ENGINEERING-SCIENCE, INC.

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November 18, 1993

Ms. Susan Hugo
Alameda County Department
of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Re: Greyhound Terminal
Location 8934
Oakland, California
Supplemental Site Assessment

Dear Ms. Hugo:

On behalf of Greyhound Lines, Inc. (GLI), Engineering-Science, Inc. (ES) is pleased to provide the Alameda County Department of Environmental Health (ACDEH) with this copy of the Supplemental Site Assessment Report for the Greyhound Terminal in Oakland, California. As we discussed during the September 2, 1993 meeting between ACDEH, Greyhound, and ES, the additional drilling program was successful at completely defining the vertical and horizontal extent of soil and groundwater contamination at this location. The results indicate that residual soil and groundwater contamination is limited to the former tank pit area on-site.

Based on the results of this assessment, ES recommended a Preliminary Risk Evaluation be performed to develop alternate points of compliance or site-specific cleanup levels appropriate for this location. ACDEH indicated during the meeting of September 2 that Risk Assessments are evaluated by ACDEH and the California Regional Water Quality Control Board (RWQCB) for development of site-specific cleanup levels. Greyhound has recently completed and submitted the preliminary risk evaluation. A preliminary risk evaluation report will be submitted shortly to ACDEH.

Based on the results of this supplemental site assessment and the preliminary risk evaluation, no further corrective action is recommended for residual soil contamination remaining at the facility.

Greyhound looks forward to your favorable review of this report and continuing to work closely with ACDEH on this important project. If you have any questions, or require additional information, please contact us at (315) 451-9560.

Sincerely,

ENGINEERING-SCIENCE, INC.

David A. Nickerson
Project Manager

David L. Chaffin, R.G.
California Registered Geologist

cc: T. Portele, GLI, Dallas, TX
R. Hiatt, RWQCB
Project File SY356.06

SUPPLEMENTAL SITE ASSESSMENT REPORT

GREYHOUND TERMINAL

LOCATION 8934

OAKLAND, CALIFORNIA

Prepared for:

GREYHOUND LINES, INC.
DALLAS, TEXAS

Prepared by:

ENGINEERING-SCIENCE, INC.
290 ELWOOD DAVIS ROAD
LIVERPOOL, NEW YORK 13088

NOVEMBER 1993

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PROJECT BACKGROUND

Greyhound Lines, Inc. operates a passenger bus terminal at 2103 San Pablo Avenue, Oakland, California (Figures 1 and 2). As part of routine terminal operations, Greyhound maintained six underground fuel storage tanks (UFSTs) for refueling buses. Reportedly, these UFSTs were used to store diesel fuel and have not been in service for the past 30 years (Brown and Caldwell Consulting Engineers, 1989). In 1989, the number, size, and geometry of these UFSTs were characterized. The exact size and orientation of one of the tanks (T6) could not be confirmed at the time of the 1989 investigation due to restricted access. The tank contents were also analyzed for BTEX. Based on the analytical results, it was concluded that the tanks probably contained a mixture of degraded diesel fuel and water (Brown and Caldwell Consulting Engineers, 1989). A copy of the report documenting the 1989 investigation is included in the Preliminary Site Investigation Report (ES, 1992).

A soil boring/sampling program was implemented during the 1989 investigation to assess the potential for environmental contamination associated with the past operations of the UFSTs. A total of three soil borings were advanced at the locations shown on Figure 2 (BC-1, BC-2 and BC-3). Two samples were collected from each borehole and analyzed for total fuel hydrocarbons (TFH) and benzene, toluene, ethylbenzene and total xylenes (BTEX). TFH concentrations ranged from non-detect to 4,260 mg/kg. Toluene, ethylbenzene and total xylenes concentrations ranged from non-detect to 4.0 mg/kg, 0.0008 to 49.5 mg/kg and non-detect to 2.0 mg/kg, respectively. Benzene was either not detected or interpretation of the results was not possible.

The six UFSTs were removed after the 1989 investigation. Although the site is listed on the San Francisco Bay Region of the California Regional Water Quality Control Board's (RWQCB's) fuel leak list (RWQCB, 1991), documentation of the removal of the UFSTs was not available at the RWQCB. This documentation was later compiled and submitted to the Alameda County Department of Environmental Health (ACDEH) in December 1992. The perimeter of the excavation boundary can be observed at the site, and three existing monitoring wells were located within the excavation boundary. Two additional monitoring wells were identified 35 to 50 feet west of the site in Castro Street (Figure 2; No. 65 and No. 66). These wells are not listed in the Alameda County Public Works Agency (ACPWA) well inventory (1991).

On November 11, 1991, a preliminary site assessment was initiated at the project site. A total of five soil borings were advanced to evaluate the type, magnitude and lateral and vertical extent of any soil contamination that might be present as a result of Greyhound's past fueling operations (Figure 2; ES-1 through ES-5). A soil sample was

collected from each boring and analyzed for total petroleum hydrocarbons as diesel (TPHD) and BTEX. The soil borings were converted to monitoring wells to characterize hydrogeologic conditions and groundwater quality. The wells were monitored for free-product accumulation and depth to groundwater, and groundwater samples were collected and analyzed for TPHD and BTEX (see Preliminary Site Assessment Report; ES, 1992).

In December, 1992, a free-product/groundwater recovery system was installed at the site. The following four monitoring wells were used in the recovery system: BC-1, ES-1, ES-2 and ES-5. Groundwater is pumped from these four wells, treated using carbon filtration, and discharged into the Oakland sewer system under an existing permit with the East Bay Municipality Utility District (EBMUD).

On July 19, 1993, a supplemental site assessment was initiated to better define the lateral extent of dissolved contamination both on and off-site. A total of six soil borings (ES-6 through ES-11) were advanced to evaluate the type, magnitude and lateral and vertical extent of soil and groundwater contamination at the site (Figure 2). A soil sample was collected from each boring and analyzed for BTEX, TPHD, and total petroleum hydrocarbons as gasoline (TPHG). The soil borings were converted to monitoring wells to characterize hydrogeologic conditions and groundwater quality. The wells were monitored for free-product accumulation and depth to groundwater and groundwater samples were collected and analyzed for BTEX, TPHD and TPHG.

This report describes the implementation of the ACDEH-approved supplemental site assessment performed by Engineering-Science, Inc. (ES) at the Greyhound Terminal, 2103 San Pablo Avenue, Oakland, California. The work was performed between July 19 and 23, 1993.

SITE DESCRIPTION

This section presents a description of the site, including surrounding land use, climate, geology, hydrology and surface and groundwater use.

Local Description and Surrounding Land Use and Climate

The triangular-shape Greyhound site is located at the corner of San Pablo Avenue and Castro Street near the central business district of Oakland, California (Section 26, Township 1S, Range 4W; USGS, 1980) (Figures 1 and 2). The site encompasses an area of approximately 61,250 square feet and is entirely paved with asphalt and concrete. Land use in the immediate vicinity of the terminal is mixed (commercial/residential). The terminal is bordered on the west by Castro Street, on the east by San Pablo Avenue and Martin Luther King Way, on the south by 20th Street and on the north by Castro Street/San Pablo Avenue.

The Oakland area has a climate characterized by mild, wet winters and warm dry summers. Average annual precipitation recorded over a ninety year period (1885-1975) for the Oakland area is 20 inches (Alameda County Flood Control and Water Conservation District, 1988).

Local Geology

The site is located in the San Francisco Bay Region of the Coast Ranges Geomorphic Province of California (Norris and Webb, 1990). The area, including the Greyhound facility, is underlain by a thick sequence of unconsolidated Pleistocene deposits that include the Merritt Sand, an alluvial deposit, and older alluvium. The Merritt Sand encountered directly below the site consists of loose, moderate- to well-sorted, fine- to medium-grained, clayey to silty sand and lenses of sandy clay and clay. It has a maximum thickness of 65 feet in the East Bay Plain Area. Underlying the Merritt Sand is 700 to 800 feet of older alluvium comprised of poorly consolidated to unconsolidated clay, silt, sand and gravel (Helley, Lajoie and Burke, 1972; Alameda County Flood Control and Water Conservation District, 1988).

Beneath the Greyhound facility, the subsurface materials encountered include sand, silt and clay. The predominant materials encountered during boring operations were silty, sandy clay and layers/lenses of fine- to medium-grained sand, silty sand and clayey sand interbedded within layers of clay and silty clay (see Appendix A and Preliminary Site Assessment Report, ES, 1992). Hydraulic conductivity values reported for silty, sandy clays range from 10^{-9} to 10^{-4} cm/sec (Freeze and Cherry, 1979; Domenico and Schwartz, 1990).

Hydrology

The surface water body that is nearest to the Greyhound site is Lake Merritt, located approximately 1,700 feet east of the site (Figure 1). Lake Merritt is a brackish-water estuarine environment, connected to and influenced by the tidal fluctuations of San Francisco Bay. The Oakland Inner Harbor, the closest portion of the bay, is located approximately 2,700 feet south-southwest of the site.

The Greyhound facility lies within the Merritt Sand subarea of the East Bay Plain groundwater basin. Locally, groundwater is encountered under water-table conditions at a depth of 18 to 22 feet below ground surface (bgs). Regional groundwater flow is to the west-southwest (Alameda County Flood control and Water Conservation District, 1988). Based on groundwater elevation data collected during the supplemental site assessment, shallow groundwater flow direction appears to be toward the southeast (Figure 3).

Local Surface Water and Groundwater Use

The City of Oakland obtains its municipal and industrial water from the East Bay Municipal Utility District (EBMUD). EBMUD imports this water primarily from the surface waters of the Sierra Nevada Mountain Range, located approximately 200 miles east of the site.

Groundwater in the area is utilized for limited irrigation and industrial purposes. The area is not considered a primary source of water supply because of the limited areal extent and thickness of the water-bearing unit (Alameda County Flood Control and Water Conservation District, 1988).

Approximately 384 wells are located within Section 26, Township 1S, Range 4W (ACPWA, 1991). The vast majority (99%) of these wells are used to monitor or

extract contaminated groundwater at commercial/industrial sites. One of the wells is used to supply water for irrigation. None of the wells located in Section 26 are used for municipal water supply.

SITE INVESTIGATION

The tasks described in this section were performed between July 19 and 23, 1993 and include: soil boring and sampling, monitoring well construction, and groundwater monitoring and sampling. All borehole cuttings, decontamination rinsate liquids and purge water produced were stored on-site in labeled, 55-gallon drums for future disposal.

Prior to the initiation of site activities, soil boring/well construction permits were obtained from the Alameda County Flood Control and Water Conservation District and off-site drilling permits were obtained from the City of Oakland.

Soil Boring and Sampling Procedures

Between July 19 and 23, 1993, a total of six soil borings were advanced to a depth of 35 feet at the site to characterize the type, magnitude and lateral and vertical extent of hydrocarbon contamination. Appendix A contains descriptions of subsurface materials encountered and soil sampling intervals.

Each borehole was initially advanced using a 6.25-inch (inside diameter) hollow-stem auger. Prior to advancing each boring, all downhole drilling and sampling equipment was decontaminated with an Alconox solution followed by steam-cleaning. Soil samples were collected using five-feet interval, split-spoon sampling techniques (ASTM Standard D-1587). Representative soil samples were collected in the internal brass sleeves of the thin-wall sampler. Soil in each sleeve section was visually inspected for signs of staining, screened for the presence of hydrocarbon odors and tested for organic vapors with a photoionization detector (PID). Based on PID readings, the soil sample exhibiting the highest PID reading in each boring was submitted to a California Department of Toxic Substance Control (DTSC)-certified hazardous waste laboratory for TPHD and TPHG analysis by Leaking Underground Fuel Tank (LUFT) Method (modified EPA Method 8015) and BTEX by EPA Method 8020. When PID readings were all non-detect, the sample from just above the water table was selected for analysis.

Soil sampling protocol consisted of capping each end of the brass sleeve section with Teflon-tape and non-reactive plastic caps. A chain-of-custody record accompanied each sample shipment from collection at the site to the laboratory. Each sample was individually labeled, recorded in the field notebook and on the chain-of-custody record, packed in ice and sealed inside an insulated shipping container for same day delivery to the analytical laboratory. The remaining portions of the thin-wall sample were used for descriptions of subsurface materials on the boring logs.

Well Installation Procedures

All soil borings were converted to monitoring wells by overdrilling each borehole with a 10.5-inch (outside diameter) hollow-stem auger. Well construction summaries are contained in Appendix A.

Each new permanent monitoring well was constructed of 4-inch inside-diameter (ID), flush-joint Schedule 40 polyvinyl chloride (PVC) well screen and casing. The final depths of the borings and screened intervals were determined in the field based on data collected at the time the borings were advanced. All of the wells were completed to a depth 35 feet.

Each well was completed with 20 feet of 0.010-inch factory-milled screen positioned to straddle the water table, with 5-feet above and 15-feet below the water table. The assembled well casing was installed through the augers and No. 3 Monterey sand, a size compatible with the well screen slot size, was tremied through the annular space between the well casing and auger. The sand pack was constructed to extend at least one foot above the top of the well screen. Bentonite pellets were tremied through the annular space to form a 2-feet-thick bentonite seal above the sand pack. Potable water was then added to hydrate the bentonite. A cement/bentonite grout (95% Portland cement/5% bentonite) was then backfilled from the top of the bentonite plug to ground surface. The PVC casing was completed with a vented locking cap and covered by a flush-mounted, steel protective curb box. The curb box was grouted in place to limit disturbance to the well casing.

Approximately 24 hours after completion of the wells, the drilling contractor developed the wells by bailing. Removal of water continued until each well produced clear, sediment-free water or at least six well volumes had been removed from each well. After development, the wells were left undisturbed for 96 hours, allowing static water levels to equilibrate prior to groundwater monitoring and sampling. All equipment used to develop the wells was thoroughly steam-cleaned between well locations to prevent the possibility of cross-contamination.

Groundwater Monitoring and Sampling

On July 22-23, 1993, groundwater monitoring of the six newly installed wells and existing monitoring wells was performed (Figure 2). Monitoring wells associated with the groundwater recovery system, including BC-1, ES-1, ES-2 and ES-5, were not sampled due to the presence of free product or hydrocarbon sheens. All remaining monitoring wells were sampled.

Groundwater monitoring consisted of measurement for free-product thickness and depth to water, and the collection of water quality samples from the wells. The free-product thicknesses and the static water levels were measured in each well using an electronic oil-water interface probe and a water level indicator. After each measurement, the water level indicator and the oil-water interface probe were washed with an Alconox solution followed by two rinsings in deionized water to prevent cross-contamination between well locations.

Groundwater samples were collected in accordance with the recommended guidelines of the RWQCB for groundwater sampling (RWQCB, 1985). Water quality samples were collected using disposable polyethylene bailers after purging a minimum of three times the submerged volume of the well casing from each well. Wells were purged with a 2-inch diameter, stainless steel, submersible, electric pump followed by sampling with disposable dedicated polyethylene bailers. During the purging of the

wells, physical parameters (temperature, pH, and electric conductivity) were measured to characterize the stability of the sampled groundwater (Appendix B).

Between sample locations, all sampling equipment was washed with an Alconox/water solution and rinsed three times with deionized water. Samples were collected in two 1-liter amber bottles (TPHD and TPHG) and three 40-ml glass volatile organic analysis (VOA) vials (BTEX). All samples were labeled, refrigerated and transported to a DTSC-certified hazardous waste laboratory for analysis of TPHD and TPHG using the DTSC/LUFT method and BTEX using EPA Method 8020.

