SUPPLEMENTAL SITE INVESTIGATION AT THE MARINER SQUARE FACILITY 2415 MARINER SQUARE DRIVE ALAMEDA, CALIFORNIA

AUGUST 1995

McLaren Hart

ENVIRONMENTAL ENGINEERING CORPORATION

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

TABLE OF CONTENTS
(continued)

LIST OF FIGURES

TABLE OF CONTENTS
(continued)

LIST OF TABLES

TABLE OF CONTENTS
(continued)

APPENDICES

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2415 MARINER SQUARE DRIVE
ALAMEDA, CALIFORNIA

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1.0 INTRODUCTION

This report presents the results of the supplemental soil and groundwater investigation conducted at the Mariner Square facility (the "Site"). The Site is situated amongst the buildings, marina and land located at 2415, 2431, 2445, and 2455 Mariner Square Drive in Alameda, California. The Site is accessed on the east side by Mariner Square Drive, previously known as Webster Street. The Site is located along the Oakland Estuary, between the United States Naval Supply Center which is adjacent to the western boundary of the Site, and the southern terminus of the Webster Street Tube which runs under the Oakland Estuary. The Site is approximately 5.8 acres and is currently used for marina boat docks, boat painting, repair and sales, office space, light manufacturing, storage and shop space, and parking. The scope of work performed by McLaren/Hart included:

- Drilling a total of 13 soil borings and collecting and analyzing a total of 28 soil samples;
- installing 3 shallow groundwater monitoring wells;
- developing the newly installed groundwater monitoring wells;
- collecting groundwater samples from the 3 newly installed and 6 previously installed wells;
- surveying top-of-casing elevations of all wells located on-site and one well located on the adjacent Navy property;
- performing three groundwater elevation surveys of all wells; and
- gauging separate-phase hydrocarbon thicknesses in one well and removing separate-phase hydrocarbons from the well once measured.

A Site location map is presented as Figure 1 and a plan of the Mariner Square Site is included as Figure 2. The purpose of the supplemental investigation was to: 1) evaluate and verify groundwater flow direction, 2) better define the lateral extent of petroleum hydrocarbon constituents and vinyl chloride in soil and shallow groundwater in the vicinity of the Site, and 3) better define the extent of metals in shallow soils at the Site.

The Supplemental Site Investigation was designed based on findings of earlier soil and groundwater investigations performed by others. These previous investigations are summarized in Section 2.

2.0 BACKGROUND

Investigations had been previously performed at the Site by others. The results of these investigations were provided to McLaren/Hart for evaluation. The reports provided for review, and which formed the basis for knowledge of the Site at the onset of this Supplemental Site Investigation consisted of the following:

- Historic Resources Inventory, State of California Department of Parks and Recreation, May 27, 1988
- Environmental Engineering Services, Mariner Boat Yard Gasoline Tank, Subsurface Consultants, Inc., February 20, 1991
- Environmental Assessment, AllWest Environmental, Inc., December 3, 1991
- Subsurface Investigation Report, AllWest Environmental, Inc., May 1, 1992
- Groundwater Investigation, Subsurface Consultants, Inc., November 13, 1992
- Quarterly Groundwater Monitoring Report, Subsurface Consultants, Inc., December 23, 1992
- Results of Lead Analysis in Soil, Subsurface Consultants, Inc., December 24, 1992
- Groundwater Sampling and Testing, Subsurface Consultants, Inc., November 8, 1993
- Draft Remedial Investigation, FISCO Alameda Annex and Facility; PRC Environmental Management, Inc., and Versar Inc., March 1995.

The scope of work performed by McLaren/Hart as part of this investigation was designed to supplement the data collected previously at the Site by others.

2.1 Site Land Use History

The Site was marshland prior to filling with "hydraulic fill" in the late 1800's, and was then the site of bulk fuel storage and distribution activities as early as 1916 (Historic Resources Inventory, May 27, 1988), (see Section 2.2). Bulk storage and distribution, primarily of refined oils, motor lubricants and fuel oils for use by ships continued at the Site until 1972. Several of these facilities, including a 30,000-barrel aboveground storage tank, the oil warehouse, part of the firewall, and part of the wharf remain today. Since 1972, the Site use has been mixed office, restaurant, boat sales, sail manufacturing, boat motor repair, automobile repair, boat hull repair, boat hull stripping and painting.

2.2 Regional Land Use History

Immediately to the north of the Site, across the Oakland Inner Harbor, a PG&E Manufactured Gas Plant and other refineries were in operation from the late 1879 until 1903 (NAS Alameda Environmental Baseline Survey Fact Sheet, 1994). These industries were in operation prior to and following the filling of the tidal flats and estuaries underlying the Site (Section 2.3). The northern portion of the city of Alameda had also been the site of several industrial uses including refineries, and a military base and depot.

The existence of petroleum hydrocarbon contamination of the historic tidal marsh surface prior to filling has been postulated by Versar and PRC investigators (Draft Remedial Investigation FISCO Alameda Annex and Facility; PRC Environmental Management, Inc., and Versar, Inc; March 1995). The occurrence of "marsh crust" consisting of degraded petroleum hydrocarbons has been observed at the Bay Mud/hydraulic fill contact in soil borings drilled on the Navy property immediately to the west of the Site. This "marsh crust", which was present prior to the filling of the wetlands, is believed by Versar (pers. comm., Mr. John Bird, Versar Inc., September 9, 1994) to be responsible for a regional dissolved petroleum hydrocarbon plume.

Construction of the Webster Street Tube, bordering the east side of the Site, was completed in the early 1960s. Construction drawings of the Webster Street Tube and a summary of an interview with Mr. Tom Thomas of the California Department of Transportation (CalTrans) are included in Appendix I.

2.3 Site Geology

The upper 7 to 17 feet of soil at the Site is composed of clayey to silty sands, characterized as "hydraulic fill". The hydraulic fill was placed over the Bay Mud mechanically prior to the development of this portion of Alameda. The source location of the fill is suspected to be the San Francisco Bay and the Oakland Inner Harbor.

Below the fill, the "Bay Mud" occurs at a thickness of 13 to 30 feet. The Bay Mud consists predominantly of homogenous, plastic, olive-gray, sandy to silty clay with a few small sand lenses, shells and organic material. In general, the Bay Mud is soft and fluid at the top becoming increasingly consolidated with depth.

The historic locations of tidal mud flats and channels were described by Radbruch (1959), and are shown on Figure 3. Due to the presence of a former tidal channel in the northwestern corner of the Site, the thickness of the fill materials is suspected to be greater there than elsewhere on the Site. No cross section

Deep boreholes drilled on and immediately adjacent to the Site to depths of greater than 100 feet prior to the construction of the Webster Street Tube in 1957 indicate that the Bay Mud is underlain by lenses of well-sorted sands, silts and clayey silts. No bedrock was encountered in these deep borings which were drilled to a maximum depth of 180 feet below grade (State of California, Department of Public Works, 1959).

