, date stored, suspected contamination, expected date of removal, company name, contact, and telephone number.

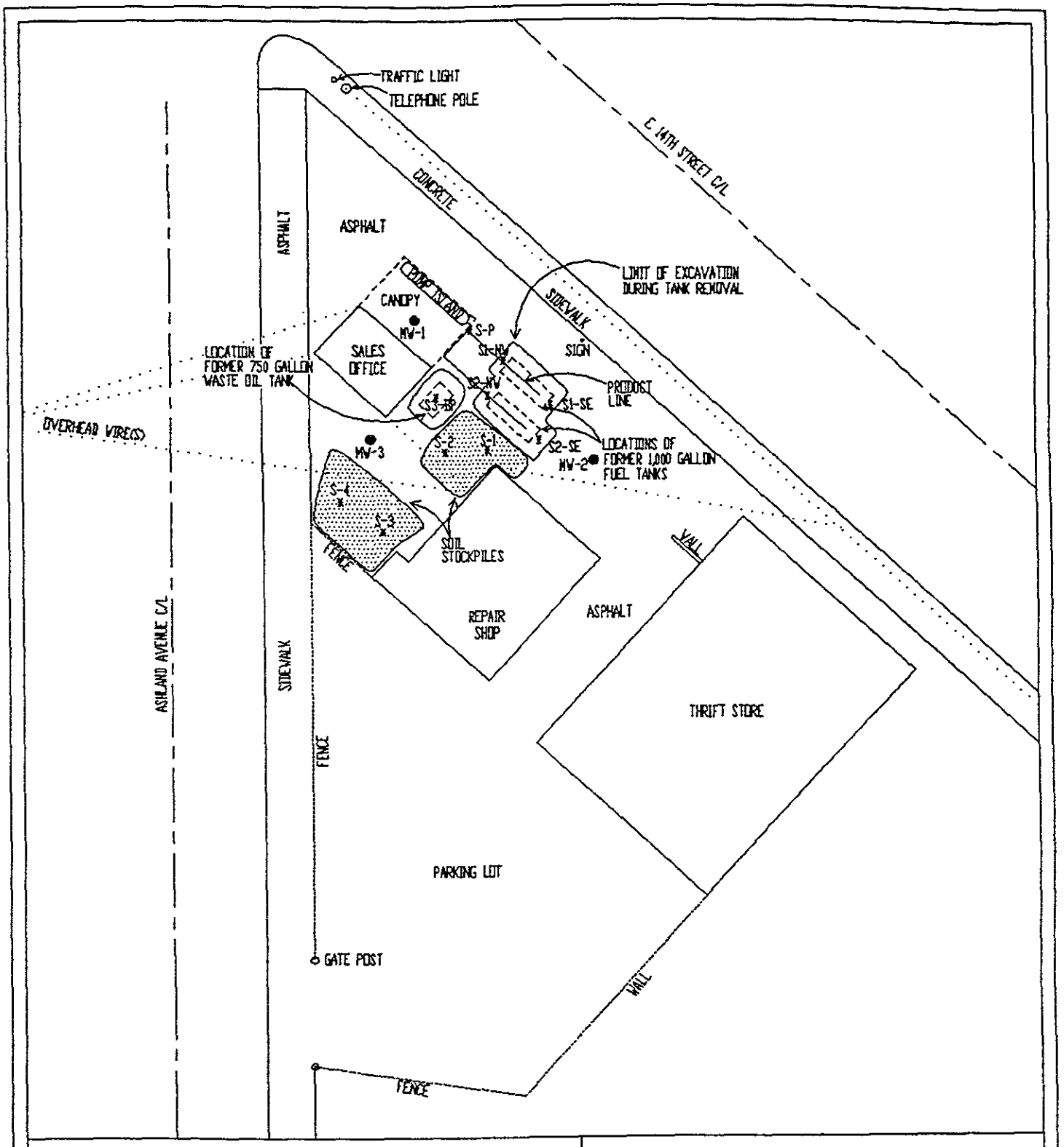
Based on the above addenda, TPE will proceed with installation of 3 groundwater monitoring wells at the subject site. If you have any questions, please call me at (510) 429-8088.

Sincerely,

John V. Mrakovich

John V. Mrakovich
Registered Geologist Number 4665

cc: file
Mrs Mary Petsas
California Regional Water Quality Control Board-San Francisco Bay Region