Free-Product Thickness Measurements and Groundwater Elevations

Each well was monitored for free-product thickness and depth to water. None of the wells installed or sampled as part of this investigation contained a measurable free-product thickness. Hydrocarbon sheens were noted in water purged from BC-2 and ES-4. Depth to water ranged from 18.04 to 21.94 feet. A summary of water level elevations and free product thickness measurements is included as Table 1.

All monitoring wells were surveyed relative to a single fixed datum on-site using an autolevel and stadia rod in order to create an accurate groundwater elevation contour map (Figure 3). Figure 3 reflects groundwater elevations based on data collected on September 1, 1993. Groundwater flow at the site is presently toward the southeast with a hydraulic gradient of approximately 0.01 ft/ft.

ANALYTICAL RESULTS

Soil and groundwater samples collected from this site investigation were analyzed for TPHD, TPHG and aromatic hydrocarbons (BTEX). TPHD and TPHG analyses were performed using the DTSC/LUFT method (modified EPA Method 8015). BTEX was quantified using EPA Method 8020. All analyses were performed by a DTSC-certified hazardous waste laboratory.

Table 2 summarizes the analytical results for soil and groundwater samples. These results have been plotted on a site plan included as Figure 4. A copy of the analytical laboratory report and chain-of-custody documentation are presented in Appendix C.

Soil Analytical Results

A total of six soil samples were collected and submitted for laboratory analysis. Soil samples from each borehole were screened using a PID and the sample from each borehole having the highest PID measurement was submitted for laboratory analyses. Soil sample analytical results are summarized in Table 2 and shown on Figure 4 at the corresponding well locations.

Total Petroleum Hydrocarbons

TPHD and TPHG were not detected in soil samples from any of the boring locations (Table 2).

Aromatic Hydrocarbons

All samples collected were analyzed for BTEX (Table 2). None of the BTEX compounds were detected in soil samples from any of the boring locations.

Groundwater Analytical Results

Groundwater samples were collected from each of the newly constructed monitoring wells, as well as for selected existing monitoring wells, and were submitted for laboratory analyses. Groundwater analytical results are summarized in Table 2 and shown on Figure 4 at the corresponding well locations.

Total Petroleum Hydrocarbons

Only two samples, the samples collected from BC-2 and ES-3, contained detectable quantities of TPHD (Table 2). The samples contained TPHD concentrations of 0.5 and 0.6 mg/L, respectively. TPHG was detected in only one well location (ES-3) at 1.5 mg/L. Neither TPHD nor TPHG were detected in any of the six new monitoring wells.

Aromatic Hydrocarbons

Five of the ten groundwater samples collected contained detectable levels of BTEX (Table 2). Only one of the six new monitoring wells contained BTEX (ES-11). In the monitoring wells where BTEX was detected, benzene concentrations ranged from ND (ES-11) to 28 μg/L (ES-3), toluene from 0.7 μg/L (ES-11) to 5.9 μg/L (ES-3), ethylbenzene from ND (ES-11) to 4.6 μg/L (ES-3), and xylenes from 1.2 μg/L (ES-11) to 8.3 μg/L (ES-4).

SUMMARY

The summary and conclusions presented in this section are based on data collected during this investigation. The summary and conclusions have been divided into the following sections: 1) supplemental site investigation, 2) site stratigraphy and hydrogeology, 3) results of soil sampling, and 4) results of groundwater sampling. Photodocumentation of the field activies at the Oakland site is presented in Appendix D.

Supplemental Site Investigation

- Between July 19 and 23, 1993, ES advanced six soil borings at the Greyhound Terminal in Oakland, California to completely define the lateral extent of petroleum contamination at this location.
- Soil samples were collected continuously during installation of the soil borings. The sample displaying the highest PID measurements or the sample from just above the water table in each borehole was submitted for chemical analyses. Soil samples were analyzed for TPHD, TPHG and BTEX.
- All six soil borings were converted to permanent 4-inch diameter, PVC monitoring wells. The wells were constructed to monitor potential contamination associated with past operations of the UFST system and to completely define the extent of groundwater contamination on- and off-site.
- On July 22 and 23, 1993, the newly installed wells and the previously installed wells that are not part of the existing groundwater recovery system, were monitored for free-product thickness and depth to water. Water quality samples

were collected on July 22 and 23, 1993 and were analyzed for TPHD, TPHG, and BTEX.

Site Stratigraphy and Hydrogeology

- Subsurface materials encountered during boring operations consisted of silty, sandy clays with layers/lenses of sand, silty sand and clayey sand. Representative hydraulic conductivity values for these materials range from 10^{-9} to 10^{-4} cm/sec. The descriptions of these materials are consistent with descriptions of the Merritt Sand that regional geologic data indicates is beneath the site.
- Shallow groundwater underlying the site occurs under unconfined (water table) conditions. Groundwater was encountered at depths between 18 and 22 feet.
- Groundwater flows toward the southeast with a hydraulic gradient of 0.01 ft/ft.
- Free-product was not encountered in any of the sampled wells.
- The entire site is paved with asphalt or concrete inhibiting the vertical and horizontal migration of contamination through recharge from the surface.
- Groundwater use in the vicinity of the site is limited to irrigation and industrial purposes. The area is not currently considered a primary source of water supply. The City of Oakland obtains its drinking water from EBMUD. EBMUD imports its water from surface water sources located 200 miles away.

Results of Soil Sampling

- BTEX, TPHD and TPHG were not detected in soil samples obtained from any of the borings installed during the supplemental site assessment, indicating that the extent of soil contamination has been completely defined.
- The absence of soil contamination in the area surrounding the former Tank Pit area indicates that contaminant migration from the source area is limited.

Results of Groundwater Sampling

- TPHD was detected in two samples, BC-2 and ES-3, at concentrations of 0.5 and 0.6 mg/L, respectively.
- TPHG was detected in only one sample, ES-3, at a concentration of 1.5 mg/L.
- Benzene (ND to 28 ug/L), toluene (0.7 to 5.9 ug/L), ethylbenzene (ND to 4.6 ug/L) and xylenes (1.2 to 8.3 ug/L) were detected in BC-2, BC-3, ES-3, ES-4 and ES-11. ES-11 was the only newly installed monitoring well with detectable concentrations of BTEX (0.7 ug/L toluene and 1.2 ug/L xylenes).
- The California Maximum Contaminant Levels (MCLs) for benzene, ethylbenzene and xylenes are 1.0 ug/L, 680 ug/L and 1,750 ug/L, respectively. There is no California MCL for toluene; however, the federal MCL for toluene is 1,000 ug/L.
- The concentration of benzene was equal to or exceeded the California MCL (1.0 μg/L) in samples collected from wells BC-2 (1 ug/L), BC-3 (2.7 ug/L), ES-3

(28 ug/L) and ES-4 (24 ug/L). The concentrations of toluene, ethylbenzene and xylenes detected in all water samples were below their respective federal or California MCLs.

- No federal or California MCLs were exceeded in any of the newly installed monitoring wells, which surround the former tank pit area. As noted above, only ES-11 had any detectable concentrations of BTEX.

CONCLUSIONS

A groundwater recovery system is currently in place utilizing monitoring wells BC-1, ES-1, ES-2 and ES-5. The recovery system appears to be successful in containing residual soil and groundwater contamination from the former tank pit area: no significant contamination was detected in the wells that surround the source area.

Development of a preliminary risk assessment was discussed with ACDEH during a meeting on September 2, 1993. The purpose of the risk assessment is to evaluate risk to human health and the environment posed by contaminants at the site and to determine if alternate compliance levels can be established. The risk assessment will evaluate two distinct areas of the site: the former tank pit area (source area) and the area surrounding the source area (perimeter area). The monitoring wells installed in and around the former tank pit area, which were installed prior to this Supplemental Site Investigation, will be considered as the source area. The monitoring wells installed as part of this supplemental investigation will be considered the perimeter area.

At the present time, based on the results of data collected to date, continued operation of the groundwater recovery system on-site and continued groundwater monitoring is recommended.

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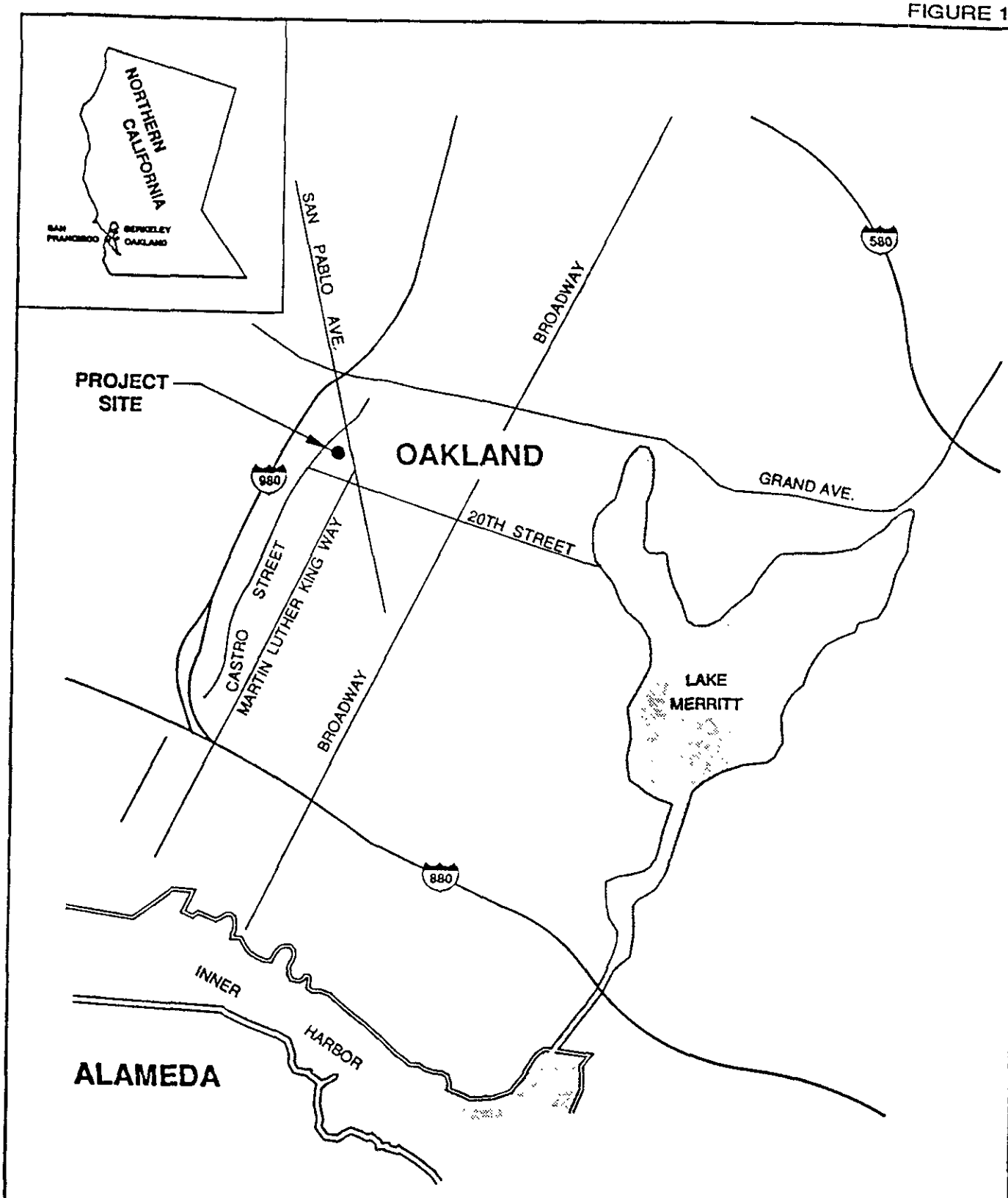
FIGURE 1



GREYHOUND LINES, INC.
LOCATION 8934
2103 SAN PABLO AVENUE
OAKLAND, CALIFORNIA

SITE LOCATION MAP

C186-64/R2 01/27/92

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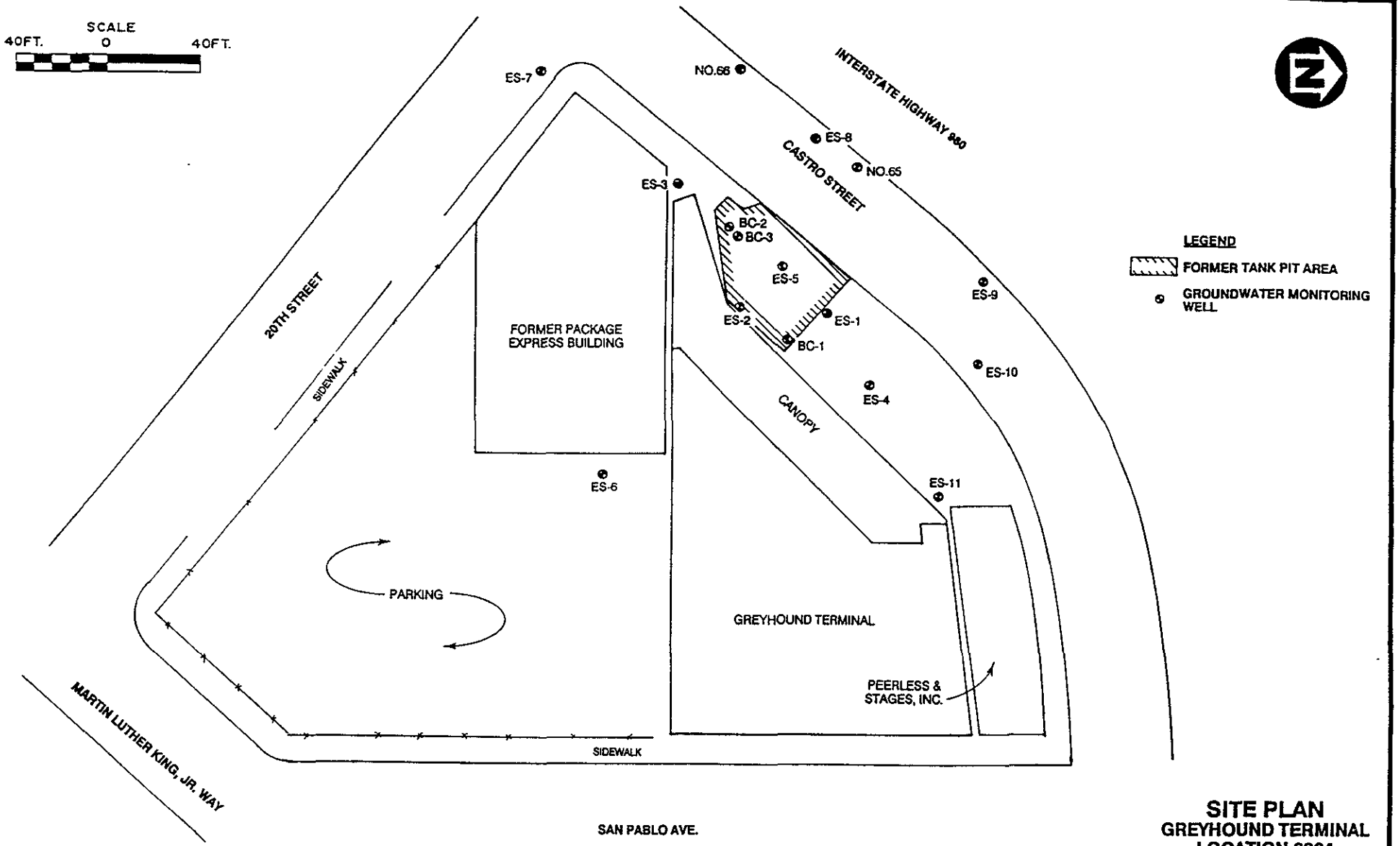