2.4 Site Hydrogeology

Based on review of groundwater elevation measurements collected during previous investigations, the groundwater flow direction was determined to be to the southeast towards the Webster Street Tube, with the concrete seawall at the estuary and the curtain wall parallel to the Webster Street Tube acting as hydraulic barriers. The lack of significant tidal influence on groundwater elevations at the Site was reported by Subsurface Consultants, Inc. (November 13, 1992).

Depth to groundwater was measured on June 13, 1994 by McLaren/Hart in the six monitoring wells installed at the Site in 1992, and the top-of-casing elevations were remeasured by a state-licensed surveyor. The top-of-casing elevations were measured to a City of Alameda benchmark and referenced to mean sea level (MSL). The groundwater elevations were then calculated and a potentiometric surface map prepared (Figure 4). Groundwater flow to the southeast, as previously observed by Subsurface Consultants, Inc., was confirmed by the June 13, 1994 groundwater level measurements. Depth to shallow groundwater in the June 1994 observation ranged from approximately 4.5 to 6 feet below grade throughout the Site, and was similar to the measurements collected previously. The groundwater gradient measured on June 13, 1994 was also similar to the gradient measured previously.

McLaren/Hart interviewed Mr. Tom Thomas of the California Department of Transportation (CalTrans) and reviewed construction drawings of the Webster Street Tube (A summary of the interview is included in Appendix I). A dewatering and sump drainage system is located within the Webster Street Tube system. The sump drainage system is float controlled and water is pumped intermittently. Due to leakage from joints near the Webster Street Tube portal at the Alameda anchorage, this system collects and pumps a total of approximately 1,200 gallons of water per day (equivalent to less than 1 gallon per minute). These leaking joints are found approximately 300 feet to the south of the Site. According to Mr. Thomas of CalTrans, the point at which water enters the cracks rises with rising tides (pers. comm., Mr. Tom Thomas, CalTrans, June 17, 1994). Water which enters the sump drainage system is pumped into the City of Alameda storm sewer system which eventually discharges into the Oakland Inner Harbor.

Review of this information, along with knowledge of the Site geology (Section 4.1), suggests that the relatively low rate of water pumping occurring at the Webster Street Tube is probably not responsible for the significant "drawdown" observed at well MW-1 (Figure 4).

Because the Webster Street Tube is underlain and overlain by coarse and dense backfill materials which are suspected to be relatively more permeable than native soils, it is suspected that groundwater flow may also be effected by the presence of the Webster Street Tube backfill. Whether groundwater enters the backfill and eventually gravity drains into the Oakland Inner Harbor is not known. The apparent tidal effect observed 300 feet to the south of the Site at the leaking joint suggests that the backfill is hydraulically connected to the waters of the Oakland Inner Harbor. Whether Site groundwater is entering the backfill and eventually discharging to the Oakland Inner Harbor is not known but is possible. However, the monitoring wells closest to the backfill would be expected to be affected by changes in gradient due to tidal water elevation changes, and these effects have not been observed. Support for this conclusion comes from the observations that the groundwater elevation in well MW-1 was significantly below the water elevation in the estuary during a tidal study (Subsurface Consultants, Inc., November 13, 1992) and varied only 0.01 feet during the tidal cycle.

According to Mr. Wali Waziri, representative of the City of Alameda Department of Public Works, a concrete storm sewer is located approximately 200 feet to the east of the Site (immediately east of the Webster Street Tube). This storm sewer, which is set at approximately 7 feet below grade in this area, was broken during the Loma Prieta Earthquake (October, 1989). Groundwater was observed by City personnel to be entering this storm sewer system. The broken storm sewer was repaired between July and September 1994 (pers. comm., Mr. Wali Waziri, City of Alameda Department of Public Works, November 9, 1994). Because this storm sewer is located to the east of the Webster Street Tube backfill (i.e., on the opposite side of the Webster Street Tube from the Site) it is unlikely that leakage of shallow groundwater into this storm sewer was responsible for the reduction of groundwater elevations at the Site.

It is possible that storm sewers located at the Site are broken and also located below the water table, therefore effecting local groundwater elevations. No information is known by McLaren/Hart regarding the integrity of Site storm sewer lines.

2.5 Previous Investigations

On behalf of their client, Security Pacific Bank, AllWest Environmental Inc. (AllWest) conducted an Environmental Site Assessment which included a Site inspection, historic aerial photo review, and Sanborn Fire Insurance map review (AllWest, 1991).

In addition to AllWest's site assessment, field investigations were conducted by AllWest (1992) and Subsurface Consultants, Inc. (Subsurface, 1991, 1992, 1993). Soil sample analytical results from AllWest and Subsurface field investigations were compiled in Table 1 (organic compounds) and Table 2 (inorganic compounds); groundwater sample analytical results were compiled in Table 3 (organic compounds) and Table 4 (inorganic compounds). Sample locations are shown on Figure 5.

3.0 FIELD ACTIVITIES

As part of this Supplemental Site Investigation, thirteen soil borings were drilled and three groundwater monitoring wells were installed between September 15 and 16, 1994. The locations of the soil borings and monitoring wells are shown on Figure 5.

Monitoring wells MW-7 and MW-8 were installed to evaluate downgradient dissolved petroleum hydrocarbon concentrations, and borings SB-A through SB-C were drilled to evaluate soil and groundwater conditions within the area of historic aboveground petroleum hydrocarbon storage. Soil boring SB-C was completed as well MW-9. Borings SB-D and SB-E were drilled within 10 feet of the current underground storage tanks (tanks T-1 and T-2, respectively) to evaluate soil conditions adjacent to these tanks for petroleum hydrocarbons and metals. Soil borings SB-F through SB-K were drilled in the boat sales lot and parking area to evaluate the distribution of metals in shallow soil.

include in summary

The methodology and findings of this investigation are discussed below.

3.1 Soil Boring Drilling and Sampling

Five soil borings (SB-A through SB-C, MW-7 and MW-8) were drilled to a maximum depth of 14 feet below grade, two soil borings (SB-D and SB-E) were drilled to a maximum depth of 10 feet below grade, and six soil borings (SB-F through SB-K) were drilled to a maximum depth of 3.5 feet below grade. All borings were drilled using hollow-stem auger drilling equipment. Soil samples from these borings were continuously collected using an 18-inch California modified split-spoon sampler lined with 2-inch by 6-inch brass tubes, and were field-monitored for organic vapors by headspace analysis. Samples were collected for lithologic description using the Unified Soil Classification System (USCS), and also described on the basis of Munsell color and moisture content. Field headspace measurements of volatile ionizable organic compounds were collected using a photoionization detector (PID) and recorded. The USCS lithologic descriptions, color, moisture and PID measurements are presented on the lithologic logs included in Appendix II.

Soil samples collected for laboratory analysis were capped with Teflon tape and polyethylene end caps and then sealed with duct tape. The brass tubes were labeled, placed in resealable plastic bags, and placed in a cooler containing ice. The coolers were sealed and sent via courier or Federal Express under chain-of-custody protocol to the analytical laboratory.