TRAFFIC LIGHT
TELEPHONE POLE
E 14TH STREET C/L
CONCRETE
ASPHALT
ASPHALT
LIMIT OF EXCAVATION DURING TANK REMOVAL
CANOPY
ISLAND
MW-1
S-P
SALES OFFICE
S1-NV
SIGN
SIDEWALK
LOCATION OF FORMER 750 GALLON WASTE OIL TANK
S2-NV
S3-NV
S1-SE
PRODUCT LINE
OVERHEAD WIRE(S)
MW-3
S-2
S-1
S2-SE
MW-2
LOCATIONS OF FORMER 1,000 GALLON FUEL TANKS
S-4
S-3
SOIL STOCKPILES
FENCE
WALL
REPAIR SHOP
ASPHALT
ASHLAND AVENUE C/L
SIDEWALK
THRIFT STORE
FENCE
PARKING LOT
GATE POST
WALL
FENCE
LEGEND
S1-NV NAME AND LOCATION OF SOIL SAMPLE
MW-1 PROPOSED NAME AND LOCATION OF GROUNDWATER MONITORING WELL
N
NOTE: HEIGHT OF OVERHEAD WIRES IS APPROXIMATELY 15 FEET.
0
30
SCALE IN FEET
TANK PROTECT ENGINEERING
SITE PLAN
16035 EAST 14TH STREET
SAN LEANDRO, CA 94578
DATE 12/18/91
FIGURE 2
FILE # 218C-2
DRAWN BY MAC
CHECKED BY JVM

APPENDIX F

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT WELL PERMIT

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94588 ♦ (415) 484-2600

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

PERMIT NUMBER 93174

LOCATION NUMBER

LOCATION OF PROJECT
16035 E. 14th Street
San Leandro, CA 94578

CLIENT
Name Mary Petsas
Address 16518 Toledo Street Phone (510) 357-4650 or (510) 276-2828
City San Leandro, CA Zip 94578

APPLICANT
Name Tank Protect Engineering of Northern California, Inc.
Address 2821 Whipple Road Phone (510) 429-8088
City Union City, CA Zip 94587-1233

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	___
Water Supply	___	Contamination	___
Monitoring	X	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C57 563305

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 20 ft.
Surface Seal Depth 6 ft. Number 3

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

ESTIMATED STARTING DATE April 16, 1993
ESTIMATED COMPLETION DATE April 16, 1993

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE John Markovich Date 4/8/93

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 8 Apr 93
Wyman Hong

5199

APPENDIX G

HOLLOW-STEM AUGER DRILLING AND SOIL SAMPLING PROCEDURES

APPENDIX G

HOLLOW-STEM AUGER DRILLING AND SOIL SAMPLING PROCEDURES

Undisturbed soil samples will be recovered from soil without introducing liquids into the borings. Soil samples as core will be taken at 5-foot depth intervals and changes in lithology from ground surface to termination depth, or through the aquifer zone of interest for lithologic logging.

Borings will be drilled with a hollow-stem auger and sampled with a California or modified California-type split-spoon sampler. Soil samples will be of sufficient volume to perform the analyses which may be required, including replicate analyses.

Soil from all borings will be described in detail using the Unified Soil Classification System and will be logged by a geologist, civil engineer, or engineering geologist who is registered or certified by the State of California and is experienced in the use of the Unified Soil Classification System.

All wet zones above the free water zone will be noted and accurately logged.

Soil samples will be collected in clean brass or stainless steel sampling tubes in the split-spoon. Sediment traps will be used when unconsolidated sands and gravels fall from the sampler during retrieval. The brass tubes will be cut apart using a clean knife. The ends of the tubes will be covered with a thin sheet of Teflon tape or aluminum foil beneath plastic end caps and sealed with electrical or duct tape and properly labeled. The samples will be stored on ice at a temperature of 4 degrees Celsius.

Drill cuttings will be stored on site in 55-gallon drums or covered with plastic sheeting. Analytical results will be submitted immediately to the site owner for determination of appropriate disposal procedures. The soil borings not completed as wells will be backfilled with a cement grout.

APPENDIX H

WASTE HANDLING AND DECONTAMINATION PROCEDURES

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WASTE HANDLING AND DECONTAMINATION PROCEDURES

Decontamination: Any drilling, sampling or field measurement equipment that comes into contact with soils or groundwater will be properly decontaminated prior to its use at the site and after each incident of contact with the soils or groundwater being investigated. Proper decontamination is essential to obtain samples that are representative of environmental conditions and to accurately characterize the extent of soil and groundwater contamination. Hollow-stem auger flights and the drill bit will be steam-cleaned between the drilling of each well.

All sample equipment, including the split-tube sampler and brass tubes, will be cleaned by washing with tri-sodium phosphate detergent, followed by sequential rinsing with tap water, and deionized water.

Waste Handling: Waste materials generated during site characterization activities will be handled and stored as hazardous waste and will be stored on site in appropriately labeled containers. Waste materials anticipated include drill cuttings, development and purge water, water generated during aquifer testing, water generated during decontamination, and used personnel protection equipment such as gloves and Tyvek. The site owner will be responsible for providing the storage containers and will be responsible for the disposal of the waste materials. Drill cuttings from individual borings will be stored separately in drums or covered by plastic sheeting and the appropriate disposal procedure will be determined by the site owner or TPE following receipt of the soil sample analytical results. Drums or plastic sheeting will be labeled to show material stored, known or suggested contaminant, date stored, expected removal date, company name, contact, and telephone number.

APPENDIX I

GROUNDWATER MONITORING WELL CONSTRUCTION PROCEDURES

APPENDIX I

GROUNDWATER MONITORING WELL CONSTRUCTION PROCEDURES

BOREHOLE DESIGN

Casing Diameter: The minimum diameter of well casings will be 2 inches (nominal).