SITE PLAN
GREYHOUND TERMINAL
LOCATION 8934
OAKLAND, CALIFORNIA

SY356.06

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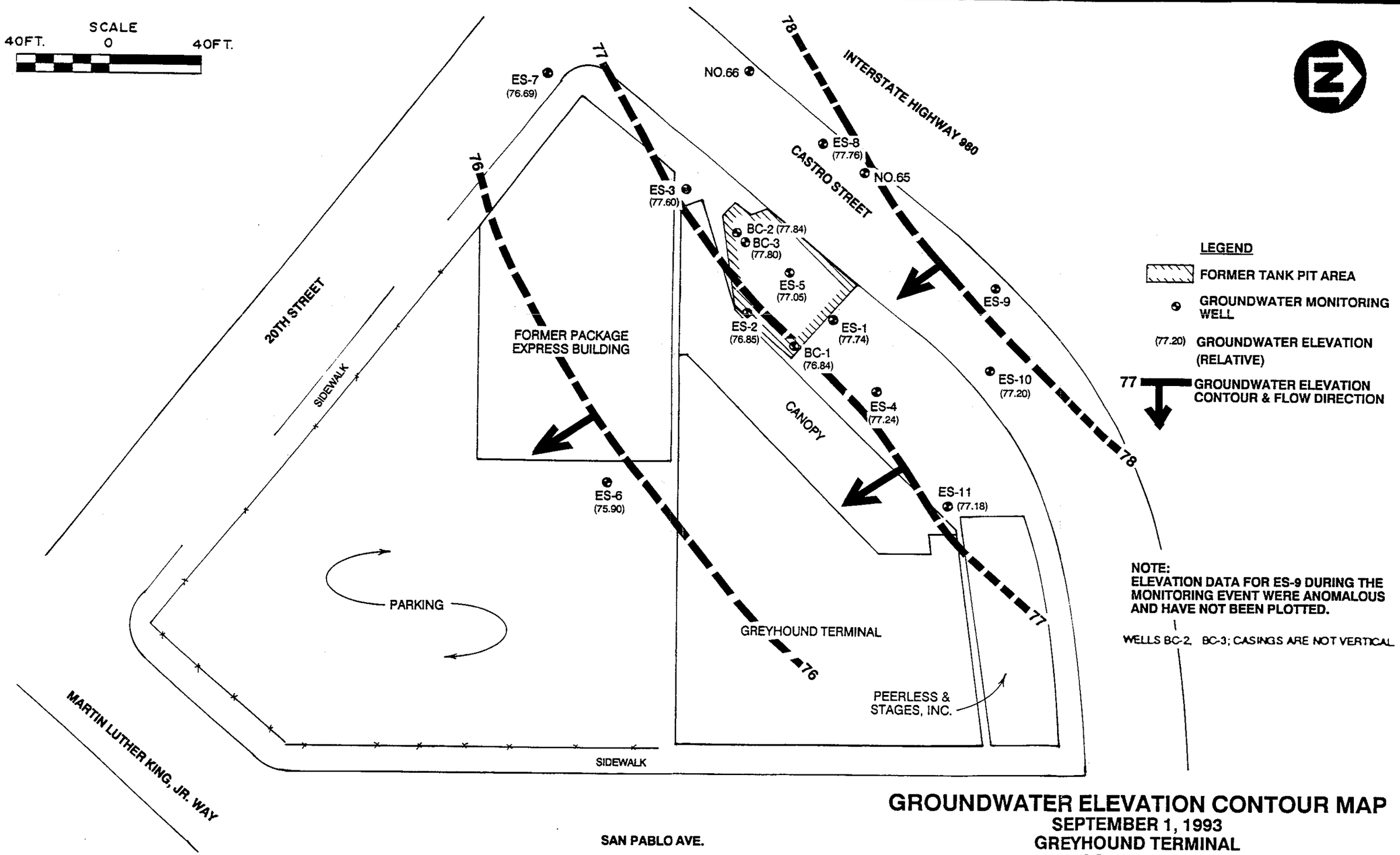
FIGURE 3



GROUNDWATER ELEVATION CONTOUR MAP
SEPTEMBER 1, 1993
GREYHOUND TERMINAL
LOCATION 8934
OAKLAND, CALIFORNIA

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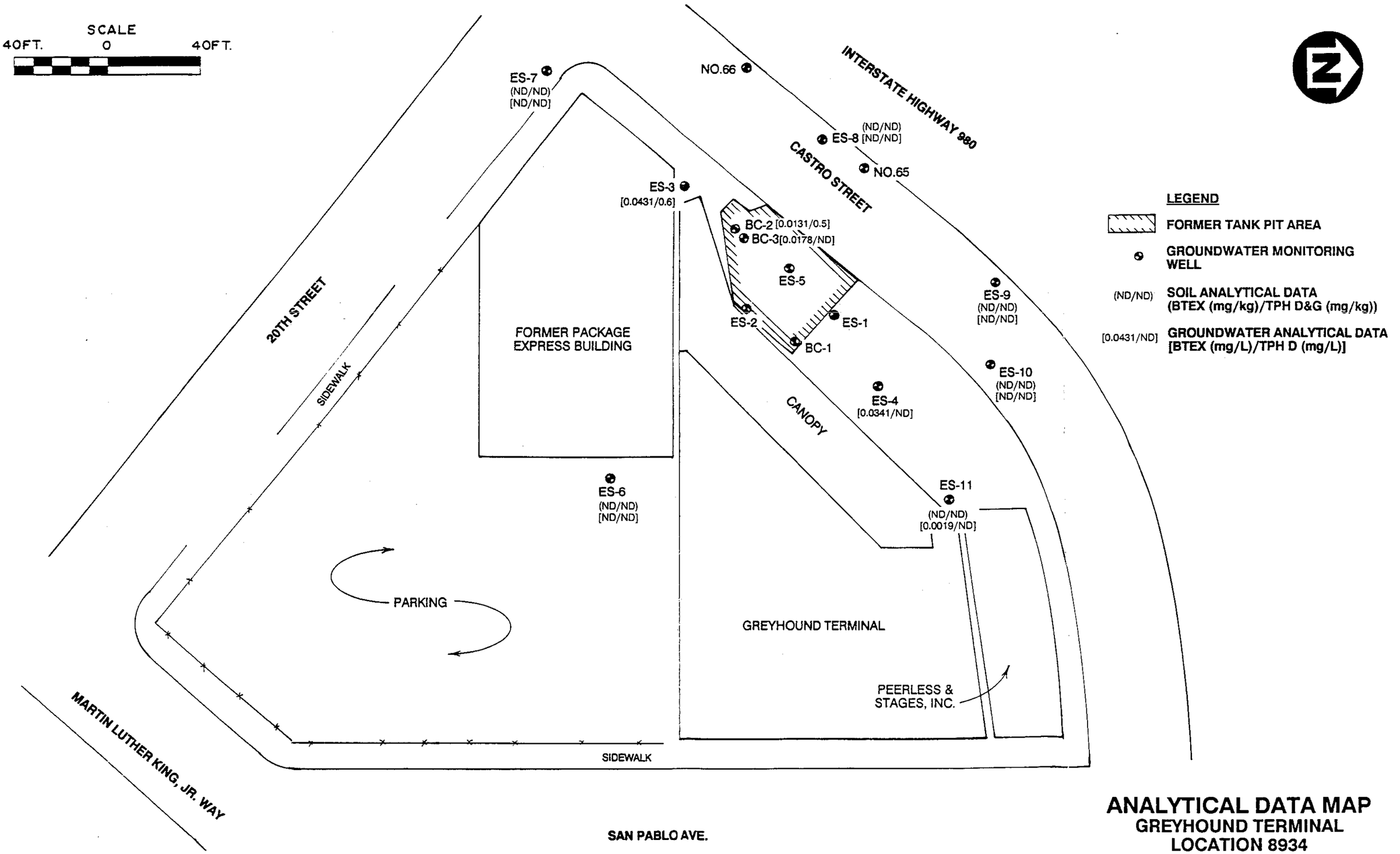


ANALYTICAL DATA MAP
GREYHOUND TERMINAL
LOCATION 8934
OAKLAND, CALIFORNIA

Table 1
Greyhound Lines
Groundwater Elevation Survey
Oakland, California

Location	Top of Casing Elevation	Depth to Water (feet below T.O.C.)	Groundwater Elevation
ES–1	96.64	18.90	77.74
ES–2	96.44	19.59	76.85
ES–3	96.96	19.36	77.60
ES–4	95.70	18.46	77.24
ES–5	95.85	18.80	77.05
ES–6	97.84	21.94	75.90
ES–7	96.40	19.71	76.69
ES–8	96.64	18.88	77.76
ES–9	95.78	19.74	76.04
ES–10	95.24	18.04	77.20
ES–11	95.92	18.74	77.18
BC–1	96.16	19.32	76.84
BC–2	96.32	18.48	77.84
BC–3	96.20	18.40	77.80

T.O.C. – Top of Casing
(1) Based on water level data collected on September 1, 1993.

NOTE: WELLS BC-2, BC-3; CASINGS ARE NOT VERTICAL

Table 2
Greyhound Lines
Soil and Groundwater
Analytical Summary

Location	Matrix	Benzene	Toluene	Ethyl–benzene	Total Xylenes	Total[1] BTEX	TPH[2] (diesel)	TPH[3] (gasoline)
BC–2	Water	1.0	2.4	1.8	7.9	13.1	0.5	ND
BC–3	Water	2.7	3.6	3.6	7.9	17.8	NA	ND
ES–3	Water	28.0	5.9	4.6	4.6	43.1	0.6	1.5
ES–4	Water	24.0	1.1	0.7	8.3	34.1	ND	ND
ES–6	Water	ND	ND	ND	ND	ND	ND	ND
(15'–16.5')	Soil	ND	ND	ND	ND	ND	ND	ND
ES–7	Water	ND	ND	ND	ND	ND	ND	ND
(20'–21.5')	Soil	ND	ND	ND	ND	ND	ND	ND
ES–8	Water	ND	ND	ND	ND	ND	ND	ND
(20'–21.5')	Soil	ND	ND	ND	ND	ND	ND	ND
ES–9	Water	ND	ND	ND	ND	ND	ND	ND
(15'–16.5')	Soil	ND	ND	ND	ND	ND	ND	ND
ES–10	Water	ND	ND	ND	ND	ND	ND	ND
(20'–21.5')	Soil	ND	ND	ND	ND	ND	ND	ND
ES–11	Water	ND	0.7	ND	1.2	1.9	ND	ND
(20'–21.5')	Soil	ND	ND	ND	ND	ND	ND	ND

NA = Not analyzed. Sample bottle broken during shipment.

ND= Non–detect; sample analyzed but did not exceed the Method Detection Limit.

1 Total BTEX= analyzed by EPA Method 8020. Results reported in ppb. Method Detection Limit specific to analyte. Refer to analytical laboratory report (Appendix C).

2 TPH–Diesel= Total Petroleum Hydrocarbons (TPH) for diesel by EPA Method 3550/8015. Results reported in ppm. Method Detection Limit specific to sample. Refer to analytical laboratory report.

3 TPH–Gasoline= Total Petroleum Hydrocarbons (TPH) for Gasoline by EPA Method 8015M. Results reported in ppm. Method Detection Limit specific to sample. Refer to analytical laboratory report.

APPENDIX A

BORING AND WELL CONSTRUCTION LOGS

Contractor: Spectrum Exp.
Driller:
Inspector: JSP / LAB
Rig Type: CME 55
Drilling Method: 6.25" HSA

WATER LEVEL MEASUREMENTS

MP			
DTW from MP			
Time			
Date			

ENGINEERING-SCIENCE DRILLING RECORD

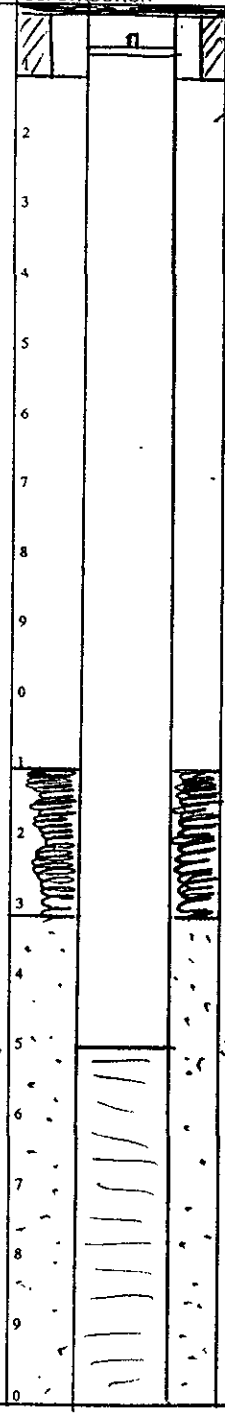
PROJECT NAME GLI- Oakland Terminal
PROJECT NO. SY356.06
Weather Clear Warm
Date/Time Start 7-19-93 / 1430
Date/Time Finish 7-19-93 / 1800

BORING NO ES-6
Sheet 1 of 2
Location: East of Bldg in Parking lot

Plot Plan
Bldg
+ ES-6

Photovac Reading	Sample I.D.	Sample Depths	% Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			0-5' Fill material.
		1			
		2			
		3			
		4			5.0'-6.5'
		5		5	Light brown silt. Trace
D.D			100	11	of clay. [ML or MH]
		6		16	
		7			
		8			
		9			10.0'-11.5'
		10		3	Light brown silt and clay.
D.D			100	5	Trace of med. Sand.
		11		10	Damp. [ML or MH]
		12			
		13			
		14			15.0'-16.5'
		15		17	Medium mottled Sand.
D.D	14.5'		100	30	No silt or clay traces. Dry.
		16		38	
		17			
		18			
		19			20.0'-21.5'
		20		12	Medium mottled Sand. [SW]

WELL CONSTRUCTION



COMMENTS
Christy Box Concrete
Bentonite Grout to 1'
Bentonite Pellets to 11'
SAND PACK to 13'
screened from 35' to 15'

SPT = STANDARD PENETRATION TEST CAL = CALIBRATION BZ = BREATHING ZONE
SS = SPLIT SPOON A = AUGER CUTTINGS C = CORED BH = BOREHOLE

SUMMARY

Contractor: Spectrum Exp.
Driller:
Inspector: JSP/LAB
Rig Type: CME 55
Drilling Method: 6.25" HSA

WATER LEVEL MEASUREMENTS

MP			
DTW from MP			
Time			
Date			

ENGINEERING-SCIENCE DRILLING RECORD

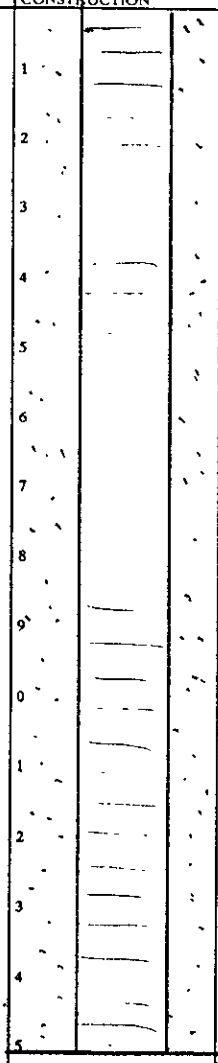
PROJECT NAME GLI- Oakland Terminal
PROJECT NO. SY356.06
Weather Clear, Warm
Date/Time Start 7-19-93 / 1430
Date/Time Finish

BORING NO. ES-6
Sheet 2 of 2
Location: East of Bldg in Parking Lot

Plot Plan: Bldg, ⊕ ES-6, N

Photovac Reading	Sample ID	Sample Depths	% Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		20		12	Saturated (Wet)
0.0		21	100	32	
				40	
		22			
		23			
		24			25.0' - 26.5'
		25		27	Medium mottled Sand.
0.0			100	52	Saturated (Wet).
		26		—	
		27			
		28			
		29			30.0' - 31.5'
		30		3	Light Grey clay. Little
0.0			100	6	med. Sand. Moist.
		31		10	or CL]
		32			
		33			
		34			
		35		7	35.0' 36.0' Med. mottled Sand.
0.0			100	10	Wet
		36		17	36.0' - 36.5' Blue grey Clay
		7			Little angular coarse Sand.
		8			or CL]
		9			
		0			

WELL CONSTRUCTION



COMMENTS: Bottom of well 35 ft.