Soil samples were submitted to MBT Environmental Laboratory in Rancho Cordova, California for some or all of the following analyses: benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8020; vinyl chloride by EPA Method 8240; total organic carbon (TOC) by EPA Method 9060; total threshold limit concentration (TTLC) CAM 17 metals by EPA 6010/7000 Series Methods; and soluble threshold limit concentration (STLC) lead by EPA Method 6010/Title 22 WET.

Soil samples collected from borings SB-A through SB-C at 1.5-2.0 feet and 5.5-6.0 feet below grade were submitted to Friedman & Bruya Environmental Laboratories in Seattle, Washington for petroleum hydrocarbon speciation analysis by EPA Method 8015 Modified. This analysis was performed to evaluate the chromatograms to qualitatively determine what type of fuel was present in the source area soils. Soil borings SB-A, SB-B and SB-C were drilled within 20 feet of previously drilled soil borings MS-11, MS-14 and MS-18, respectively.

Two soil samples were submitted to Core Laboratories in Bakersfield, California for physical parameter analysis that included horizontal permeability to air, intrinsic permeability, dry bulk density, natural bulk density, total porosity and percent fluid saturation. The soil samples submitted to Core Laboratories were collected from SB-A and SB-C at a depth of 4.0-4.5 feet below grade. Three soil samples collected from borings SB-A through SB-C at 4.0-4.5 feet below grade were submitted to Sequoia Environmental Laboratories in Redwood City, California for measurement of total colony forming units (CFUs), a measure of soil microbiological activity. Laboratory analytical results are presented in Section 4.3.

3.2 Monitoring Well Installation

Monitoring wells MW-7 through MW-9 were constructed on September 15 and 16, 1994 using flush threaded PVC well screen and blank casing. The monitoring wells were constructed under permit issued by the Alameda County Flood Control and Water Conservation District Zone 7, and following the specifications of the Alameda County Health Care Services Agency, Department of Environmental Health (ACDEH). A copy of the well installation permit is included in Appendix III. The well construction consisted of placing 4-inch ID, Schedule 40 PVC well screen (0.020 inch slot) and blank casing through the augers. The slotted interval extended from 4.0 feet to 14.0 feet below grade. Next, a filter pack consisting of washed and graded silica sand (2/16 mesh) was installed to a depth 0.5 foot above the well screen, followed by installation of a 1 foot transition seal of granular bentonite. Lastly, the borehole was sealed using Portland cement and secured with a traffic rated vault box completed in concrete at grade. The well construction details are included in Appendix II.

3.3 Well Surveying

Following construction, monitoring wells MW-7 through MW-9 were surveyed for top of casing elevations relative to mean sea level and the elevations were tied into existing wells MW-1 through MW-6. The survey was conducted by a state-licensed surveyor. The well elevation data sheets are included in Appendix IV.

3.4 Well Development

Wells MW-7 through MW-9 were developed on September 19, 1994 by first using a surgeblock at the bottom of the casing. A 1-foot interval was surged for 5 minutes, the surgeblock was raised 1 foot, and the next interval was then surged for 5 minutes. This was repeated until the entire screened interval was surged. Next, a bailer was used to remove coarse grained sediment from the well. Electric conductivity (EC), pH, temperature and turbidity measurements were recorded following removal of each casing volume. Lastly, a centrifugal pump was used to remove approximately 100 additional gallons. Well development was considered complete when a minimum of 10 casing volumes were removed, pH, EC and temperature had stabilized (within 5%), and turbidity levels were below 100 Nephelometric Turbidity Units (NTUs). Well development data sheets are included in Appendix V.

3.5 Monitoring Well Sounding and Groundwater Sampling

Groundwater surface elevations were measured at all monitoring wells on September 26 and October 25, 1994. **In addition, a coordinated sounding round was performed on September 26, 1994 with Versar personnel, the investigators of the adjacent Navy facility.** Six groundwater monitoring wells located on the Navy property within 100 feet of the Navy/Mariner Square property boundary were sounded and a regional groundwater elevation map prepared (Figure 6).

Groundwater samples from the nine on-Site monitoring wells were collected on September 26 and 27, 1994. At least three casing volumes were purged from each well and the temperature, pH, electric conductivity and turbidity were measured after each casing volume was removed. The wells were purged using a centrifugal pump and samples were collected with a disposable bailer. Groundwater samples were collected after temperature, pH, electrical conductivity and turbidity had stabilized and after the well had recovered to at least 80% of the static water level. Groundwater sampling event data sheets are included in Appendix VI.

The groundwater samples were collected and placed into appropriate EPA-approved sample containers depending on analyses required, labeled, and stored in a container filled with ice until delivered to MBT Environmental Laboratory. **Groundwater samples submitted for analysis of dissolved metals were filtered in the field using a 45-micron in-line filter.** A chain-of-custody record was completed during sampling and accompanied each sample shipment to the laboratory. The samples were submitted for analysis of: 1) total petroleum hydrocarbons quantitated as gasoline, diesel or motor oil (TPHG, TPHD or TPHMo, respectively) by EPA Method 8015 Modified, 2) BTEX by EPA Method 8020, 3) vinyl chloride by EPA Method 8010, 4) total dissolved solids by EPA Method 160.1, and 5) priority pollutant metals by EPA Series 6010/7000 Methods.

3.6 Storage of Wastes Generated During Investigation

During the drilling of the soil borings, cuttings of soil were generated and placed into steel 55-gallon drums. Groundwater generated during monitoring well development and sampling was also stored in steel 55-gallon drums. Eight drums of soil and six drums of water were generated as part of this investigation. These drums are located on-site pending approval for disposal.

4.0 INVESTIGATION RESULTS

A discussion of the findings of the Supplemental Site Investigation performed by McLaren/Hart including Site lithology, groundwater surface elevations, and analytical results of soil and groundwater sampling are presented in this section.

4.1 Lithology

The lithology encountered in the 13 soil borings drilled as part of this investigation is described in detail in the boring logs included in Appendix II. The soils encountered were described as relatively high permeability medium-grained sands with low percentage of fine silts and clays. The sands contained abundant shell fragments, and are suspected to be the hydraulic fill described by others (Radbruch, 1959). At depths ranging from 9.5 to greater than 15 feet below grade, a high-organic and plastic silty clay (Bay Mud) was encountered. Evaluation of the fill sand/Bay Mud contact indicated that the degraded petroleum "Marsh Crust" (Section 2.2) was observed in boring SB-A. ?

Bay Mud was not encountered while drilling well MW-8 to the maximum depth of 15 feet below grade. In comparing the CalTrans drawings in Appendix I with the well location shown on Figure 5, it appears that MW-8 is entirely within the Webster Street Tube backfill. The presence of backfill material in the location of well MW-8 may partially explain the lower groundwater elevations found in this area (See Section 4.2.).

Two geologic cross-sections were prepared to show lithologic relationships. Cross-section A-A' (Figure 7) was prepared in the direction of groundwater flow, and cross-section B-B' (Figure 8) was prepared perpendicular to groundwater flow. The cross-section traces are shown on Figure 5.