Borehole Diameter: The diameter of the borehole will be a minimum of 4 inches and a maximum of 12 inches greater than the diameter of the well casing. The minimum annular space will be 2.5 inches as measured from the outside diameter of the casing to the drill hole wall.

Shallow (Unconfined Zone) Wells: When unconfined groundwater is encountered the borehole will be advanced through the aquifer to an underlying clay layer or aquitard. The screened interval will begin a minimum of 5 feet above the saturated zone or above the anticipated seasonal high level of groundwater. The screen will extend the full thickness of the aquifer or no more than 15 feet into the saturated zone, whichever is reached first. The well screen will not extend into the aquitard, nor will the screened interval exceed 20 feet in length.

Deep (Confined Zone) Wells: Any monitoring well to be screened below the upper aquifer will be installed as a double-cased well. A steel conductor casing will be placed through the upper water-bearing zone to prevent aquifer cross-contamination.

The conductor casing will be installed in the following manner: a large diameter borehole (typically 18 inches) will be drilled until it is determined that the first competent aquitard has been reached. A low carbon steel conductor casing will be placed in the borehole to the depth drilled. Centralizers will be used to center the casing in the borehole. The annular space between the conductor casing and the formation will be cement-grouted from bottom to top by tremie pipe method. The grout will be allowed to set for a minimum of 72 hours.

Drilling will continue inside the conductor casing, with a drill bit of smaller diameter than the conductor casing. If additional known aquifers are to be fully penetrated, the procedure will be repeated with successively smaller diameter conductor casings.

The bottom of the well screen in a confined aquifer will be determined by presence or lack of a clay layer or aquitard as described above. The screened interval in a confined zone shall extend across the entire saturated zone of the aquifer or up to a length of 20 feet, which ever is less. The screened zone and filter pack will not cross-connect to another aquifer.

CONSTRUCTION MATERIALS

Casing and Screen Materials: Well casing and screen will be constructed of clean materials that have the least potential for affecting the quality of the sample. The most suitable material for a particular installation will depend upon the parameters to be monitored. Acceptable materials include PVC, stainless steel, or low carbon steel.

Casing Joints: Joints will be connected by flush threaded couplers. Organic bonding compounds and solvents will not be used on joints.

Well Screen Slots: Well screen will be factory slotted. The size of the slots will be selected to allow sufficient groundwater flow to the well for sampling, minimize the passage of formation materials into the well, and ensure sufficient structural integrity to prevent the collapse of the intake structure.

Casing Bottom Plug: The bottom of the well casing will be permanently plugged, either by flush threaded screw-on or friction cap. Friction caps will be secured with stainless steel set screws. No organic solvents or cements will be applied.

Filter Pack Material: Filter envelope materials will be durable, water worn, and washed clean of silt, dirt, and foreign matter. Sand size particles will be screened silica sand. Particles will be well rounded and graded to an appropriate size for retention of aquifer materials.

Bentonite Seal Material: Bentonite will be pure and free of additives that may affect groundwater quality. Bentonite will be hydrated with clean water.

Grout Seal Material: Cement grout will consist of a proper mixture of Type 1/11 Portland cement, hydrated with clean water. Up to 3% bentonite may be added to the mixture to control shrinkage.

CONSTRUCTION PROCEDURES

Decontamination: All downhole tools, well casings, casing fittings, screens, and all other components that are installed in the well shall be thoroughly cleaned immediately before starting each well installation. When available, each component shall be cleaned with a high temperature, high pressure washer for a minimum of 5 minutes. When a washer is not available, components shall be cleaned with water and detergent or trisodium phosphate, rinsed in clean water, then rinsed in distilled water.

Soil and water sampling equipment and material used to construct the wells shall not donate to, capture, mask, nor alter the chemical composition of the soil and groundwater.

Drilling Methods: Acceptable drilling methods include solid and hollow-stem auger, percussion, direct circulation mud and air rotary, and reverse rotary. The best alternative is that which minimizes the introduction of foreign materials or fluids. If drilling fluid is employed, drilling fluid additives shall be limited to inorganic and non-hazardous compounds. Compressed air introduced into the borehole shall be adequately filtered to remove oil and particulates.

Casing Installation: The casing will be set under tension, when necessary, to ensure straightness. Centralizers will be used where necessary to prevent curvature or stress to the casing.

Sand Pack Installation: The sand pack will be installed so as to avoid bridging and the creation of void spaces. The tremie pipe method will be used where installation

conditions or local regulations require. Drilling mud, when used, will be thinned prior to packplacement. The sand pack shall cover the entire screened interval and rise a minimum of 2 feet above the highest perforation.

Bentonite Seal Placement: A bentonite seal will be placed above the sand pack by a method that prevents bridging. Bentonite pellets can be placed by free fall if proper sinking through annular water can be assured. Bentonite slurry will be placed by the tremie pipe method from the bottom upward. The bentonite seal will not be less than 1 foot in thickness.