SPT = STANDARD PENETRATION TEST CAL = CALIBRATION BZ = BREATHING ZONE
SS = SPLIT SPOON A = AUGER CUTTINGS C = CORED BH = BOREHOLE

SUMMARY

Contractor: Spectrum Exp.
Driller:
Inspector: JSP/LMB
Rig Type: CME 55
Drilling Method: 6.25" HSA

WATER LEVEL MEASUREMENTS

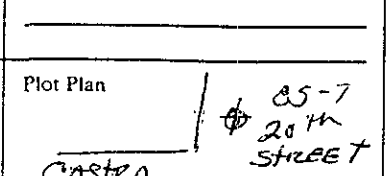
MP			
DTW from MP			
Time			
Date			

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME GLI- Oakland Terminal
PROJECT NO. SY356.06
Weather Clear, Warm
Date/Time Start 7-20-93 / 0730
Date/Time Finish 7-20-93 / 1200

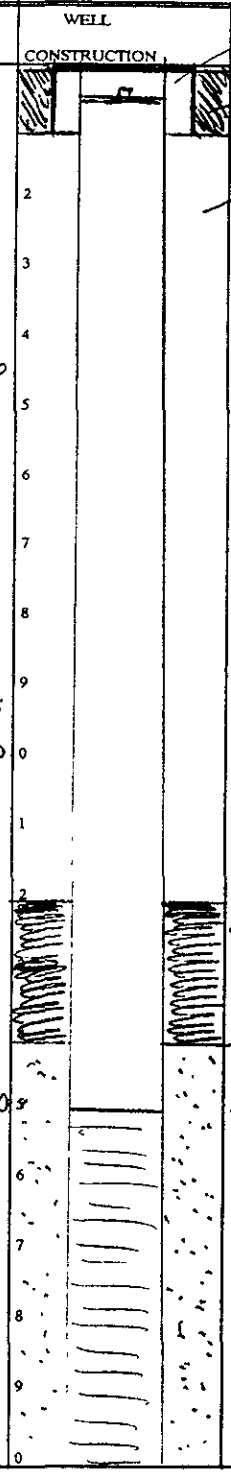
BORING NO. ES-7
Sheet 1 of 2
Location:

Plot Plan



Photovac Reading	Sample I.D.	Sample Depths	% Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		0			0-2" Asphalt Surface
		1			2"-10" Concrete
					10"-5' Fill Material
		2			
		3			
		4			
		5		3	5'-6.5' Brown fine sand. Trace
0.0		6	60	10	g silt. Damp.
				18	
		7			
		8			
		9			
		10		4	10'-11.5' Brown-grey fine sand
0.0			80	11	and clay. Little silt. Damp
		11		18	[SC]
		12			
		13			
		14			
	0949	15		10	15'-15.5' Brown-grey fine sand
0.0	[illegible]		80	21	15.5'-16.5' Grey fin sand. Damp
		16		31	
		17			
		18			
		19			
		20		19	Fine to Med. Rounded Sand. Wet.

WELL CONSTRUCTION



COMMENTS

Christy Box
Concrete
Bentonite Grout 1' to 12'
Bentonite Pellets 12'-14'.
SAND PACK 14' to 35'
SCREENED From 15' to 35'

SPT = STANDARD PENETRATION TEST CAL = CALIBRATION BZ = BREATHING ZONE
SS = SPLIT SPOON A = AUGER CUTTINGS C = CORED BH = BOREHOLE

SUMMARY

Contractor: Spectrum Exp.
Driller:
Inspector: JSP/LAB
Rig Type: CME 55
Drilling Method: 6.25" HSA

WATER LEVEL MEASUREMENTS

MP			
DTW from MP			
Time			
Date			

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME GLI- Oakland Terminal
PROJECT NO. SY356.06
Weather Clear, Warm
Date/Time Start 7/20 93 / 0730
Date/Time Finish 7-20 93 / 1200

BORING NO. ES-7
Sheet 2 of 2
Location: Corner of 20th and Castro Street (West of Site)
Plot Plan: ES-7 @ 20th, Castro

Photovac Reading	Sample I.D.	Sample Depths	% Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		20.5		3 19	Fine to Med. Mottled Sand.
0.0	0949	21	100	31	Wet
				44	
		22			
		23			
		24			25.0'-26.5' Fine to med mottled Sand. [SW]
		25		31	
0.0			100	50/5"	Wet.
		26		—	
		27			
		28			
		29			[SW] 30.0'-30.5' Fine to Med. Mottled Sand.
		30		7	30.5'-31.5' Grey Clay little Sand.
0.0			100	11	Clay is damp. [H or CL]
		31		17	
		32			
		33			
		34			
		35		12	35'-36' Clay little sand. [H or CL]
0.0			100	17	36'-36.5' Fine to med. Sand.
		36		19	Wet.
		7			
		8			
		9			
		0			

WELL CONSTRUCTION

COMMENTS: Bottom of well 35'

SPT = STANDARD PENETRATION TEST CAL = CALIBRATION BZ = BREATHING ZONE
SS = SPLIT SPOON A = AUGER CUTTINGS C = CORED BH = BOREHOLE

SUMMARY

Contractor: Spectrum Exp.
Driller:
Inspector: JSP / LHB
Rig Type: CME 55
Drilling Method: 6.25" HSA

WATER LEVEL MEASUREMENTS

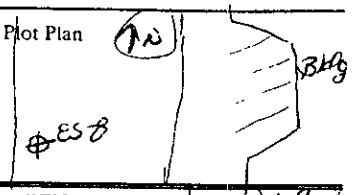
MP			
DTW from MP			
Time			
Date			

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME GLI- Oakland Terminal
PROJECT NO. SY356.06
Weather Clear, Warm
Date/Time Start 7-20-93 / 1300
Date/Time Finish 7-20-93 / 1630

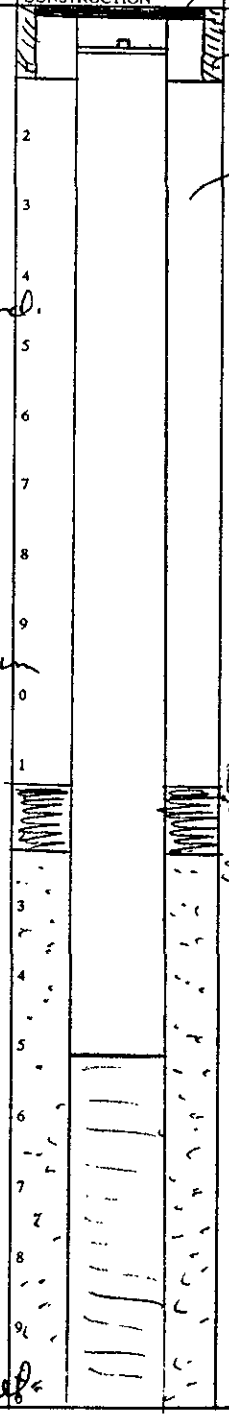
BORING NO. ES-8
Sheet 1 of 2
Location: West of Site in Street (Center)

Plot Plan



Photovac Reading	Sample ID	Sample Depths	% Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		1			0'-1' Asphalt.
					1'-5' Fill - Roadbase (Sand & Gravel).
		2			
		3			
		4			
		5		8	5'-6.5' Brown clay Some med. Sand.
0.0			100	9	Moist. [CH or CL]
		6		18	
		7			
		8			
		9			
		10		5	10'-11.5' Blue/grey clay with medium
0.0			100	8	Sand. Tight. [CH or CL]
		11		14	
		12			
		13			
		14			
		15		13	15'-16.5' Fine to medium sand.
0.0			100	19	Grey-brown in color. Trace f
		16		25	Sand. Trace Clay. Moist.
		17			
		18			
		19			[SW]
		20		19	20'-21.5' Fine to Med. Mottled Sand. Wet.

WELL CONSTRUCTION



COMMENTS

SPT = STANDARD PENETRATION TEST CAL = CALIBRATION BZ = BREATHING ZONE
SS = SPLIT SPOON A = AUGER CUTTINGS C = CORED BH = BOREHOLE

SUMMARY

Contractor: Spectrum Exp.
Driller:
Inspector: JSP / LMB
Rig Type: CMES5
Drilling Method: 6.25" HSA

WATER LEVEL MEASUREMENTS

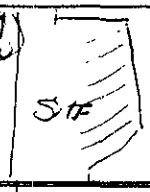
MP			
DTW from MP			
Time			
Date			

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME GLI- Oakland Terminal
PROJECT NO. SY356.06
Weather Clear, Warm
Date/Time Start 7/20/93 / 1300
Date/Time Finish 7/20/93 / 1630

BORING NO. ES-8
Sheet 2 of 2
Location: West of Side in Costa Street

Plot Plan



Photovac Reading	Sample I.D.	Sample Depths	% Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL CONSTRUCTION	COMMENTS
				19	20'-21.5' Fine to Med. Mottled Sand. Wet. [SW]		
0.0	13:40	21	100	21			
				30			
		22					
		23					
		24					
		25		11	25'-25.75' Sand		
0.0			100	13	25.75'-26.5' Mottled Clay Little Sand. Wet. [CL or CL]		
		26		19			
		27					
		28					
		29					
		30		6	30'-31' Clay trace of Sand. [CL or CL]		
0.0			100	17	31'-31.5' Medium Sand		
		31		50/5"			
		32					
		33					
		34					
		35		10	35'-36' Medium Sand		
0.0			100	29	36'-36.5' Grey Clay, Some Silt. [CL or CL]		
		36		21			Bottom of Well-35'
		7					
		8					
		9					
		0					

SPT = STANDARD PENETRATION TEST CAL = CALIBRATION BZ = BREATHING ZONE
SS = SPLIT SPOON A = AUGER CUTTINGS C = CORED BH = BOREHOLE

SUMMARY

Contractor: Spectrum Exp.
Driller:
Inspector: JSP/LAB
Rig Type: CME 55
Drilling Method: 6.25" HSA

WATER LEVEL MEASUREMENTS

MP			
DTW from MP			
Time			
Date			

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME GLI- Oakland Terminal
PROJECT NO. SY356.06
Weather Clear, Warm
Date/Time Start 7-21-93 / 0800
Date/Time Finish 7-21-93 / 10:30

BORING NO. ES-9
Sheet 1 of 2
Location: West of Site North of ES-8.

Plot Plan: ES-9, Castle, ES-8, SITE, N

Photovac Reading	Sample I.D.	Sample Depths	% Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL CONSTRUCTION	COMMENTS
					0-1' Asphalt		Christy Box
		1			1'-5' Fill Material		Concrete Cap
		2					Grout Slurry 1 to 11.2 ft
		3					
		4					
				7	5'-6.5' Brown clay. Medium Sand throughout clay sample Moist. Trace of Black Colored specks. (possible topsoil or discolored spots). [CL or CL]		
5.9	—	5	80	10			
		6		14			
		7					
		8					
		9					
				5	10'-11.6' Brown colored clay. medium Sand throughout Spoon Sample. Moist. [CL or CL]		
5.3	—	10	80	13			
		11		15			Bentonite seal 11.2 to 13 ft
		12					
		13					Sand Pack 13 to 35 ft
		14					
				15	15'-16.5' Brown fine to medium mottled Sand w clay. Moist. [SW or CL]		Screened 15 to 35 ft
6.1	1820	15	90	30			
		16		31			
		17					
		18					
		19					
	—	20		21	20'-21.5' Brown fine to Med. mottled Sand [SW] Wet.		

SPT = STANDARD PENETRATION TEST CAL = CALIBRATION BZ = BREATHING ZONE
SS = SPLIT SPOON A = AUGER CUTTINGS C = CORED BH = BOREHOLE

SUMMARY

Contractor: Spectrum Exp.
Driller:
Inspector: JSP/LMB
Rig Type: CME 55
Drilling Method: 6.25" HSA

WATER LEVEL MEASUREMENTS

MP			
DTW from MP			
Time			
Date			

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME GLI- Oakland Terminal
PROJECT NO. SY356.06
Weather Clear Warm
Date/Time Start 7-21-93 / 0800
Date/Time Finish 7-21-93 / 10:30

BORING NO. ES-9
Sheet 2 of 2
Location: (West of Site, north of ES-8.

Plot Plan ES-9, ES-8, Site, (N)

Photovac Reading	Sample I.D.	Sample Depths	% Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL CONSTRUCTION	COMMENTS
				24	20'-21.5' Brown fine to medium mottled Sand. Wet. [SW]		
5.3	—	21	80	32			
				41			
		22					
		23					
		24					
				7	25'-25.5' Mottled Sand. [SW]		
5.3	—	25	75%	12	25.5'-26.5' Brown mottled Clay. Trace of Sand. Wet. [H or CL]		
		26		10			
		27					
		28					
		29					
				8	30-31' Brown to Blue/Grey mottled Clay [H or CL]		
5.8	—	30	100%	14			
				50/1	31-31.5' Medium mottled Sand. [SW]		
		31					
		32					
		33					
		34					
				6	35'-35.5' Brown fine to med Sand.		
3.4		35	100	9	35.5'-36.5' Brown Clay with trace of Sand. [CH or CL]		Bottom of well 35' bgl.
		36		15			
		7					
		8					
		9					
		0					

SPT = STANDARD PENETRATION TEST CAL = CALIBRATION BZ = BREATHING ZONE
SS = SPLIT SPOON A = AUGER CUTTINGS C = CORED BH = BOREHOLE

SUMMARY

Contractor: Spectrum Exp.
Driller:
Inspector: JSP/LAB
Rig Type: CME 55
Drilling Method: 6.25" HSA

WATER LEVEL MEASUREMENTS

MP			
DTW from MP			
Time			
Date			

ENGINEERING-SCIENCE DRILLING RECORD

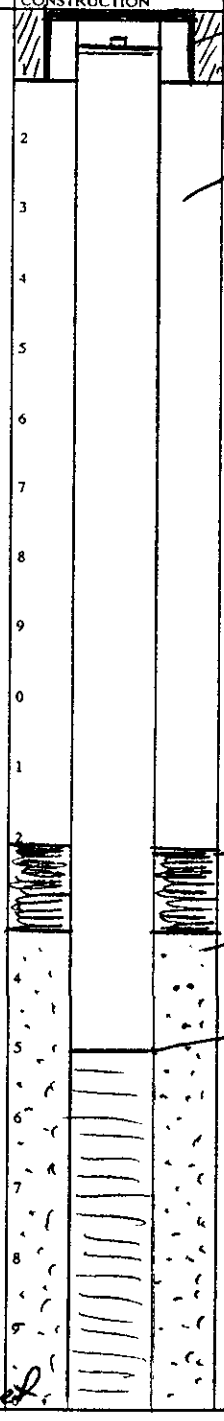
PROJECT NAME GLI- Oakland Terminal
PROJECT NO. SY356.06
Weather Clear Warm
Date/Time Start 7-21-93 / 1100
Date/Time Finish 7-21-93 / 1400