4.2 Groundwater Surface Elevation

Groundwater surface elevations were initially measured in wells MW-1 through MW-6 on June 13, 1994. Following installation of wells MW-7 through MW-9 groundwater surface elevations were again measured on September 26, 1994 and October 25, 1994. Measurements of depth to groundwater and TOC elevations referenced to mean sea level are presented in Table 5. These data were used to construct the potentiometric surface maps presented as Figures 4 (June 13, 1994), Figure 6 (September 26, 1994) and Figure 9 (October 25, 1994). The September 26, 1994 potentiometric surface map shows the location and groundwater elevations measured from six monitoring wells located on the adjacent Navy property. The inferred groundwater flow direction in the vicinity of the Site is generally consistent to the southeast. Tidal conditions at the time of water level measurement are identified in Table 5. Review of the tidal information indicates that groundwater elevation measurements taken during the three Site-wide water level surveys were made during periods of increasing (flood) tides. Doesn't really tell us much about tidal influence

In addition to three groundwater elevation surveys, a weekly separate-phase hydrocarbon bailing program was performed at well MW-6. Due to the presence of 0.02 feet of separate-phase hydrocarbons in well MW-6 on June 13, 1994, representatives of the ACDEH required the initiation of a separate-phase hydrocarbon removal program. Separate-phase hydrocarbons, at a thickness of 0.03 feet, were observed on September 26, 1994 in well MW-6 and pumped until no longer measurable. A total of approximately 0.5 gallon of separate-phase hydrocarbons and water were removed. Thickness of separate-phase hydrocarbons were measured on following weeks. No measurable thicknesses of separate-phase hydrocarbons were observed during these level measurements, although a sheen was observed.

4.3 Soil Analytical Results

A total of 28 soil samples were collected as part of this investigation and submitted for laboratory analysis. Results of the analyses of soil samples for organic compounds and metals are presented in Table 6 and Table 7, respectively.

4.3.1 Soil Analytical Results - Organics

The two soil samples collected from boring SB-A at 2.0 and 5.5 feet below grade were submitted for petroleum hydrocarbon speciation analysis. These samples did not contain detectable concentrations of TPHG (method detection limit of 20 ppm), TPHD (method detection limit of 50 ppm) and TPHMo (method detection limit of 100 ppm), and therefore no hydrocarbon speciation could be performed. BTEX compounds and vinyl chloride were not present above the reporting limit in the 5.5-foot depth soil sample from SB-A.

Sample analysis by EPA Method 8015 Modified for gasoline range hydrocarbons (carbon range C7 through C14), diesel range hydrocarbons (C12 through C22) and motor oil range hydrocarbons (C22 through C32) results in a value quantitated against a fresh (unweathered) fuel standard. For example, a value reported as TPHD does not necessarily mean that the hydrocarbon in the sample was diesel fuel, but that any concentrations were calculated from hydrocarbon peaks within the diesel range on the chromatogram.

The two soil samples collected from boring SB-B showed the presence of high-boiling compounds indicative of motor oil or lubricating oil. The soil sample collected from boring SB-C at a depth of 2.0 feet below grade contained medium and high-boiling hydrocarbons along with halogenated and/or highly oxidized compounds. The soil sample collected from SB-C at 6.0 feet below grade contained only high-boiling compounds indicative of a motor oil or lubricating oil. Due to the speciation result, the soil sample from SB-C at 2.0 feet below grade was resubmitted for analysis by EPA Method 8015 Modified. The resulting reanalysis indicated the presence of TPHMo at a concentration of 9,200 ppm, and TPH as Bunker C at 8,700 ppm. Toluene and ethylbenzene were also present in the soil sample at 13 ppm and 5.8 ppm, respectively. Vinyl chloride was not present above the reporting limit of 10 parts per billion (ppb). ?

Soil samples from borings SB-A through SB-C were also analyzed for TOC concentrations. The soil samples collected from the shallower depth interval (1.5 to 2.0 feet below grade) contained considerably higher concentrations of organic carbon (4,000 ppm to 19,000 ppm) than the deeper samples (5.5 to 6.0 feet below grade) which ranged from less than the reporting limit (500 ppm) to 960 ppm.

The soil samples collected at a depth of 4.5 feet below grade from boring SB-D, located approximately 10 feet east of current tank T-1 (Figure 5) contained concentrations of TPHD at 810 ppm and TPHMo at 140 ppm. The only volatile aromatic compounds detected in this sample were xylenes at a concentration of 1.38 ppm.

Soil boring SB-E was drilled within 10 feet of current tank T-2. The soil sample collected at 4.5 feet below grade contained TPHMo at 60 ppm, and toluene at a concentration of 0.019 ppm.

Because petroleum hydrocarbon odors were detected during the drilling of well MW-7, installed approximately 150 feet downgradient of well MW-4, one soil sample was collected for analysis of TPH, BTEX and vinyl chloride. TPHMo at 200 ppm was detected in the soil sample collected at 4.0 feet below grade. The only other compound detected was toluene at 0.014 ppm. Since no PID readings or visible indication of chemicals were observed during the installation of well MW-8, soil samples were not collected for analysis at this well.

So not coming from "Marsh crust" which is located at fill/Bay mud interface.

4.3.2 Soil Analytical Results - Inorganic Compounds

Soil samples were collected from borings SB-A through SB-K at a depth of 1.5 to 2.0 feet below grade for analysis of CAM 17 TTLC metals. Several soil samples contained concentrations of individual metals at levels above either: 1) the California Code of Regulations (CCR) Title 22 TTLC or 2) 10 times the STLC value (Table 7, highlighted in bold). The locations where the soil samples exceeded these limits, and the respective metal which was exceeded were: SB-A, SB-B, SB-C, SB-G, SB-H, and SB-J for total lead; SB-J and SB-K for copper; SB-J for antimony; and SB-J for zinc. Due to the presence of high concentrations of these metals in soil at 1.5 to 2.0 feet below grade, samples collected at a depth of 3.0 to 3.5 feet below grade from these borings were submitted for analysis of the individual metal detected at a high concentration. The results of the deeper sample analysis indicated that no concentrations of the individual metals exceeded TTLC or 10-times STLC levels, thereby demonstrating that the high metals concentrations are not present at 3 feet below grade. The deeper soil sample analytical results are also shown in Table 7.

4.3.3 Soil Analytical Results - Physical Parameters

For the evaluation of remedial options, two soil samples were submitted for analysis of physical characteristics and three soil samples were submitted for analysis of total colony-forming units (Table 8). In general, both soil samples collected for physical analysis (SB-A and SB-C at 3.5 feet depth) exhibited high permeabilities (porosities of 30.2 and 38.4%) and fluid saturations of 30 and 50%. Of the three soil samples submitted for analysis of colony- forming units, samples collected at 4.0 feet below grade from borings SB-A and SB-B indicated moderately high levels of biological activity (20,000 and 85,000 CFUs per milligram of soil), whereas the sample collected from SB-C at 4.0 feet below grade exhibited extremely high levels of activity (850,000 CFUs per milligram of soil).

4.4 <u>Groundwater Analytical Results</u>

Analytical results of groundwater samples collected September 26 and 27, 1994 are presented in Table 9 (organic analyses) and Table 10 (inorganic analyses).