Grout Seal Placement: The cement grout mixture will be hydrated with clean water and thoroughly mixed prior to placement. If substantial groundwater exists in the bore hole, the grout shall be placed by tremie pipe method from the bottom upward. In a dry borehole, the grout may be surface poured to a depth of 30 feet. Below a depth of 30 feet grout will be placed by tremie pipe. Grout will be placed in 1 continuous lift and will extend to the surface or to the well vault if the well head is completed below grade. A minimum of 5 feet of grout seal will be installed, unless impractical due to the shallow nature of the well.

Surface Completion: The well head will be protected from fluid entry, accidental damage, unauthorized access, and vandalism. A watertight, locking cap will be installed on the well casing. Access to the casing will be controlled by a keyed lock.

Well heads completed below grade will be completed in a concrete and/or steel vault, installed to drain surface runoff away from the vault.

Well Identification: Each well will be labeled to show well number, depth, hole and casing diameter, and screened interval.

APPENDIX J

GROUNDWATER MONITORING WELL DEVELOPMENT PROCEDURES

APPENDIX J

GROUNDWATER MONITORING WELL DEVELOPMENT PROCEDURES

INTRODUCTION

Newly installed groundwater monitoring wells will be developed to restore natural hydraulic conductivity of the formation, remove sediments from well casing and filter pack, stabilize the filter pack and aquifer material, and promote turbidity-free groundwater samples.

Wells may be developed by bailing, hand pumping, mechanical pumping, air lift pumping, surging, swabbing, or an effective combination of methods. Wells will be developed until the water is free of sand, silt, and minimum turbidity has stabilized.

In some cases where low permeability formations are involved or the drilling mud used fails to respond to cleanup, initial development pumping may immediately dewater the well casing and thereby inhibit development. When this occurs, clean, potable grade water may be introduced into the well, followed by surging of the introduced waters with a surge block. This operation will be followed by pumping. The procedure may be repeated as required to establish full development.

METHODOLOGY

Seal Stabilization: Cement and bentonite annular seals shall set and cure not less then 72 hours prior to well development.

Decontamination: All well development tools and equipment shall be thoroughly cleaned immediately before starting each well installation. When available, each component shall be cleaned with a high temperature, high pressure washer for a minimum of 5 minutes. When a washer is not available, components shall be cleaned with clean water, then rinsed with distilled water.

Development equipment shall not donate to, capture, mask, nor alter the chemical composition of the soils and groundwater.

Introduction of Water: Initial development of wells in low permeability formations may dewater the casing and filter pack. When this occurs, clean, potable water will be introduced into the well to enhance development.

Bailing: Development will begin by bailing to remove heavy sediments from the well casing. Care will be taken to not damage the well bottom cap during lowering of the bailer.

Surging: Care will be exercised when using a surge block to avoid damaging the well screen and casing. When surging wells screened in coarse (sand/gravelly) aquifers, the rate of surge block lifting shall be slow and constant. When surging wells screened in fine (silty) aquifers, more vigorous lifting may be required. Between surging episodes, wells will be bailed to remove accumulated sediments.

Pumping: Development pumping rates shall be less than the recharge rate of the well in order to avoid dewatering.

Discharged Water Containment and Disposal: All water and sediment generated by well development shall be collected in 55-gallon steel drums. Development water will be temporarily contained on site, pending sampling and laboratory analysis. No hazardous development water will be released to the environment. Disposal of development water will be the responsibility of the client

APPENDIX K

GROUNDWATER MONITORING WELL SAMPLING PROCEDURES

APPENDIX K

GROUNDWATER MONITORING WELL SAMPLING PROCEDURES

Groundwater monitoring wells will not be sampled until at least 72 hours after well development. Groundwater samples will be obtained using either a bladder pump, clear Teflon bailer, or dedicated polyethylene bailer. Prior to collecting samples, the sampling equipment will be thoroughly decontaminated to prevent introduction of contaminants into the well and to avoid cross-contamination. Monitoring wells will be sampled after 3 to 10 wetted casing volumes of groundwater have been evacuated and pH, electrical conductivity, and temperature have stabilized as measured with a Hydac Digital Tester. If the well is emptied before 3 to 10 well volumes are removed, the sample will be taken when the water level in the well recovers to 80% of its initial water level or more.

When a water sample is collected, turbidity of the water will be measured and recorded with a digital turbidimeter. Degree of turbidity will be measured and recorded in nephelometric turbidity units (NTU).

TPE will also measure the thickness of any floating product in the monitoring wells using a probe, clear Teflon, or polyethylene bailer. The floating product will be measured after well development but prior to the collection of groundwater samples. If floating product is present in the well, TPE will recommend to the client that product removal be commenced immediately and reported to the appropriate regulatory agency.

Unless specifically waived or changed by the local, prevailing regulatory agency, water samples shall be handled and preserved according to the latest EPA methods as described in the Federal Register (Volume 44, No.233, Page 69544, Table ll) for the type of analysis to be performed.