BORING NO. ES-10
Sheet 1 of 2
Location: West of Sub adjacent to West side of Sub

Plot Plan
Castro Street
ES-10
ES-9
N

Photovac Reading	Sample I.D.	Sample Depths	% Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL
		1			0-1' Asphalt 1'-5' Fill material.
		2			
		3			
		4			
		5		4	5'-6.5' Brown clay with blue colored mottling and some Sand. Damp - [CH or CL]
0.0	—		70	10	
		6		13	
		7			
		8			
		9			
		10		3	10'-11.5' Brown clay with some medium Sand. No blue colored mottling. Damp to moist. [CH or CL]
0.0	—		100	6	
		11		8	
		12			
		13			
		14			
		15		16	15'-16.5' Fine & med. Sand. Grey/brown colored. Moist. No clay.
0.0	—		100	38	
		16		44	
		17			
		18			
		19			
0.0	1150	20		19	20'-21.5' Fine-Med Mottled Sand. Wet. [SW]

WELL CONSTRUCTION



COMMENTS

SPT = STANDARD PENETRATION TEST CAL = CALIBRATION BZ = BREATHING ZONE
SS = SPLIT SPOON A = AUGER CUTTINGS C = CORED BH = BOREHOLE

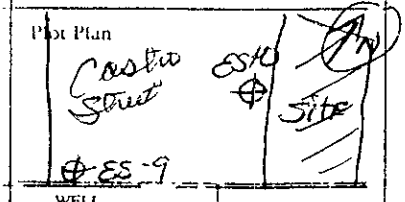
SUMMARY

Contractor: Spectrum Exp.
Fuller:
Inspector: JSP/LAB
Rig Type: CME 55
Drilling Method: 0.25" HSA
WATER LEVEL MEASUREMENTS
MP
HSW from MP
Date
Time

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME CCI - Oakland Terminal
PROJECT NO SY356.06
Weather Clear, Warm
Date/Time Start 7-21-93/1100
Date/Time Finish 7-21-93/1400

BORING NO. ES-10
Sheet 2 of 2
Location: Adjacent to West side of Site.

Plot Plan


Photovac Reading	Sample ID	Sample Depths	% Recovery	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL CONSTRUCTION	COMMENTS
				19	20'-21.5' Fine-Med. Sand. Mottled Sand. Wet.		
0.0	11:50	21	100	38			
				47			
		22					
		23					
		24					
		25		2	25'-25.5' Fine-Med Sand. Wet [SW]		
0.0	—		100	5	25.5'-26.5' Brown Sandy Clay. Moist. [CH or CL]		
		26		6			
		27					
		28					
		29			[CH or CL]		
		30		4	30'-30.5' Grey/brown Clay.		
0.0	—		100	19	30.5'-31.5' Fine-Med. Mottled		
		31		15	Sand. Moist.		
		32					
		33					
		34					
—		35	—	—	NO sample collected - Rig		
				—	Shut down.		Bottom of well 35'
		36					
		7					
		8					
		9					
		0					

SPT = STANDARD PENETRATION TEST CAL = CALIBRATION BZ = BREATHING ZONE
SS = SPLIT SPOON A = AUGER CUTTINGS C = CORED BH = BOREHOLE

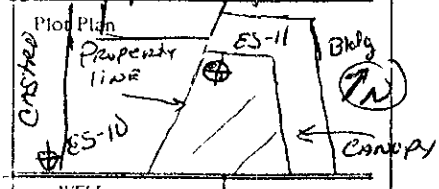
SUMMARY

ENGINEERING-SCIENCE DRILLING RECORD

Contractor: Spect Fum Exp.
Driller: _____
Inspector: JSP/LAB
Rig Type: CME 55
Drilling Method: 6.25" HSA
WATER LEVEL MEASUREMENTS
MP: _____
DTW from MP: _____
Time: _____
Date: _____

PROJECT NAME GLI - Oakland Terminal
PROJECT NO. SY356.06
Weather: Clear, Warm
Date/Time Start: 7-21-93 / 1500
Date/Time Finish: 7-21-93 / 1825

BORING NO. ES-11
Sheet 1 of 2
Location: North end of Parking area - along site Property line

Plot Plan


Blows/6"	Sample ID	Sample Depth	% Recovery	SPT
		1		
		2		
		3		
		4		
		5		6
0.0	—		100	14
		6		15
		7		
		8		
		9		
		10		4
0.0	—		100	5
		11		10
		12		
		13		
		14		
		15		7
0.0	—		100	13
		16		14
		17		
		18		
		19		
		20		22

FIELD IDENTIFICATION OF MATERIAL

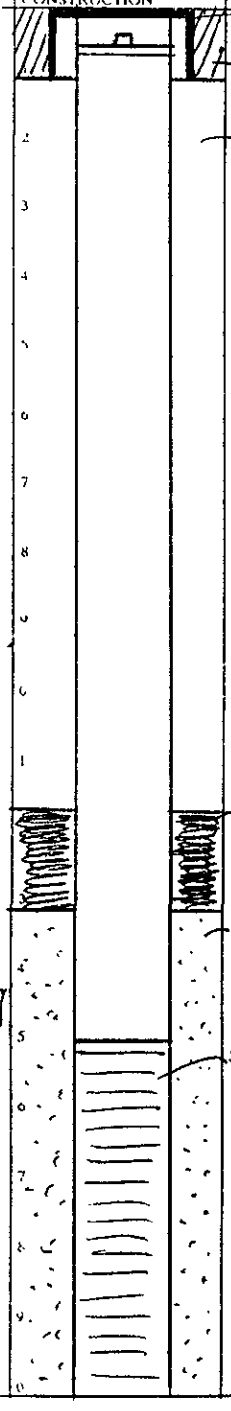
0-1' Concrete
1-5' Fill Material

5'-6.5' Brown clay and med. Sand. Damp.

10'-11.5' Brown-grey Sandy Clay Fine Sand. Moist. [CH or CL]

15'-15.8' Brown-grey clay [CH or CL]
15.8'-16.5' Fine-med Sand. Trace of silt. Moist.

WELL CONSTRUCTION



COMMENTS

SPT = STANDARD PENETRATION TEST CA = CALCULATION BZ = BREATHING ZONE
SS = SPLIT SPOON A = AUGER CUTTINGS C = CORED BH = BOREHOLE

SUMMARY _____

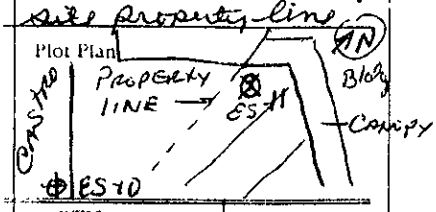
Contractor: Gregg Drilling Exp.
Driller:
Inspector: JSP / LAB
Rig Type: CME 55
Drilling Method: 6.25" HSA
WATER LEVEL MEASUREMENTS
SP:
DEP: SP:
L:
L:

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: CLI - Oakland Terminal
PROJECT NO.: SY356.06
Weather: Clear, Warm
Date Time Start: 7-21-93 / 1500
Date Time Finish: 7-21-93 / 1825

BORING NO. ES-11
Sheet 2 of 2
Location: Northend of Parking area - along site property line

Plot Plan



Blow/6"	Sample ID	Sample Depth	Recovery	SPT
				22
0.0	Liner	21	100	28
				43
		22		
		23		
		24		
		25		14
0.0	—		80	21
		26		22
		27		
		28		
		29		
		30		6
0.0	—		100	11
		31		16
		32		
		33		
		34		
		35		4
0.0	—		100	9
		36		15
		7		
		8		
		9		
		0		

FIELD IDENTIFICATION OF MATERIAL

20'-21.5' Fine - Med mottled Sand Saturated/Wet. Trace of Silt. No Clay. [SW]

25'-26' Fine - Med mottled Sand. [SW]

26'-26.5' Brown Clay Trace of Sand. [CH or CL]

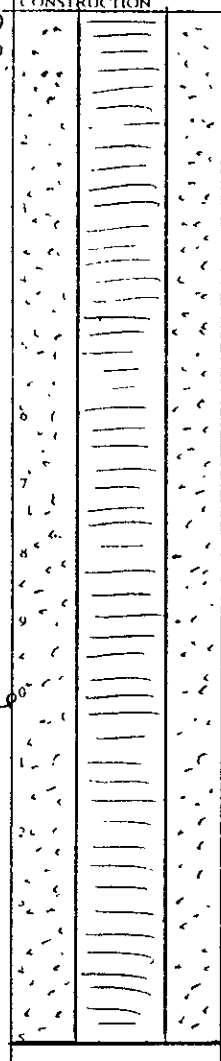
30-30.5' Fine - Med Sand. [SW]

30.5'-31.5' Blue-grey Clay. Trace of Sand. [CH or CL]

35'-35.5' Fine Sandy Clay. [CH or CL]

35.5'-36.5' Clay Blue-grey in Color. No Sand. [CH or CL]

WELL CONSTRUCTION



COMMENTS

Bottom of Well 35 ft.

SPT = STANDARD PENETRATION TEST CAL = CALIBRATION BZ = BREATHING ZONE
S = SPLIT SPOON A = AUGER CUTTINGS C = CORED BH = BOREHOLE

SUMMARY

APPENDIX B:

WELL SAMPLING RECORDS

WELL SAMPLING RECORD

Site Name GLI-Oakland Terminal Well ES-3 Date 7-23-93

Samplers: LINDA A. BERRY of ES-Chicago

_____ of _____

Intial Static Water Level (from top of ~~well protective casing~~ PVC riser) 19.38 ft

Evacuation: 7-23-93 10:20

Using: Submersible _____ Centrifugal _____ 2" Casing: ___ ft. of water x .16 = _____ gals
Airlift _____ Positive Displacement _____ 3" Casing: ___ ft. of water x .36 = _____ gals
Bailed X _____ Times 4" Casing: ___ ft. of water x .65 = _____ gals

Depth to intake from top of protective well casing _____ 15.62 10.2

Volume of water removed ~ 50gal Gals. (> 3 Well Volumes)

Sampling: Time 7-23-93 _____ a.m.
1415 p.m.

Bailer Type: Stainless Steel _____
Teflon X Dedicated Bailer
From Pos. Dis. Discharge Tube _____
Other _____ _____

	No. of Bottles Filled	I.D. No.	Analyses
Trip Blank	1-40mL	_____	BTEX
Field Blank - Wash / Atmospheric (cirle one)	_____	_____	_____
Groundwater Sample	3-40mL, 2-1 liter	_____	BTEX, TPHD, TPHG

Physical Appearance and Odor Clear, Strong odor is present

Refrigerate: Date: 7-23-93 Time 14:15

Field Tests:

Temperature (C/F)	68.5	_____
pH	6.34	_____
Spec. Conduc (umhos/cm)	.56 X1000	_____

Weather Sunny Warm

Comments To Developwell, Driller's used 1 ter 15' in length bailer.

WELL SAMPLING RECORD

Site Name GLI-Oakland Terminal Well ES-4 Date 7-23-93

Samplers: LINDA A. BEKAN of ES-Chicago

_____ of _____

Intial Static Water Level (from top of ~~well protective casing~~ PVC RISER) 18.22 ft

Evacuation: 7-23-93 0830

Using: Submersible _____ Centrifugal _____ 2" Casing: ___ ft. of water x .16 = _____ gals
Airlift _____ Positive Displacement _____ 3" Casing: ___ ft. of water x .36 = _____ gals
Bailed X _____ Times 4" Casing: ___ ft. of water x .65 = _____ gals

Depth to intake from top of protective well casing _____ 11.78 7.6

Volume of water removed ~ 50 Gals. (> 3 Well Volumes)

Sampling: Time 7-23-93 _____ a.m.
1300 p.m.

Bailer Type: Stainless Steel _____
Teflon X - Dedicated bailer
From Pos. Dis. Discharge Tube _____
Other _____ _____

	No. of Bottles Filled	I.D. No.	Analyses
Trip Blank	_____	_____	_____
Field Blank - Wash / Atmospheric (cirle one)	_____	_____	_____
Groundwater Sample	3-40mL, 2-1 liter	_____	BTEX, TPHD, TPHG

Physical Appearance and Odor Clear, No odor was noted

Refrigerate: Date: 7-23-93 Time 12:00

Field Tests:

Temperature (C/F)	70.7°F	_____
pH	6.74	_____
Spec. Conduc (umhos/cm)	.80x1000	_____

Weather Sunny, Warm

Comments To develop well, Driller's bailer (~15' in length) was used.

WELL SAMPLING RECORD

Site Name GLI-Oakland Terminal Well ES-6 Date 7-22-93

Samplers: LINDA A. BERAN of ES-Chicago

_____ of _____

Intial Static Water Level (from top of well protective casing) Top of PVC Casing 21.4'

Evacuation: 7-22-93 0850

Using: Submersible _____ Centrifugal _____ 2" Casing: ___ ft. of water x .16 = _____ gals
Airlift _____ Positive Displacement _____ 3" Casing: ___ ft. of water x .36 = _____ gals
4" PVC Bailed _____ ~13 Times 4" Casing: 13.6' ft. of water x .65 = 8.84 gals

Depth to intake from top of protective well casing _____

Volume of water removed 55 Gals. (> 3 Well Volumes)

Bailer was ~15' in length

Sampling: Time 7-22-93 1150 (a.m.) _____ p.m.

Bailer Type: Stainless Steel _____
Teflon DEDICATED to WELL
From Pos. Dis. Discharge Tube _____
Other _____ _____

	No. of Bottles Filled	I.D. No.	Analyses
Trip Blank	_____	_____	_____
Field Blank - Wash / Atmospheric (cirle one)	_____	_____	_____
Groundwater Sample	3-40ml, 2-1 liter		BTEX, TPH D + TPH G (DISC/LUFT)

Physical Appearance and Odor Clear, No Odor
Slight Silty Haze in 5 samples place in 1 Liter bottles - not as clear as the 40mL samples.

Refrigerate: Date: 7-22-93 Time 11:55

Field Tests:

Temperature (C/F)	74°F	_____
pH	10.73	_____
Spec. Conduc (umhos/cm)	.90 x 1000	_____

Weather Sunny, Warm

Comments To develop wells, used drillers PVC Bailer ~15' in length & 3.25" diam.

WELL SAMPLING RECORD

Site Name GLI-Oakland Terminal Well GS-7 Date 7-22-93

Samplers: LINDA A. BERNAL of ES-Chicago

_____ of _____

Intial Static Water Level (from top of ~~well protective~~ PVC RISER casing) 19.5 ft

Evacuation: 7-22 93 0940

Using: Submersible _____ Centrifugal _____ 2" Casing: ___ ft. of water x .16 = _____ gals
Airlift _____ Positive Displacement _____ 3" Casing: ___ ft. of water x .36 = _____ gals
Bailed X _____ Times 4" Casing: 15.5 ft. of water x .65 = 10.1 gals

Depth to intake from top of protective well casing ~~55 gallons~~

Volume of water removed 55 Gals. (> 3 Well Volumes)

Sampling: ~~Time~~ 7-22-93 1540 a.m.
_____ p.m.