4.4.1 Groundwater Analytical Results - Organic and TDS Analyses

Groundwater samples from the nine monitoring wells were analyzed for the presence of TPHG, TPHD, TPHMo, BTEX, vinyl chloride and TDS. Concentrations of TPHG were detected in wells MW-2, MW-5, and MW-6 at 0.32 ppm, 3.1 ppm and 1.1 ppm, respectively. BTEX
320 ppb, 3100 ppb & 1100 ppb
compounds were detected only in the groundwater samples collected from wells MW-4 and MW-

5 at a maximum concentration of 12 ppb benzene (MW-4), 11 ppb toluene (MW-5), 8.7 ppb ethylbenzene (MW-5) and 14 ppb xylenes (MW-5). Concentrations of TPHD were detected in all monitoring wells, except MW-2, at concentrations ranging from 0.32 ppm (MW-8) to 9.9 ppm (MW-6). TPHMo was detected in groundwater samples from wells MW-2 and MW-6 at 0.24 ppm and 3.2 ppm, respectively.

320 ppb 9900 ppb

240 ppb 3200 ppb

Sample analysis by EPA Method 8015 Modified for gasoline range hydrocarbons (carbon range C7 through C14), diesel range hydrocarbons (C12 through C22) and motor oil range hydrocarbons (C22 through C32) results in a value quantitated against a fresh (unweathered) fuel standard. For example, a value reported as TPHD does not necessarily mean that the hydrocarbon in the sample was diesel fuel, but that any concentrations were calculated from hydrocarbon peaks within the diesel range on the chromatogram.

The volatile organic compound vinyl chloride, a breakdown product of various chlorinated solvents, was detected only in the groundwater sample from well MW-4 at 8.0 ppb. Well MW-4 is located at the southwest corner of the Site. Spray paint booths are located on both the adjacent Navy Site and the Mariner Square Site in the vicinity of well MW-4.

Analyses for TDS were performed on groundwater samples from three monitoring wells on the Site to measure the suitability of groundwater for potential use as drinking water. The recommended secondary drinking water standard of 500 ppm (California Department of Health Services) was exceeded in all three groundwater samples and the State Water Resources Control Board standard of 3,000 ppm, a measure of suitability of water as a potential drinking water source, was exceeded in well MW-8, indicating brackish to saline groundwater in this area. Well MW-8 is downgradient in the direction of Site groundwater flow (i.e., chemicals in Site groundwater are moving to brackish groundwater).

4.4.2 Groundwater Analytical Results - Inorganic Analyses

Groundwater samples from the nine monitoring wells were analyzed for the presence of dissolved Priority Pollutant metals, and the results are compiled in Table 10. The only metal detected in the groundwater samples was arsenic at concentrations up to 22 ppb. The MCL for drinking water of 50 ppb was not exceeded.

4.5 Soil and Groundwater Analytical Results - Naval Supply Center Site

Thirteen soil borings and six groundwater monitoring wells located on the adjacent Navy property have been sampled as part of the ongoing investigation of that property. In order to formulate a regional soil and groundwater chemical image, draft data from the Navy investigations have been provided to McLaren/Hart. Monitoring wells S22, S27, S29, S30, S31 and S42, and soil borings A37 through A42, A77, and A88 through A94 are located within 120 feet of the Mariner Square Site. The draft data tabulations and figures provided to McLaren/Hart by Versar and PRC (Navy consultants) are included in Appendix VII.

Soil samples collected from the borings and wells drilled on the Navy property contained concentrations of TPHG up to 1,100 ppm (boring A93 at 5.5 feet below grade), TPHD up to 11,000 ppm (boring A93 at 5.5 feet below grade) and TPHMo up to 6,500 ppm (boring S31 at 2.5 feet below grade). The distribution of detected concentrations of TPHG and TPHD in soil samples indicated that the highest concentrations were encountered at a depth of approximately 3.5 to 5.5 feet below grade in borings drilled near the property line (near the Mariner Square Site's former aboveground steel storage tank) and also in the vicinity of boring S31. Concentrations of TPHMo however were widely distributed in soil throughout the area at all depths (0.5 feet to 5.5 feet below grade). No detectable concentrations of benzene and vinyl chloride were present in the soil samples collected in this area.

Review of the data indicates that moderate to low levels of TPHG, TPHD and TPHMo were detected in groundwater samples collected in June 1994 from the portion of the Navy property near the Mariner Square Site. Concentrations of TPHG ranged from 25 ppb (well S29) to 740 ppb (well S27). Well S27 is located within several feet of the Mariner Square property line near the existing former steel aboveground storage tank. Concentrations of TPHD in groundwater ranged from 160 ppb (well S29) to 3,200 ppb (well S27) and TPHMo ranged from 120 ppb (well S30) to 630 ppb (well S22). Well S22 is located approximately 105 feet southwest (crossgradient) of the existing steel aboveground storage tank.

Concentrations of benzene and vinyl chloride have also been identified in groundwater samples from the Navy wells at concentrations up to 40 ppb benzene (well S22) and 9 ppb vinyl chloride (well S22). These two volatile compounds have also been detected in groundwater samples from Mariner Square Site well MW-4, located approximately 120 feet downgradient of well S22 at maximum concentrations of 31 ppb benzene and 13 ppb vinyl chloride.

5.0 CONCLUSIONS

The following conclusions are based on soil and groundwater analytical data collected during this investigation, soil and groundwater analytical data previously obtained by others at the Site, soil and groundwater analytical data collected from the adjacent Naval Supply Center Site, and the lithologic and hydrogeologic data collected during this and previous investigations:

1. Metals were detected in shallow soil samples collected at 1.5 to 2.0 feet below ground surface at concentrations above either the CCR Title 22 Total Threshold Limit Concentrations or above 10 times the Soluble Threshold Limit Concentration. However, the concentrations of metals in soil at depths of 3.0 to 3.5 feet below grade were not above these levels. Groundwater samples were collected from the nine monitoring wells at the Site and analyzed for priority pollutant metals, which were either below reporting limits or if detected, were at concentrations significantly below the MCLs. These results indicate that the metals at shallow depths have not migrated to deeper depths and have also not impacted groundwater. The presence of pavement and buildings over the entire property is believed to effectively limit the leaching and therefore mobility of metals.

2. The metals detected at shallow depths, including antimony, copper, lead and zinc, are not typically associated with refined fuels. These metals are, however, associated with industrial metallurgical operations and are also additives to paints, including marine anti-fouling paints. The occurrence of these metals at shallow depth may be due to: 1) composition of the last lifts of Bay fill material placed when the Site area was developed by filling tidal areas with material dredged from the Bay, or 2) Site uses of paints. Several historic metal foundries were located in the eastern San Francisco Bay area. If the dredged fill sands placed at the Site were taken from an area receiving metal wastes, the foundries may have been a source of the metals. The metals in shallow soil may also have been the result of painting operations which continue to be performed at the Site.