Development and/or purge water will be stored on site in labeled containers. The disposal of the containers and development and/or purge water is the responsibility of the client.

MEASUREMENTS

Purged Water Parameter: During purging, discharged water will be measured for the following parameters.

Parameter	Units of Measurement
pH	None
Electrical Conductivity	Micromhos
Temperature	Degrees F or C
Depth to Water	Feet/Tenths
Volume of Water Discharged	Gallons
Turbidity	NTU

Documentation: All parameter measurements shall be documented in writing on TPE development logs.

APPENDIX L

LOGS OF EXPLORATORY BORINGS AND WELL COMPLETION DETAILS

LOG OF EXPLORATORY BORING

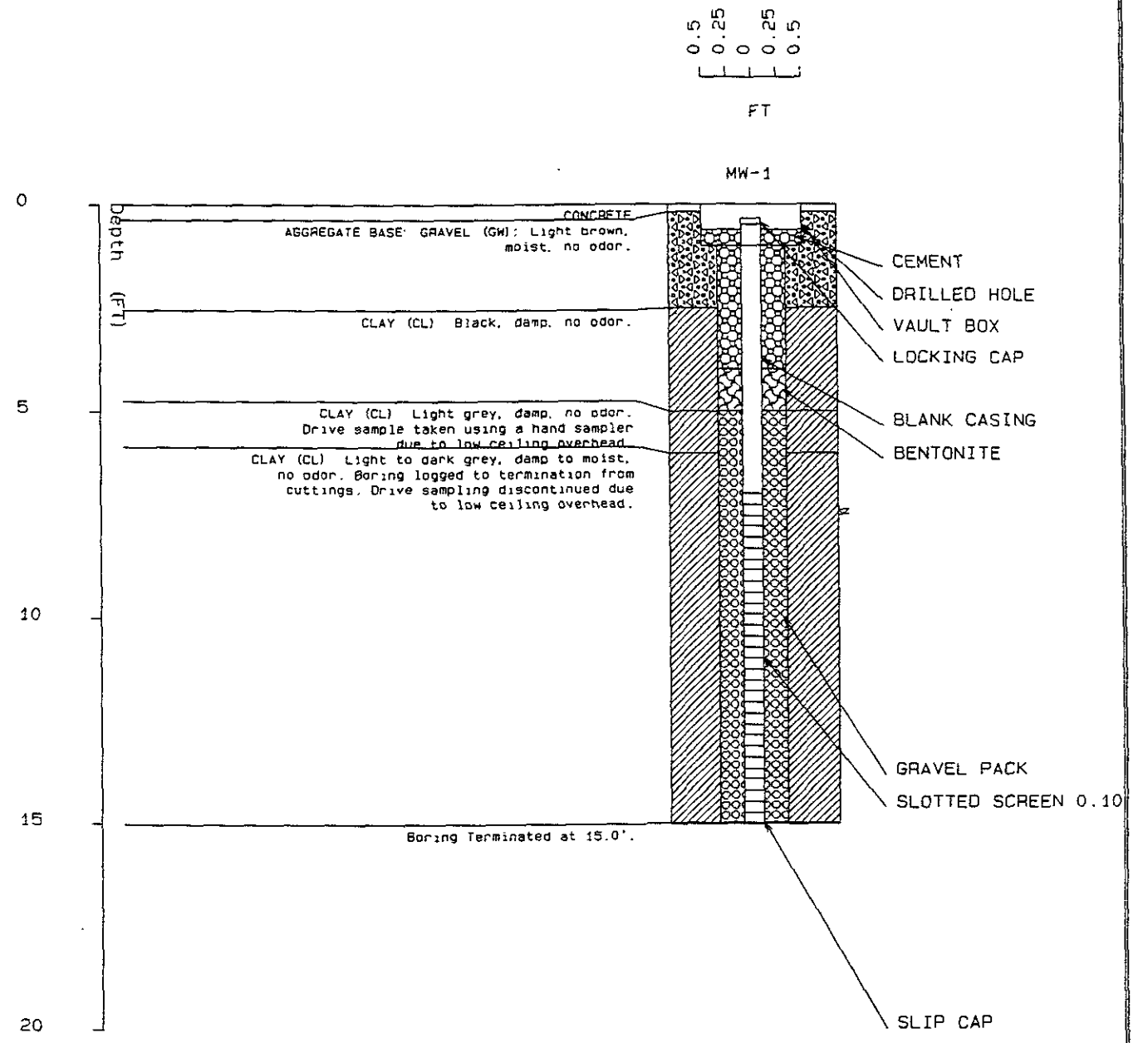
PROJECT NUMBER 218 BORING NO MW-1

PROJECT NAME 16035 East 14th Avenue, San Leandro, CA

BY LNH DATE 04-16-93 SURFACE ELEV. 33 FT

RECOVERY (FT/FT)	OVA (PPM)	PENETRATION (BLOWS/FT)	GROUND WATER LEVELS	DEPTH IN FT	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				1			CONCRETE
				2			AGGREGATE BASE. GRAVEL (GW): Light brown, moist, no odor
				3			CLAY (CL): Black, damp, no odor.
				4			
5/.5	--			5			CLAY (CL) Light grey, damp, no odor. Drive sample taken using a hand sampler due to low ceiling overhead.
				6			CLAY (CL) Light to dark grey, damp to moist, no odor Boring logged to termination from cuttings. Driller reports water at 7.5'.
			▽	7			
				8			
				9			
				10			
				11			
				12			
				13			Boring terminated at 15.0'.
				14			
				15			

REMARKS. Boring drilled with continuous-flight, hollow-stem, 8 0-inch O D. augers Boring logged from cuttings and one sample collected using a slide hammer core.