Bailer Type: Stainless Steel _____
Teflon DEDICATED TOWSLL
From Pos. Dis. Discharge Tube _____
Other _____ _____

	No. of Bottles Filled	I.D. No.	Analyses
Trip Blank	1	_____	BTEX
Field Blank - Wash / Atmospheric (cirle one)	_____	_____	_____
Groundwater Sample	3-40mL, 2-1 liter	_____	BTEX, TPHD/TPHG (DISC/LUCK)

Physical Appearance and Odor Clear, No Odor

Refrigerate: Date: 7-22-93 Time 15:55

Field Tests:

Temperature (C/F)	72.1°F	_____
pH	6.77	_____
Spec. Conduc (umhos/cm)	.82 x 1000	_____

Weather Sunny, Warm

Comments To Develope Wells, used Bailers PVC Bailer ~ 15 ft in length 3.25" diam.

WELL SAMPLING RECORD

Site Name GLI-Oakland Terminal Well ES-8 Date 7-22-93

Samplers: LINDA M. BERAN of ES - Chicago

_____ of _____

Intial Static Water Level (from top of ~~well protective casing~~ PVC riser) 18.95 ft

Evacuation: 7-22 93 11:05

Using: Submersible _____ Centrifugal _____ 2" Casing: ___ ft. of water x .16 = _____ gals
Airlift _____ Positive Displacement _____ 3" Casing: ___ ft. of water x .36 = _____ gals
Bailed X _____ Times 4" Casing: ___ ft. of water x .65 = 10.43 gals
16.05'

Depth to intake from top of protective well casing _____

Volume of water removed 55 Gals. (> 3 Well Volumes)

Sampling: Time 7-23-93 0640 a.m.
_____ p.m.

Bailer Type: Stainless Steel _____
Teflon Dedicated Bailer
From Pos. Dis. Discharge Tube _____
Other _____ _____

	No. of Bottles Filled	I.D. No.	Analyses
Trip Blank	_____	_____	_____
Field Blank - Wash / Atmospheric (circle one)	_____	_____	_____
Groundwater Sample	3-40mL, 2-1 liter	_____	BTEX, TPHD, TPHG

Physical Appearance and Odor Clear and odorless

Refrigerate: Date: 7-23-93 Time 0640

Field Tests:

Temperature (C/F) 65.8 _____
pH 6.79 _____
Spec. Conduc (umhos/cm) .73x1000 _____

Weather Sunny, Cool

Comments To develop Well, used driller's PVC bailer 2" 15ft in length & 3.25" diam.

WELL SAMPLING RECORD

Site Name GLI-Oakland Terminal Well ES-9 Date 7-22-93

Samplers: LINDA A. BERAN of ES-Chicago

_____ of _____

Intial Static Water Level (from top of ~~well protective casing~~ PVC riser) 17.42ft

Evacuation: 7-22-93 12:45

Using: Submersible _____ Centrifugal _____ 2" Casing: ___ ft. of water x .16 = _____ gals
Airlift _____ Positive Displacement _____ 3" Casing: ___ ft. of water x .36 = _____ gals
Bailed X _____ Times 4" Casing: ___ ft. of water x .65 = _____ gals
17.58 11.5

Depth to intake from top of protective well casing _____

Volume of water removed 55 Gals. (> 3 Well Volumes)

Sampling: Time 7-23-93 0715 a.m.
_____ p.m.

Bailer Type: Stainless Steel _____
Teflon Dedicated Bailer
From Pos. Dis. Discharge Tube _____
Other _____ _____

	No. of Bottles Filled	I.D. No.	Analyses
Trip Blank			
Field Blank - Wash / Atmospheric (cirle one)			
Groundwater Sample	3-40mL, 2-liter		BTEX, TPHD, TPHG

Physical Appearance and Odor Clear. No odor

Refrigerate: Date: 7-23-93 Time 0715

Field Tests:

Temperature (C/F)	67.4	
pH	6.82	
Spec. Conduc (umhos/cm)	1.05 X1000	

Weather Sunny, Cool

Comments To develop well used drillers PVC bailer ~15ft in length & 3.25" diam.

WELL SAMPLING RECORD

Site Name GLI-Oakland Terminal Well ES-10 Date 7-22-93

Samplers: LINDA A. BERAN of ES - Chicago

_____ of _____

Intial Static Water Level (from top of ~~well protective casing~~ PVC RISER) 17

Evacuation: 7-22-93 13:25

Using: Submersible _____ Centrifugal _____ 2" Casing: ___ ft. of water x .16 = _____ gals
Airlift _____ Positive Displacement _____ 3" Casing: ___ ft. of water x .36 = _____ gals
Bailed X _____ Times 4" Casing: ___ ft. of water x .65 = _____ gals
18 11.7

Depth to intake from top of protective well casing _____

Volume of water removed 55 Gals. (> 3 Well Volumes)

Sampling: Time 7-23-93 0745 a.m.
_____ p.m.

Bailer Type: Stainless Steel
Teflon Dedicated Bailer
From Pos. Dis. Discharge Tube
Other _____

	No. of Bottles Filled	I.D. No.	Analyses
Trip Blank			
Field Blank - Wash / Atmospheric (circle one)			
Groundwater Sample	3-40mL, 2-1 LITER		BTEX, TPHD, TPHG

Physical Appearance and Odor Clear. No odor.

Refrigerate: Date: 7-23-93 Time 0745

Field Tests:

Temperature (C/F)	67.9	
pH	6.84	
Spec. Conduc (umhos/cm)	1.01 x 1000	

Weather Sunny, Cool.

Comments To develop well, used drillers bailer ~15ft in length & 3.25" diam.

WELL SAMPLING RECORD

Site Name GLI-Oakland Terminal Well ES-11 Date 7-22-93

Samplers: Linda A. Beran of ES-Chicago

_____ of _____

Intial Static Water Level (from top of ~~well protective casing~~ PVC RISER) 18.16 ft

Evacuation: 7-22-93 14:15

Using: Submersible _____ Centrifugal _____ 2" Casing: ___ ft. of water x .16 = _____ gals
Airlift _____ Positive Displacement _____ 3" Casing: ___ ft. of water x .36 = _____ gals
Bailed X _____ Times 4" Casing: ___ ft. of water x .65 = 11 gals

Depth to intake from top of protective well casing 16.4

Volume of water removed 55 Gals. (> 3 Well Volumes)

Sampling: Time 7-23-93 0815 a.m.
_____ p.m.

Bailer Type: Stainless Steel _____
Teflon Dedicated Bailer
From Pos. Dis. Discharge Tube _____
Other _____ _____

	No. of Bottles Filled	I.D. No.	Analyses
Trip Blank	_____	_____	_____
Field Blank - Wash / Atmospheric (circle one)	_____	_____	_____
Groundwater Sample	3-40ml, 2-1 liter	_____	BTEX, TPHO, TPHG

Physical Appearance and Odor Clear. No odor

Refrigerate: Date: 7-23-93 Time 0815

Field Tests:

Temperature (C/F)	66.3	_____
pH	6.92	_____
Spec. Conduc (umhos/cm)	1.03x1000	_____

Weather Sunny, Cool

Comments To develop Well, used driller's PVC bailer 2 15ft in length 3.25" diam.

Well BC-2

DTW = 18.5 ft 7-23-93 0920
removed 2-3 gal - bailed dry
Sampled at 13:20 DTW = 18.9 ft.
Sample was cloudy brown-grey color - faint odor
Cond. = .55 X1000
Temp = 74°F
ph = 10.05

Well BC-3

DTW = 17.4 ft 7-23-93 0940
removed 2-3 gal - bailed dry
Collected enough water to fill 3-40 ml vials
at 1300 DTW = 19.8 ft
No Cond, Temp or ph was tested for the collected samples.

APPENDIX C:

CHAIN-OF-CUSTODY RECORDS AND ANALYTICAL DATA RESULTS

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REPORT OF LABORATORY ANALYSIS

Engineering Science Syracuse
290 Elwood Davis Rd., Suite 312
Liverpool, NY 13088

August 05, 1993
PACE Project Number: 430723500

Attn: Mr. David Nickerson

Client Reference: GLI Oakland

PACE Sample Number:			70 0119820	
Date Collected:			07/22/93	
Date Received:			07/23/93	
Client Sample ID:			ES-6	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	07/30/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	ND	07/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	07/30/93
Benzene	ug/L	0.3	ND	07/30/93
Toluene	ug/L	0.3	ND	07/30/93
Ethylbenzene	ug/L	0.3	ND	07/30/93
Xylenes, Total	ug/L	0.6	ND	07/30/93
EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.5	ND	07/29/93
Date Extracted			07/28/93	

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FAX: 415-883-2673

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REPORT OF LABORATORY ANALYSIS

Mr. David Nickerson
Page 2

August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

PACE Sample Number:			70 0119839	
Date Collected:			07/22/93	
Date Received:			07/23/93	
Client Sample ID:			ES-7	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	07/30/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	ND	07/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	07/30/93
Benzene	ug/L	0.3	ND	07/30/93
Toluene	ug/L	0.3	ND	07/30/93
Ethylbenzene	ug/L	0.3	ND	07/30/93
Xylenes, Total	ug/L	0.6	ND	07/30/93
EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.5	ND	07/29/93
Date Extracted			07/28/93	

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Mr. David Nickerson
Page 3

August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

PACE Sample Number:			70 0119847	
Date Collected:			07/22/93	
Date Received:			07/23/93	
Client Sample ID:			Trip	
Parameter	Units	MDL	Blank	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE AROMATIC COMPOUNDS, EPA 8020				
Benzene	ug/L	0.3	ND	08/02/93
Toluene	ug/L	0.3	ND	08/02/93
Ethylbenzene	ug/L	0.3	ND	08/02/93
Xylenes, Total	ug/L	0.6	ND	08/02/93

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REPORT OF LABORATORY ANALYSIS

Mr. David Nickerson
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August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

Parameter	Units	MDL	15-16.5	DATE ANALYZED
PACE Sample Number:			70 0119855	
Date Collected:			07/19/93	
Date Received:			07/23/93	
Client Sample ID:			ES-6	
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	07/29/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	10000	ND	07/29/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	07/29/93
Benzene	ug/kg wet	5.0	ND	07/29/93
Toluene	ug/kg wet	5.0	ND	07/29/93
Ethylbenzene	ug/kg wet	5.0	ND	07/29/93
Xylenes, Total	ug/kg wet	15	ND	07/29/93
EXTRACTABLE FUELS EPA 3550/8015				
Extractable Fuels, as Diesel	mg/kg	10	ND	08/02/93
Date Extracted			07/28/93	

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REPORT OF LABORATORY ANALYSIS

Mr. David Nickerson
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August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

PACE Sample Number:			70 0119863	
Date Collected:			07/20/93	
Date Received:			07/23/93	
Client Sample ID:			ES-7	
Parameter	Units	MDL	20-21.5	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	07/29/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	10000	ND	07/29/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	07/29/93
Benzene	ug/kg wet	5.0	ND	07/29/93
Toluene	ug/kg wet	5.0	ND	07/29/93
Ethylbenzene	ug/kg wet	5.0	ND	07/29/93
Xylenes, Total	ug/kg wet	15	ND	07/29/93
EXTRACTABLE FUELS EPA 3550/8015				
Extractable Fuels, as Diesel	mg/kg	10	ND	08/02/93
Date Extracted			07/28/93	

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REPORT OF LABORATORY ANALYSIS

August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

Parameter	Units	MDL	20-21.5	DATE ANALYZED
PACE Sample Number:			70 0119871	
Date Collected:			07/20/93	
Date Received:			07/23/93	
Client Sample ID:			ES-8	
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	07/29/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	10000	ND	07/29/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	07/29/93
Benzene	ug/kg wet	5.0	ND	07/29/93
Toluene	ug/kg wet	5.0	ND	07/29/93
Ethylbenzene	ug/kg wet	5.0	ND	07/29/93
Xylenes, Total	ug/kg wet	15	ND	07/29/93
EXTRACTABLE FUELS EPA 3550/8015				
Extractable Fuels, as Diesel	mg/kg	10	ND	08/02/93
Date Extracted			07/28/93	

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REPORT OF LABORATORY ANALYSIS

August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

PACE Sample Number:			70 0119880	
Date Collected:			07/21/93	
Date Received:			07/23/93	
Client Sample ID:			ES-9	
Parameter	Units	MDL	15-16.5	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	07/30/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	10000	ND	07/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	07/30/93
Benzene	ug/kg wet	5.0	ND	07/30/93
Toluene	ug/kg wet	5.0	ND	07/30/93
Ethylbenzene	ug/kg wet	5.0	ND	07/30/93
Xylenes, Total	ug/kg wet	15	ND	07/30/93
EXTRACTABLE FUELS EPA 3550/8015				
Extractable Fuels, as Diesel	mg/kg	10	ND	08/02/93
Date Extracted			07/29/93	

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REPORT OF LABORATORY ANALYSIS

Mr. David Nickerson
Page 8

August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

PACE Sample Number:			70 0119898	
Date Collected:			07/21/93	
Date Received:			07/23/93	
Client Sample ID:			ES-10	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	07/30/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	10000	ND	07/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	07/30/93
Benzene	ug/kg wet	5.0	ND	07/30/93
Toluene	ug/kg wet	5.0	ND	07/30/93
Ethylbenzene	ug/kg wet	5.0	ND	07/30/93
Xylenes, Total	ug/kg wet	15	ND	07/30/93
EXTRACTABLE FUELS EPA 3550/8015				
Extractable Fuels, as Diesel	mg/kg	10	ND	08/02/93
Date Extracted			07/29/93	

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REPORT OF LABORATORY ANALYSIS

Mr. David Nickerson
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August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

PACE Sample Number:			70 0119901	
Date Collected:			07/21/93	
Date Received:			07/23/93	
Client Sample ID:			ES-11	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	07/30/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	10000	ND	07/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	07/30/93
Benzene	ug/kg wet	5.0	ND	07/30/93
Toluene	ug/kg wet	5.0	ND	07/30/93
Ethylbenzene	ug/kg wet	5.0	ND	07/30/93
Xylenes, Total	ug/kg wet	15	ND	07/30/93
EXTRACTABLE FUELS EPA 3550/8015				
Extractable Fuels, as Diesel	mg/kg	10	ND	08/02/93
Date Extracted			07/29/93	

These data have been reviewed and are approved for release.

Mark A. Valentini

Darrell C. Cain
Regional Director

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Client Reference: GLI Oakland

MDL Method Detection Limit
ND Not detected at or above the MDL.