3. Concentrations of petroleum hydrocarbons, toluene, ethylbenzene and xylenes were detected in soil at the Site during this and/or previous investigations. Maximum concentrations of petroleum hydrocarbons were detected within the firewall area. **Concentrations of microorganisms which are suspected to be able to oxidize petroleum hydrocarbons are found in soil within the firewall area.**

4. The fill materials in boring SB-A appeared to be similar at the shallow (1.5 to 2.0 feet below grade) and deep (5.5 to 6.0 feet below grade) depths. The same observation regarding fill materials was made in soil boring SB-B, although these materials were not the same as in boring SB-A. The considerably higher concentrations of total organic carbon (TOC) at the shallow depth (4,000 to 19,000 ppm) compared to the deeper depth (less than 500 ppm to 960 ppm) could be due to: 1) the introduction of additional organic carbon, either natural or man-made, from the surface, 2) the flushing out of carbon at depth due to fluctuating groundwater elevations or 3) differences in oxidation rates of the available carbon by microbes present in shallow versus deeper soil. **In boring SB-C, the fill materials were different at the two depths, which, in addition to the above, may explain the higher TOC concentration at the shallow depth in this boring.** ? But then why would we see it in SB-A & SB-B

   Moderately high levels of biological activity (20,000 and 85,000 CFUs per milligram of soil) were observed in the samples from borings SB-A and SB-B, and an extremely high level of activity (850,000 CFUs per milligram of soil) was observed in the sample from boring SB-C. A general number for a healthy population of microorganisms is any value above 1,000 CFUs per milligram of soil (Dr. John Hill, McLaren/Hart, personal communication, October 11, 1994).

5. Concentrations of petroleum hydrocarbons, benzene, toluene, ethylbenzene, xylenes, and vinyl chloride were detected in groundwater. The maximum concentrations of TPH in the gasoline range was 3.1 ppm in the groundwater sample collected from well MW-5. The highest concentrations of toluene, ethylbenzene and xylenes (11 ppb, 8.7 ppb, and 14 ppb, respectively) were also detected in the sample from well MW-5. The highest

concentrations of TPH in the diesel and motor oil ranges were present in the groundwater sample collected from well MW-6 at 9.9 ppm and 3.2 ppm, respectively. Benzene and vinyl chloride were detected in the sample from well MW-4 at 12 ppb and 8 ppb, respectively. Benzene was also detected in the groundwater sample collected from well MW-5 at 7.9 ppb.

6. A thin layer of separate-phase hydrocarbons was found in one of the nine monitoring wells. The maximum thickness of the separate-phase hydrocarbons was 0.03 feet. The separate-phase hydrocarbons were removed during one pumping event which generated less than one gallon of water with hydrocarbons. The separate-phase hydrocarbons were not observed at a measurable thickness in six subsequent weekly sounding events.

7. Analyses for TDS were performed on groundwater samples from three monitoring wells at the Site. Groundwater samples collected at the monitoring well located at the furthest downgradient (southeast) corner of the Site (MW-8) contained TDS concentrations (4,100 ppm) which exceeded the State Water Resources Control Board standard of 3,000 ppm (a measure of the suitability of water as a potential drinking water source). Groundwater samples collected at two other wells at the Site (MW-2 and MW-4) contained concentrations of TDS which exceeded the California Department of Health Services recommended secondary drinking water standard of 500 ppm.

6.0 REFERENCES

Historic Resources Inventory, State of California Department of Parks and Recreation, May 27, 1988;

Environmental Engineering Services, Mariner Boat Yard Gasoline Tank, Subsurface Consultants, Inc., February 20, 1991;

Environmental Assessment, AllWest Environmental, Inc., December 3, 1991;

Subsurface Investigation Report, AllWest Environmental, Inc., May 1, 1992;

Groundwater Investigation, Subsurface Consultants, Inc., November 13, 1992.

Quarterly Groundwater Monitoring Report, Subsurface Consultants, Inc., December 23, 1992;

Results of Lead Analysis in Soil, Subsurface Consultants, Inc., December 24, 1992;

Groundwater Sampling and Testing, Subsurface Consultants, Inc., November 8, 1993;

Former Shoreline Features Along the East Side of San Francisco Bay California, Dorothy H. Radbruch, United States Geological Survey, Miscellaneous Geologic Investigations Map I-298, 1959;

Log of Test Borings, State of California Department of Public Works, Division of Highways, Sheet 307, 1959;

NAS Alameda Environmental Baseline Survey Fact Sheet, NAS Alameda Environmental Office, October, 1994;

Residential or Farm Heating Oil Tanks, Steven Ritchie, Regional Water Quality Control Board, June 21, 1994;

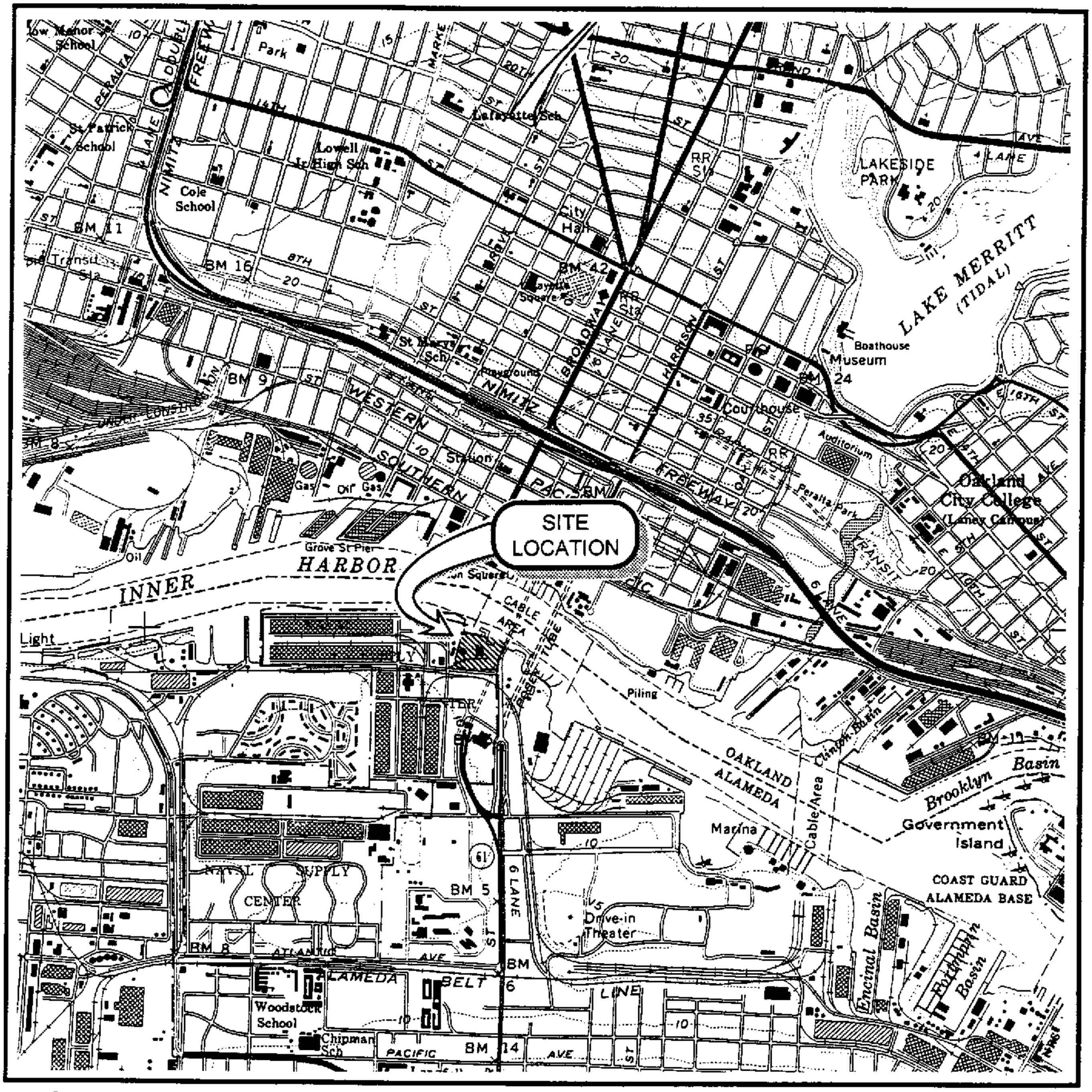
Dr. John Hill, McLaren/Hart Environmental Engineering Corporation, personal communication, October 11, 1994;