LEGEND ▽ Static Water Level

GW CL ASPHALT

WELL ID : MW-1

16035 East 14th Avenue, San Leandro, CA

TANK PROTECT ENGINEERING

Figure :

LOG OF EXPLORATORY BORING

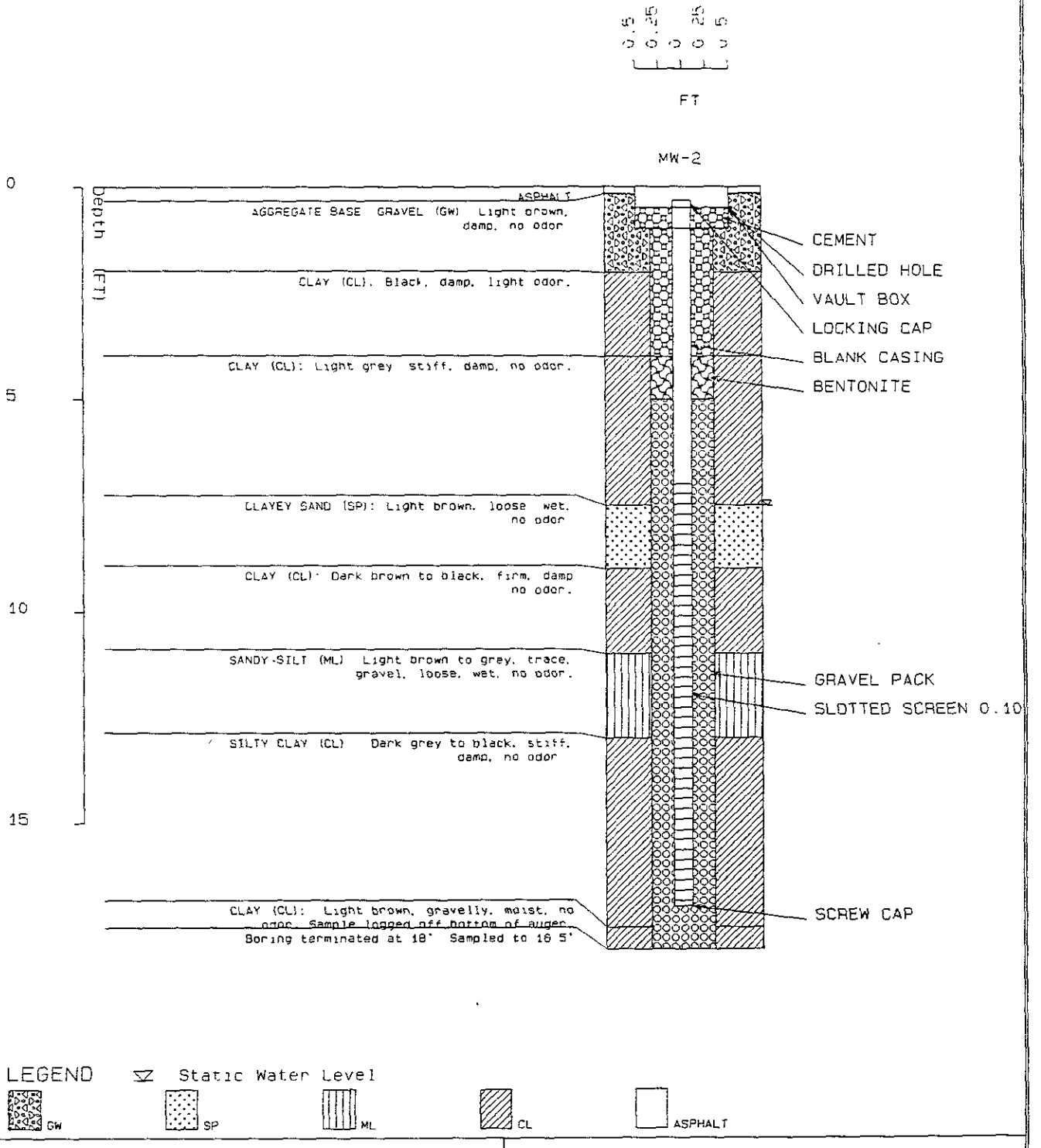
PROJECT NUMBER 218 BORING NO MW-2

PROJECT NAME 16035 East 14th Avenue, San Leandro, CA

BY LNH DATE 04-16-93 SURFACE ELEV. 32 FT

RECOVERY (FT/FT)	OVA (PPM)	PENETRATION (BLOWS/FT)	GROUND WATER LEVELS	DEPTH IN FT	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				1			ASPHALT
				2			AGGREGATE BASE GRAVEL (GW): Light brown, damp, no odor
				3			CLAY (CL) Black, damp, light odor
				4			CLAY (CL)' Light grey, stiff, damp, no odor
1 5/1 5	20	13		5			
				6			
				7			
1 17/1.5		8		8			CLAYEY SAND (SP): Light brown, loose, wet, no odor.
				9			CLAY (CL) Dark brown to black, firm, damp no odor
0.83/1 5		8		10			
0 5/1 5	8 0	4		11			SANDY SILT (ML) Light brown to grey, trace, gravel, loose, wet, no odor.
				12			
1.5/1.5		9		13			SILTY CLAY (CL): Dark grey to black, stiff, damp, no odor .
1.5/1.5	2.0	11		14			
				15			CLAY (CL): Light brown, gravelly, moist, no odor. Sample logged off bottom of auger.
				16			Boring terminated at 18', Sampled to 16.5'
1 5/1.5		10		17			
				18			

REMARKS: Boring drilled with continuous-flight, hollow-stem, 8-inch O.D augers. Samples collected in a 2.0-inch I.D. California sampler.



LEGEND ▽ Static Water Level

GW SP ML CL ASPHALT

WELL ID . MW-2

16035 East 14th Ave. San Leandro, CA.

TANK PROTECT ENGINEERING

Figure :