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QUALITY CONTROL DATA

August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

EXTRACTABLE FUELS EPA 3550/8015
Batch: 70 23328
Samples: 70 0119880, 70 0119898, 70 0119901

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Extractable Fuels, as Diesel	mg/kg	5.0	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Extractable Fuels, as Diesel	mg/kg	5.0	33.3	75%	73%	2%

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REPORT OF LABORATORY ANALYSIS

Mr. David Nickerson
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QUALITY CONTROL DATA

August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

EXTRACTABLE FUELS EPA 3550/8015
Batch: 70 23329
Samples: 70 0119855, 70 0119863, 70 0119871

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Extractable Fuels, as Diesel	mg/kg	5.0	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Extractable Fuels, as Diesel	mg/kg	5.0	33.3	76%	68%	11%

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REPORT OF LABORATORY ANALYSIS

Mr. David Nickerson
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QUALITY CONTROL DATA

August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

EXTRACTABLE FUELS EPA 3510/8015
Batch: 70 23249
Samples: 70 0119820, 70 0119839

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Extractable Fuels, as Diesel	mg/L	0.05	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Extractable Fuels, as Diesel	mg/L	0.05	1.00	50%	54%	7%

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QUALITY CONTROL DATA

August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

PURGEABLE FUELS AND AROMATICS
Batch: 70 23170
Samples: 70 0119855

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/kg wet	1.0	ND
Toluene	ug/kg wet	1.0	ND
Ethylbenzene	ug/kg wet	1.0	ND
Xylenes, Total	ug/kg wet	1.0	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	1000	105%	107%	1%
Benzene	ug/kg wet	1.0	40.0	103%	102%	0%
Toluene	ug/kg wet	1.0	40.0	105%	103%	1%
Ethylbenzene	ug/kg wet	1.0	40.0	106%	104%	1%
Xylenes, Total	ug/kg wet	1.0	120	107%	105%	1%

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Client Reference: GLI Oakland

PURGEABLE FUELS AND AROMATICS
Batch: 70 23251
Samples: 70 0119863, 70 0119871, 70 0119880, 70 0119898, 70 0119901

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/kg wet	1.0	ND
Toluene	ug/kg wet	1.0	ND
Ethylbenzene	ug/kg wet	1.0	ND
Xylenes, Total	ug/kg wet	1.0	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	1000	100%	105%	4%
Benzene	ug/kg wet	1.0	40.0	98%	97%	1%
Toluene	ug/kg wet	1.0	40.0	95%	93%	2%
Ethylbenzene	ug/kg wet	1.0	40.0	88%	87%	1%
Xylenes, Total	ug/kg wet	1.0	120	88%	87%	1%

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Mr. David Nickerson
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QUALITY CONTROL DATA

August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

PURGEABLE FUELS AND AROMATICS
Batch: 70 23298
Samples: 70 0119820, 70 0119839

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	1000	91%	87%	4%
Benzene	ug/L	0.5	100	100%	91%	9%
Toluene	ug/L	0.5	100	104%	93%	11%
Ethylbenzene	ug/L	0.5	100	113%	102%	10%
Xylenes, Total	ug/L	0.5	300	111%	100%	10%

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

August 05, 1993
PACE Project Number: 430723500

Client Reference: GLI Oakland

PURGEABLE FUELS AND AROMATICS
Batch: 70 23338
Samples: 70 0119847

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	1000	93%	100%	7%
Benzene	ug/L	0.5	40.0	98%	89%	9%
Toluene	ug/L	0.5	40.0	100%	93%	7%
Ethylbenzene	ug/L	0.5	40.0	104%	96%	8%
Xylenes, Total	ug/L	0.5	120	100%	92%	8%

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Client Reference: GLI Oakland

MDL	Method Detection Limit
ND	Not detected at or above the MDL.
RPD	Relative Percent Difference

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138171 1/4

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client ENGINEERING-SCIENCE, INC.
Address 290 ELWOOD DAVIS RD.
LIVER POOL, NY 13088
Phone 315-451-9560

Report To: D. NICKERSON
Bill To SAME
P.O. # / Billing Reference SY356.06
Project Name / No. GLI OAKLAND

Pace Client No.
Pace Project Manager
Pace Project No. 430723.500
*Requested Due Date:

Sampled By (PRINT). LINDA A. BERAN
Sampler Signature Linda A. Beran
Date Sampled 7-22-93

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	HCL	ANALYSES REQUEST: BTEX (8020)	TPH-D	TPH-G	DISC (LUFT)	REMARKS
1	ES-6	1150	WATER	11982.0	3					X	X				
2	ES-6	1150	WATER		2	X						X	X		
3	ES-7	1540	Water	11983.9	3					X	X				
4	ES-7	1540	Water		2	X						X	X		
5	TRIP BLANK	1600	WATER	11984.7	1					X	X				
6															
7															
8															

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	SHIPMENT METHOD RETURNED / DATE
B-33		7/22/93	

Additional Comments
10/5, G/2

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
	Linda A. Beran/ES via Fed EX			
		[illegible] FedEx	7/23/93	09[illegible]

ORIGINAL

SEE REVERSE SIDE FOR INSTRUCTIONS

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138169 2/4

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: Engineering Science INC
Address: 290 Elwood Davis Rd
Liverpool NY 13088
Phone: 315 451 9560

Report To: D Nickerson
Bill To: Same
P.O # / Billing Reference: SY356.06
Project Name / No.: GLI Oakland

Pace Client No.
Pace Project Manager
Pace Project No. 430723.500
*Requested Due Date:

Sampled By (PRINT): J Paulson
Jeffrey Paulson 7-19-93
Sampler Signature L. BERAN
Date Sampled 7-19-93
Linda A. Beran

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ICE	ANALYSES REQUEST: BTEX (8020)	TPHD/TPHG	(DISC/LUFT)	REMARKS
1	ES-6 15-16.5	1451	soil	119855	1					P	X	X	X	
2														
3														
4														
5														
6														
7														
8														

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	RETURNED / DATE
B-33		7/22/93	

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
1	Linda A. Beran / ES	VIA Fed EX		
		[signature] PACE	7/23/93	0950

Additional Comments
T/2

ORIGINAL

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138175 3/4

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: Engineering Science Inc
Address: 290 Elwood Davis Rd
Liverpool NY 13088
Phone: 315 451 9560

Report To: D. Nickerson
Bill To: Same
P.O. # / Billing Reference: SY35G.06
Project Name / No.: GLI Oakland

Pace Client No.
Pace Project Manager
Pace Project No. 430123.900
*Requested Due Date:

Sampled By (PRINT): J Pawlak
Sampler Signature: Jeff Pawlak
Date Sampled: 7-20-93

L. BERAN
Linda C. Beran
7-20-93

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ICE	ANALYSES REQUEST: BTEX (8020)	TPHD/TPHG (DTSC/LUFT)	REMARKS
1	ES-7 20-21.5	0949	Soil	11986.3	1					X	X	X	
2	ES-8 20-21.5	1340	Soil	11987.1	1					X	X	X	
3													
4													
5													
6													
7													
8													

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	SHIPMENT METHOD RETURNED / DATE
B-33		7/22/93	

Additional Comments

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
All	Linda C. Beran/ES	Fed Ex		
		Sherry Adam Pace	7/23/93	

ORIGINAL

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138174 4/4

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client ES
Address 140 Elwood Davis Rd
Liverpool NY 13088
Phone 315 451 9560

Report To: D Nicholson
Bill To: Same
P.O. # / Billing Reference 54356.06
Project Name / No. GLI Oakland

Pace Client No.
Pace Project Manager
Pace Project No. 43023.500
*Requested Due Date:

Sampled By (PRINT). J. Poulson
Sampler Signature J. Poulson
Date Sampled 7-21-93
L. Brian Linda A. Brian 7-21-93

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ICE	ANALYSES REQUEST: BTEX (8020)	TPHD (TPH6)	(DIS/LEAD)	REMARKS
1	ES-9 15-16.5	0820	soil	11988.0	1					X	X	X	X	
2	ES-10		soil	11989.8	1					X	X	X	X	
3	ES-11		soil	11990.1	1					X	X	X	X	
4														
5														
6														
7														
8														

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	SHIPMENT METHOD RETURNED / DATE
B-33		7/22/93	

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
	Linda A. Brian/ES via FedEx	Thomas Hom PACE	7/23	0930

Additional Comments
T/2

ORIGINAL

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REPORT OF LABORATORY ANALYSIS

Engineering Science Syracuse
290 Elwood Davis Rd., Suite 312
Liverpool, NY 13088

August 10, 1993
PACE Project Number: 430723519

Attn: Mr. David Nickerson

Client Reference: GL1 Oakland

PACE Sample Number:			70 0119391	
Date Collected:			07/23/93	
Date Received:			07/24/93	
Client Sample ID:			ES-4	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	07/30/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	ND	07/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	07/30/93
Benzene	ug/L	0.3	24	07/30/93
Toluene	ug/L	0.3	1.1	07/30/93
Ethylbenzene	ug/L	0.3	0.7	07/30/93
Xylenes, Total	ug/L	0.6	8.3	07/30/93
EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.5	ND	07/29/93
Date Extracted			07/28/93	

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REPORT OF LABORATORY ANALYSIS

August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

PACE Sample Number:			70 0119405	
Date Collected:			07/23/93	
Date Received:			07/24/93	
Client Sample ID:			BC-2	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	07/30/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	ND	07/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	07/30/93
Benzene	ug/L	0.3	1.0	07/30/93
Toluene	ug/L	0.3	2.4	07/30/93
Ethylbenzene	ug/L	0.3	1.8	07/30/93
Xylenes, Total	ug/L	0.6	7.9	07/30/93
EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.5	0.5	07/29/93
Date Extracted			07/28/93	

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REPORT OF LABORATORY ANALYSIS

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August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

PACE Sample Number:			70 0119413	
Date Collected:			07/23/93	
Date Received:			07/24/93	
Client Sample ID:			TRIP BLANK	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	07/30/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	ND	07/30/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	07/30/93
Benzene	ug/L	0.3	ND	07/30/93
Toluene	ug/L	0.3	ND	07/30/93
Ethylbenzene	ug/L	0.3	ND	07/30/93
Xylenes, Total	ug/L	0.6	ND	07/30/93

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August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

PACE Sample Number:			70 0119421	
Date Collected:			07/23/93	
Date Received:			07/24/93	
Client Sample ID:			BC-3	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	08/03/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	ND	08/03/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	08/03/93
Benzene	ug/L	0.3	2.7	08/03/93
Toluene	ug/L	0.3	3.6	08/03/93
Ethylbenzene	ug/L	0.3	3.6	08/03/93
Xylenes, Total	ug/L	0.6	7.9	08/03/93

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August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

PACE Sample Number:			70 0119430	
Date Collected:			07/23/93	
Date Received:			07/24/93	
Client Sample ID:			ES-3	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	08/04/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	1500	08/04/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	08/04/93
Benzene	ug/L	0.3	28	08/04/93
Toluene	ug/L	0.3	5.9	08/04/93
Ethylbenzene	ug/L	0.3	4.6	08/04/93
Xylenes, Total	ug/L	0.6	4.6	08/04/93
EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.5	0.6	07/29/93
Date Extracted			07/28/93	

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REPORT OF LABORATORY ANALYSIS

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August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

PACE Sample Number:			70 0119448	
Date Collected:			07/23/93	
Date Received:			07/24/93	
Client Sample ID:			ES-8	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	08/02/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	ND	08/02/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	08/02/93
Benzene	ug/L	0.3	ND	08/02/93
Toluene	ug/L	0.3	ND	08/02/93
Ethylbenzene	ug/L	0.3	ND	08/02/93
Xylenes, Total	ug/L	0.6	ND	08/02/93
EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.5	ND	07/29/93
Date Extracted			07/28/93	

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REPORT OF LABORATORY ANALYSIS

Mr. David Nickerson
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August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

PACE Sample Number:			70 0119456	
Date Collected:			07/23/93	
Date Received:			07/24/93	
Client Sample ID:			ES-9	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	08/02/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	ND	08/02/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	08/02/93
Benzene	ug/L	0.3	ND	08/02/93
Toluene	ug/L	0.3	ND	08/02/93
Ethylbenzene	ug/L	0.3	ND	08/02/93
Xylenes, Total	ug/L	0.6	ND	08/02/93
EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.5	ND	07/29/93
Date Extracted			07/28/93	

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REPORT OF LABORATORY ANALYSIS

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August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

PACE Sample Number:			70 0119464	
Date Collected:			07/23/93	
Date Received:			07/24/93	
Client Sample ID:			ES-10	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	08/02/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	ND	08/02/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	08/02/93
Benzene	ug/L	0.3	ND	08/02/93
Toluene	ug/L	0.3	ND	08/02/93
Ethylbenzene	ug/L	0.3	ND	08/02/93
Xylenes, Total	ug/L	0.6	ND	08/02/93
EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.5	ND	07/29/93
Date Extracted			07/28/93	

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August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

PACE Sample Number:			70 0119472	
Date Collected:			07/23/93	
Date Received:			07/24/93	
Client Sample ID:			ES-11	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	08/02/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/L	500	ND	08/02/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	08/02/93
Benzene	ug/L	0.3	ND	08/02/93
Toluene	ug/L	0.3	0.7	08/02/93
Ethylbenzene	ug/L	0.3	ND	08/02/93
Xylenes, Total	ug/L	0.6	1.2	08/02/93
EXTRACTABLE FUELS EPA 3510/8015				
Extractable Fuels, as Diesel	mg/L	0.5	ND	07/29/93
Date Extracted			07/28/93	

These data have been reviewed and are approved for release.

Mark A. Valentini

Darrell C. Cain
Regional Director

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Client Reference: GL1 Oakland

MDL Method Detection Limit
ND Not detected at or above the MDL.

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QUALITY CONTROL DATA

August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

EXTRACTABLE FUELS EPA 3510/8015
Batch: 70 23249
Samples: 70 0119391, 70 0119405, 70 0119430, 70 0119448, 70 0119456
70 0119464, 70 0119472

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Extractable Fuels, as Diesel	mg/L	0.05	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Extractable Fuels, as Diesel	mg/L	0.05	1.00	50%	54%	7%

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QUALITY CONTROL DATA

August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

PURGEABLE FUELS AND AROMATICS
Batch: 70 23289
Samples: 70 0119413

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	1000	97%	105%	7%
Benzene	ug/L	0.5	40.0	94%	99%	5%
Toluene	ug/L	0.5	40.0	98%	124%	23%
Ethylbenzene	ug/L	0.5	40.0	93%	95%	2%
Xylenes, Total	ug/L	0.5	120	103%	103%	0%

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

PURGEABLE FUELS AND AROMATICS
Batch: 70 23298
Samples: 70 0119391, 70 0119405

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	1000	91%	87%	4%
Benzene	ug/L	0.5	100	100%	91%	9%
Toluene	ug/L	0.5	100	104%	93%	11%
Ethylbenzene	ug/L	0.5	100	113%	102%	10%
Xylenes, Total	ug/L	0.5	300	111%	100%	10%

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QUALITY CONTROL DATA

August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

PURGEABLE FUELS AND AROMATICS
Batch: 70 23335
Samples: 70 0119430, 70 0119448, 70 0119456, 70 0119464, 70 0119472

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	1000	99%	106%	6%
Benzene	ug/L	0.5	40.0	95%	98%	3%
Toluene	ug/L	0.5	40.0	99%	93%	6%
Ethylbenzene	ug/L	0.5	40.0	95%	93%	2%
Xylenes, Total	ug/L	0.5	120	100%	102%	1%

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

PURGEABLE FUELS AND AROMATICS
Batch: 70 23372
Samples: 70 0119421

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/L	50	1000	100%	110%	9%
Benzene	ug/L	0.5	40.0	93%	97%	4%
Toluene	ug/L	0.5	40.0	96%	98%	2%
Ethylbenzene	ug/L	0.5	40.0	92%	92%	0%
Xylenes, Total	ug/L	0.5	120	100%	100%	0%

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FOOTNOTES
for pages 11 through 15

August 10, 1993
PACE Project Number: 430723519

Client Reference: GL1 Oakland

MDL	Method Detection Limit
ND	Not detected at or above the MDL.
RPD	Relative Percent Difference

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138173 1/2

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: ENGINEERING-SCIENCE INC.
Address: 290 ELWOOD DAVIS RD.
LIVERPOOL, NY 13088
Phone: (315) 451-9560

Report To: D. NICKERSON
Bill To: SAME
P.O. # / Billing Reference: SY350.60
Project Name / No: GL 1 OAK/MWD

Pace Client No.
Pace Project Manager
Pace Project No. 430728.51C
*Requested Due Date:

Sampled By (PRINT): LINDA A. BERAN
Sampler Signature: Linda A. Beran
Date Sampled: 7-23-93

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	HCL	ANALYSES REQUESTED: BTEX (8020)	TPH-D	TPH-G	DTSC 1/2 4FT)	REMARKS
1	ES-4	1200	WATER	11939.1	3					X	X				
2	ES-4	1200		~~11940.1~~ 11940.5	2	X					X	X			
3	BC-2	1300		~~11941.1~~ 11941.3	3	LAB				X	X	LAB			← Received amber bottles for diesel, add 1-Lt Broken-G back on C.O.C. Notified Client RL.
4	~~TRIP BLANK~~ TRIP BLANK	1540		~~11942.1~~ 11941.2	~~2~~ 2	~~X~~				X	X	~~X~~			
5	BC-3	1320		11942.1	3					X	X				
6	BC-3	1320		↓	2	X					X	X			→ Did not receive, notified client. will resample only Diesel. We got sample to run BTEX + Gas. RL
7	ES-3	1415		11943.0	3					X	X				
8	ES-3	1415	WATER	↓	2	X					X	X			1-Lt. Broken-G

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	SHIPMENT METHOD RETURNED / DATE	ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
B960 B121		7/23/93		1	Linda A. Beran	VIA FED EX		
				2		O.R. Cranston PACE	7/24/93	9:30

Additional Comments

ORIGINAL

SEE REVERSE SIDE FOR INSTRUCTIONS

pace INCORPORATED
THE ASSURANCE OF QUALITY

138172 2/2

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: ENGINEERING SCIENCE, INC
Address: 290 ELWOOD DAVIS RD.
LIVERPOOL, NY 13088
Phone: 315 - 451 - 9560

Report To: D. NICKERSON
Bill To: SAME
PO # / Billing Reference: 5Y356.00
Project Name / No.: GLI OAKLAND

Pace Client No.:
Pace Project Manager:
Pace Project No: 420723 SM
*Requested Due Date:

Sampled By (PRINT): LINDA A. BERAN 7-23-93
Sampler Signature: Linda A. Beran
Date Sampled:

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	TPH	ANALYSES REQUEST: BTEX (8020)	TPH-D	TPH-G	DISS. (LEAD)	REMARKS
1	ES-8	0640	WATER	11944.8	3					X	X				
2	ES-8	0640		↓	2	X						X	X		
3	ES-9	0715		11945.6	3					X	X				
4	ES-9	0715		↓	2	X						X	X		
5	ES-10	0745		11946.4	3					X	X				
6	ES-10	0745		↓	2	X						X	X		
7	ES-11	0815		11947.2	3					X	X				
8	ES-11	0815		↓	2	X						X	X		

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	SHIPMENT METHOD RETURNED / DATE
B96 + B121		7/23/93	

Additional Comments

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
1	Linda A. Beran	VIA FED EX C. Cramer - PACE	7/24/93	9:30

10/BOT, T1

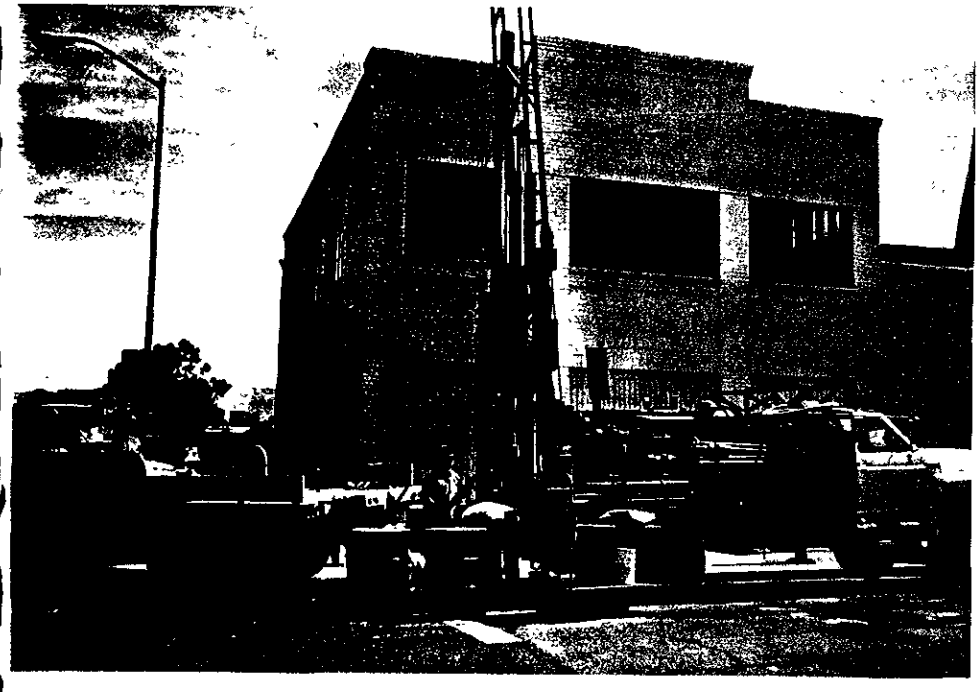
ORIGINAL

SEE REVERSE SIDE FOR INSTRUCTIONS

APPENDIX D

PHOTODOCUMENTATION

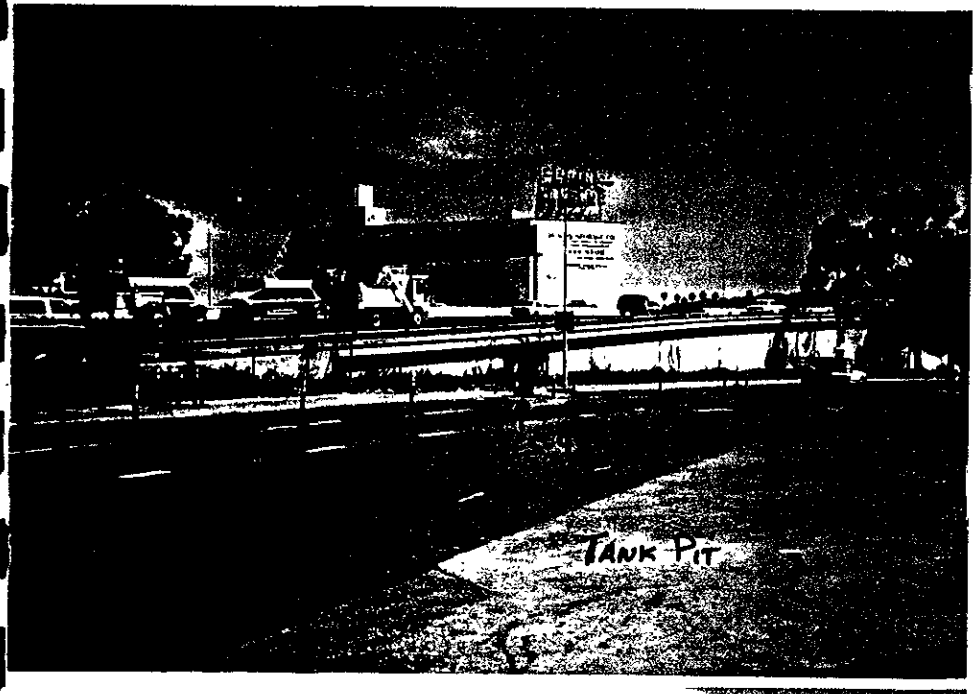
PHOTOGRAPHIC LOG
ENGINEERING–SCIENCE, INC.



PROJECT: GLI Oakland
LOCATION:
NUMBER:
CLIENT: Greyhound Lines, Inc

Date: 7/20/93
Description: Drilling location of ES–7 at the corner Castro St. and 20th Street.

Photo By: JSP



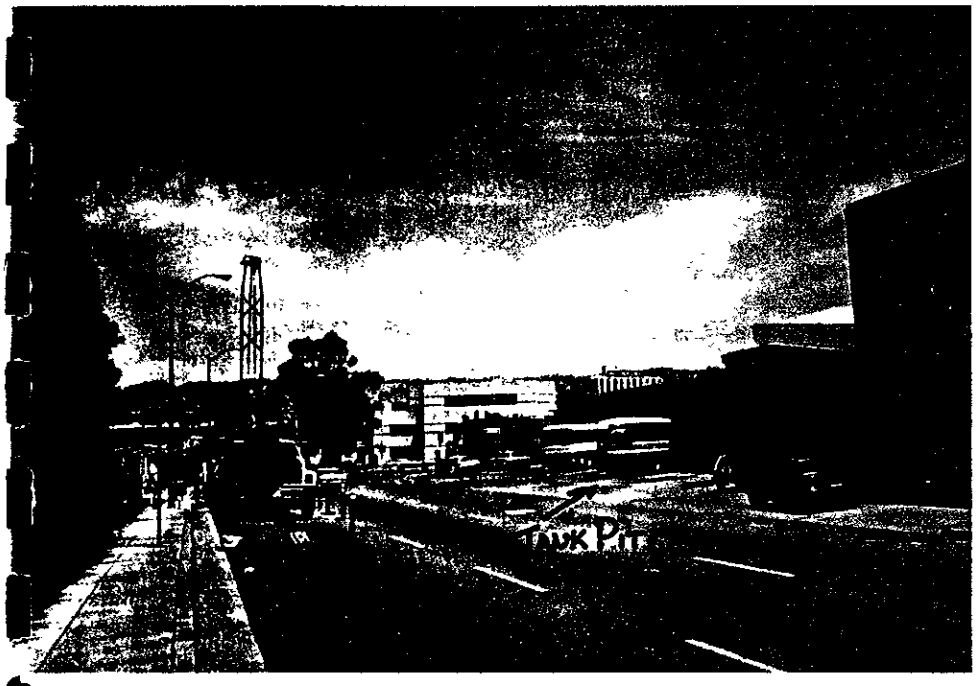
Date: 7/20/93
Description: Looking North across Castro Street Note the locations of ES–8, ES–9, ES–10 and the tank pit.

Photo By: JSP

Date: 7/20/93
Description: Looking West across Castro Street. Note location of ES–8 and ES–10.

Photo By: JSP

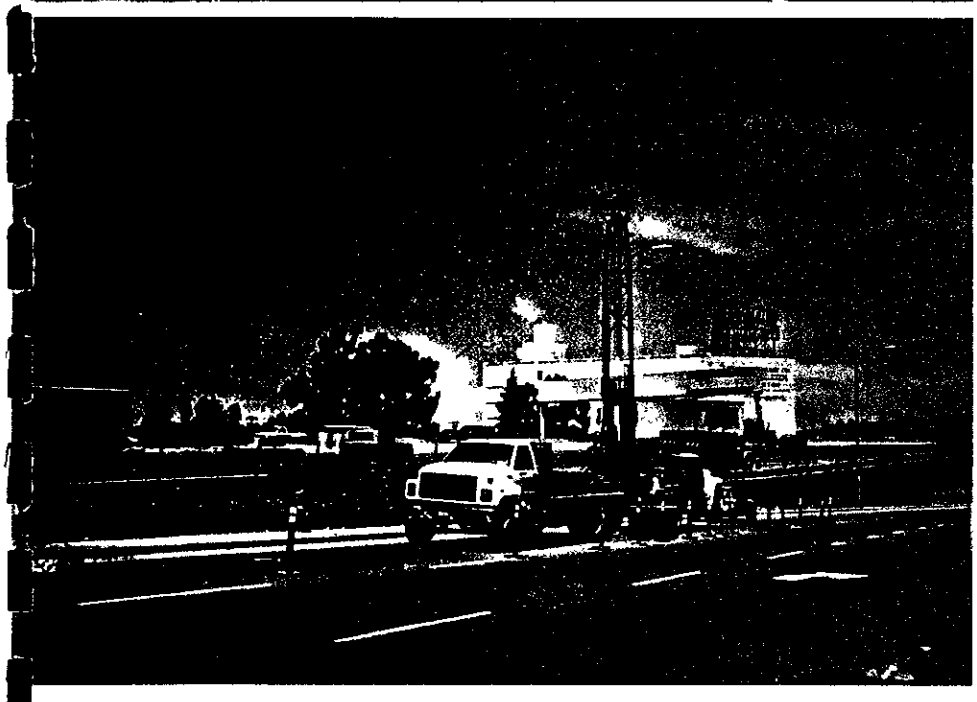
PHOTOGRAPHIC LOG
ENGINEERING–SCIENCE, INC.



PROJECT: GLI Oakland
LOCATION:
NUMBER:
CLIENT: Greyhound Lines, Inc.

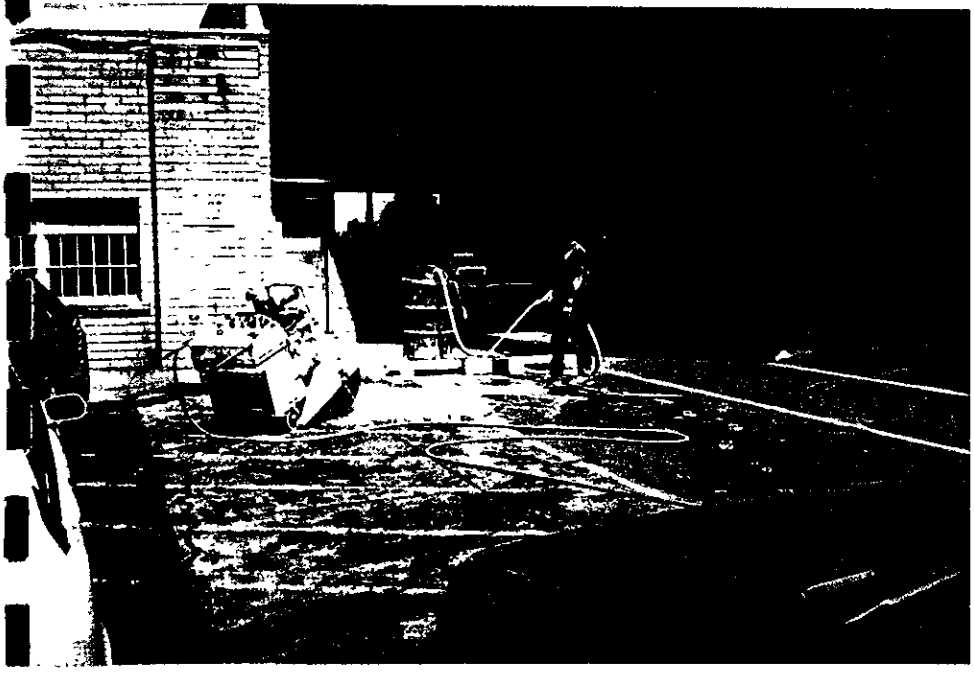
Date: 7/20/93
Description: Greyhound Terminal showing the location of the tank pit, and traffic control in place during the installation of ES–8.

Photo By: JSP



Date: 7/20/93
Description: Traffic control and location of ES–8. Note the location of existing well No. 66.

Photo By: JSP



Date: 7/20/93
Description: Concrete coring the location for ES–11 at the northeast end of the terminal loading area.

Photo By: JSP

PHOTOGRAPHIC LOG
ENGINEERING–SCIENCE, INC.

PROJECT: GLI Oakland
LOCATION:
NUMBER:
CLIENT: Greyhound Lines, Inc.

Date: 7/20/93
Description: Backfilling the annulus between the boring wall and the wall casing with #3 sand.

Photo By: JSP

Date: 7/20/93
Description: Preparing the concrete/bentonite grout for backfilling around the well casing.

Photo By: JSP

Date: 7/20/93
Description: Completed ES–11 well with a flush-mounted protective curb box.

Photo By: JSP