Mr. Tom Thomas, California Department of Transportation, personal communication, June 17, 1994;

Mr. John Bird, Versar Inc., Personal communication, September 9, 1994; and

Draft Remedial Investigation, FISCO Alameda Annex and Facility; PRC Environmental Management and Versar Inc.; March 1995.

FIGURE 1
SITE LOCATION MAP
MARINER SQUARE
ALAMEDA, CALIFORNIA



Map Source: U.S.G.S. Alameda Quadrangle - California
7.5 Minute Series (Topographic)

N

0 2000'
SCALE IN FEET

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

Almd1194/01; Rev: 111094

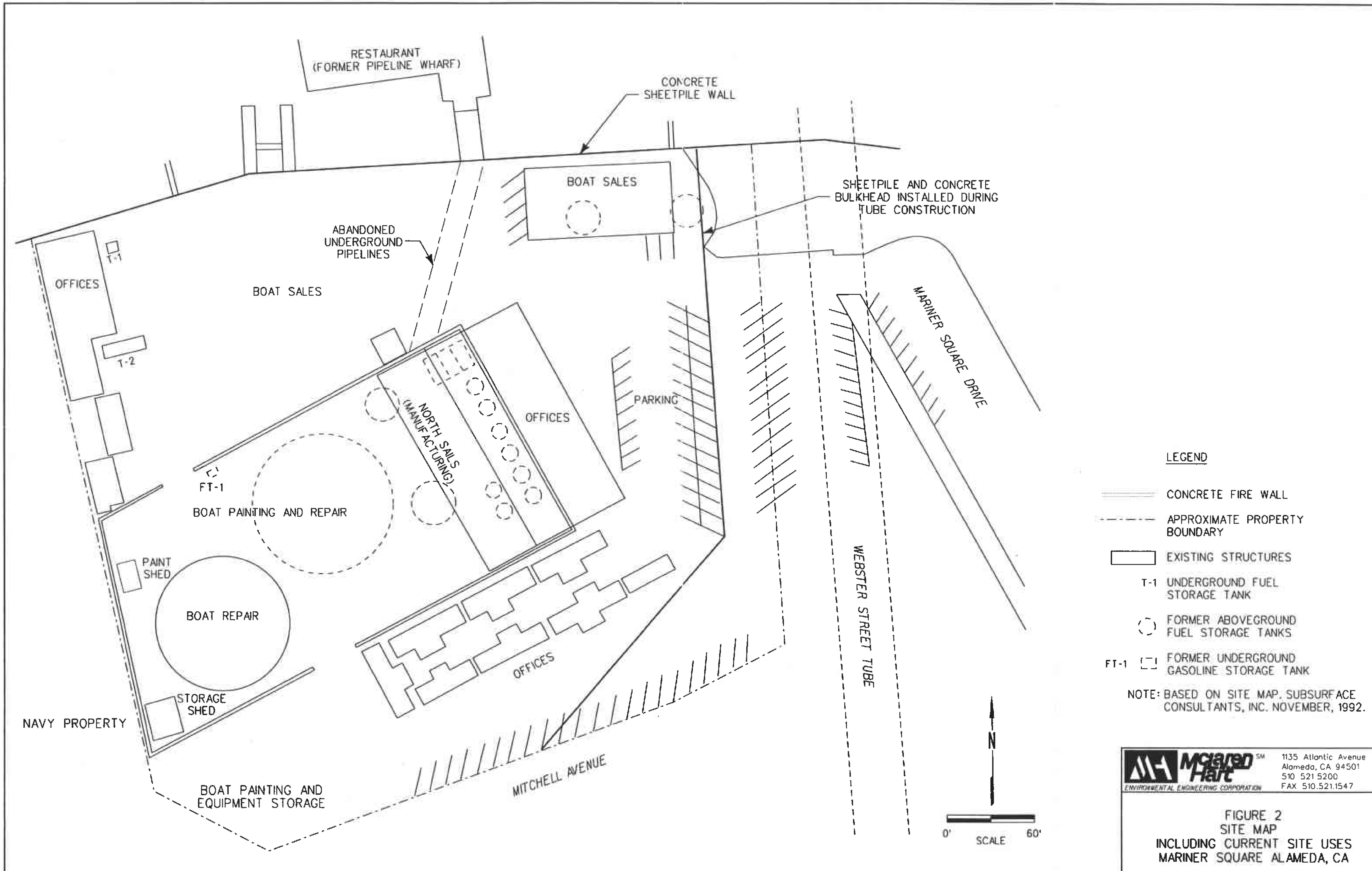


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FIGURE 2
SITE MAP
INCLUDING CURRENT SITE USES
MARINER SQUARE ALAMEDA, CA