LOG OF EXPLORATORY BORING

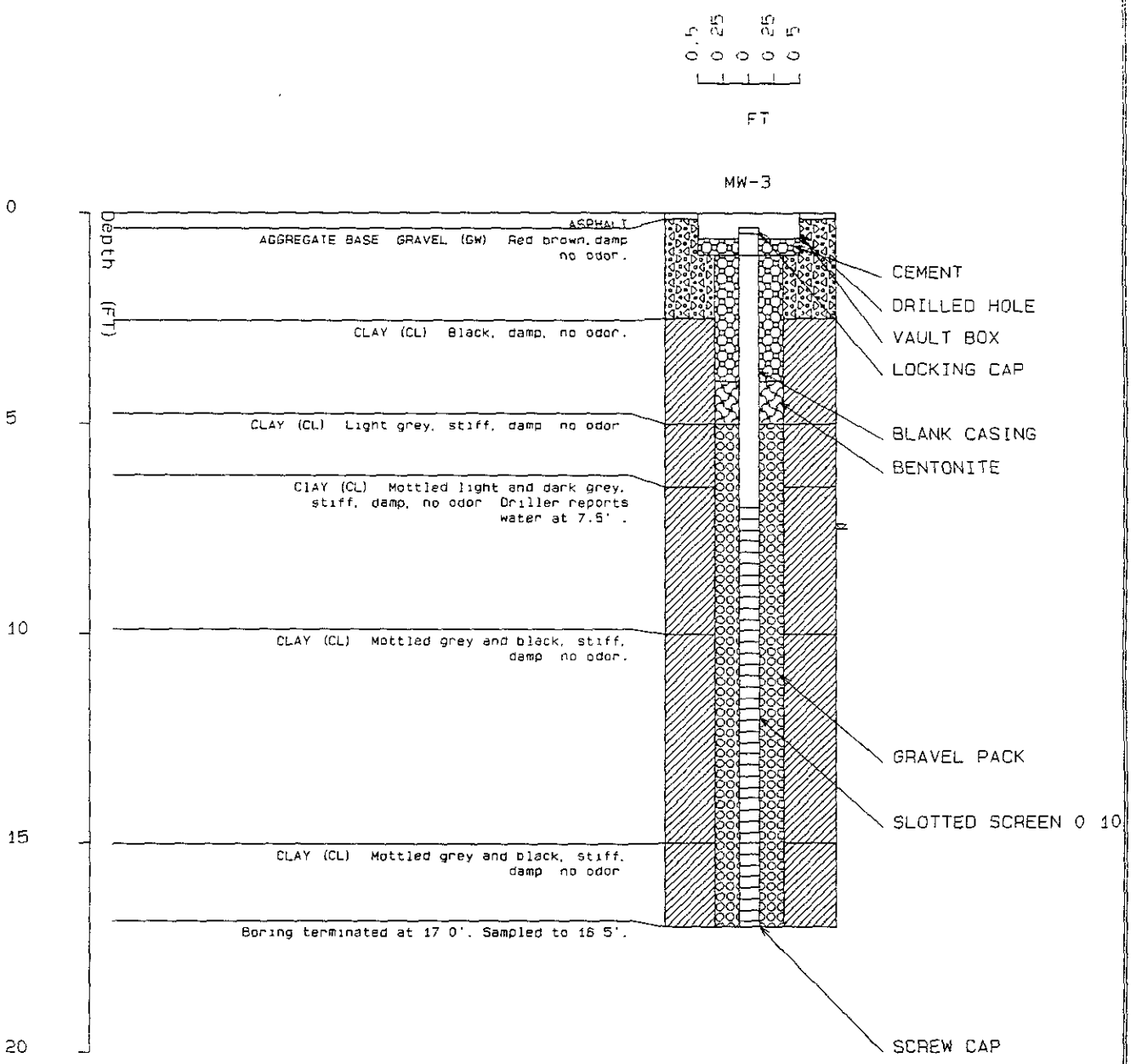
PROJECT NUMBER 218 BORING NO. MW-3

PROJECT NAME 16035 East 14th Avenue, San Leandro, CA

BY LNH DATE 04-16-93 SURFACE ELEV. 33 FT

RECOVERY (FT/FT)	OVA (PPM)	PENETRATION (BLOWS/FT)	GROUND WATER LEVELS	DEPTH IN FT	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				1			ASPHALT
				2			AGGREGATE BASE. GRAVEL (GW): Red brown, damp no odor
				3			CLAY (CL) Black, damp, no odor.
				4			
				5			
1.42/1.5	14.0	15.0		6			CLAY (CL): Light grey, stiff, damp, no odor
			▽	7			CLAY (CL) Mottled light and dark grey, stiff, damp, no odor. Driller reports water at 7.5'
				8			
				9			
				10			
1.5/1.5	--	15.0		11			CLAY (CL): Mottled grey and black, stiff, damp, no odor
				12			
				13			
				14			
				15			
1.5/1.5	--	12		16			CLAY (CL): Mottled grey and black, stiff, damp, no odor.
				17			Boring terminated at 17.0'. Sampled to 16.5'
				18			
				19			
				20			

REMARKS: Boring drilled with continuous-flight, hollow-stem, 8-inch O.D. augers. Samples collected in a 2.0-inch I.D. California sampler.



LEGEND ▽ Static Water Level

GW CL ASPHALT

WELL ID Mw-3	16035 East 14th Ave, San Leandro, CA

TANK PROTECT ENGINEERING

Figure .

APPENDIX M

QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

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QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The overall objectives of the field sampling program include generation of reliable data that will support development of a remedial action plan. Sample quality will be checked by the use of proper sampling, handling, and testing methods. Additional sample quality control methods may include the use of background samples, equipment rinsate samples, and trip and field blanks. Chain-of-custody forms, use of a qualified laboratory, acceptable detection limits, and proper sample preservation and holding times also provide assurance of accurate analytical data.

TPE will follow a QA/QC program in the field to ensure that all samples collected and field measurements taken are representative of actual field and environmental conditions and that data obtained are accurate and reproducible. These activities and laboratory QA/QC procedures are described below.

Field Samples: Additional samples taken in the field are used to evaluate both sampling and analytical methods. Three basic categories of QA/QC samples that may be collected are trip samples, field blanks, and duplicate samples.

Trip blanks are a check for cross-contamination during sample collection, shipment, and in the laboratory. Analytically confirmed organic-free water shall be used for organic parameters and deionized water for metal parameters. Blanks will be prepared by the laboratory supplying the sample containers. The blank shall be numbered, packaged, and sealed in the same manner as the other samples. One trip blank will be used for each sample set of less than 20 samples. At least 5% blanks will be used for sets greater than 20 samples. The trip blank is a water sample that remains with the collected samples during transportation and is analyzed along with the field samples to check for residual contamination. The trip blank is not to be opened by either the sample collectors or the handlers.

The field blank is a water sample that is taken into the field and is opened and exposed at the sampling point to detect contamination from air exposure. The water sample is poured into appropriate containers to simulate actual sampling conditions. Contamination for air exposure can vary considerably from site to site.

The laboratory will not be informed about the presence of field and trip blanks and a false identifying number will be put on the label. Full documentation of these collection and decoy procedure will be made in the site log book.

Duplicate samples are identical sample pairs (collected in the same place and at the same time), placed in identical containers. For soils, adjacent sample liners will be analyzed. For the purpose of data reporting, one is arbitrarily designated the sample, and the other is designated as a duplicate sample. Both sets of results are reported to give an indication of the precision of sampling and analytical methods.

The laboratory's precision will be assessed without the laboratory's knowledge by labeling one of the duplicates with false identifying information. Data quality will be evaluated on the basis of the duplicate results.

Laboratory QA/QC: Execution of a strict QA/QC program is an essential ingredient in high-quality analytical results. By using accredited laboratory techniques and analytical procedures, estimates of the experimental values can be very close to the actual value of the environmental sample. The experimental value is monitored for its precision and accuracy by performing QC test designed to measure the amount of random and systematic errors and to signal when correction of these errors is needed.

The QA/QC program describes methods for performing QC tests. These methods involve analyzing method blanks, calibration standards, check standards (both independent and EPA-certified standards), duplicates, replicates, and sample spikes. Internal QC also requires adherence to written methods, procedural documentation, and record keeping, and the observance of good laboratory practices.