Mner795P/02.dgn Rev: 08-01-95

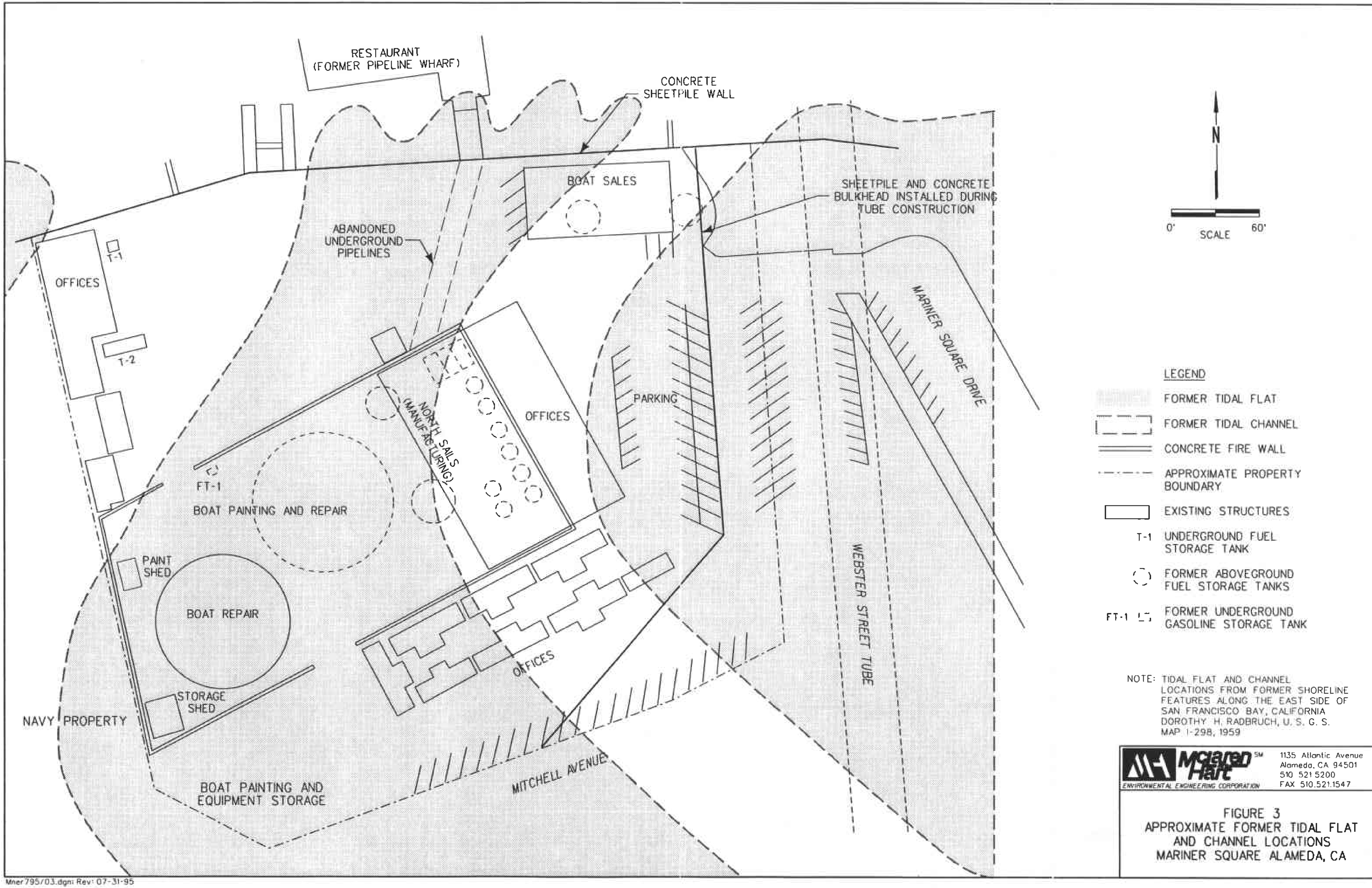

FIGURE 3
APPROXIMATE FORMER TIDAL FLAT
AND CHANNEL LOCATIONS
MARINER SQUARE ALAMEDA, CA

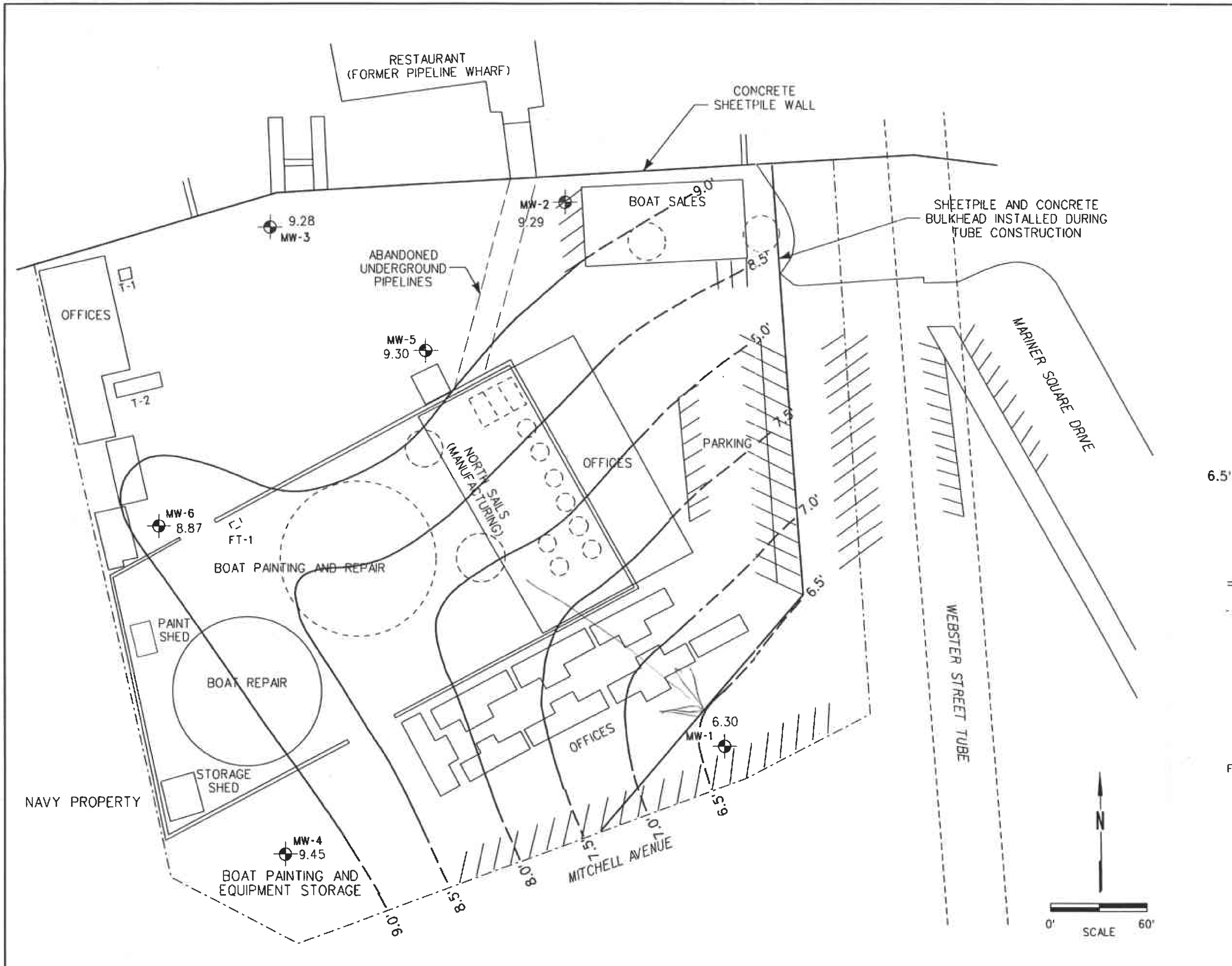

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FIGURE 4
POTENTIOMETRIC SURFACE MAP
MEASURED JUNE 13, 1994
MARINER SQUARE ALAMEDA, CA

Mner795/04.dgn; Rev: 07-31-95

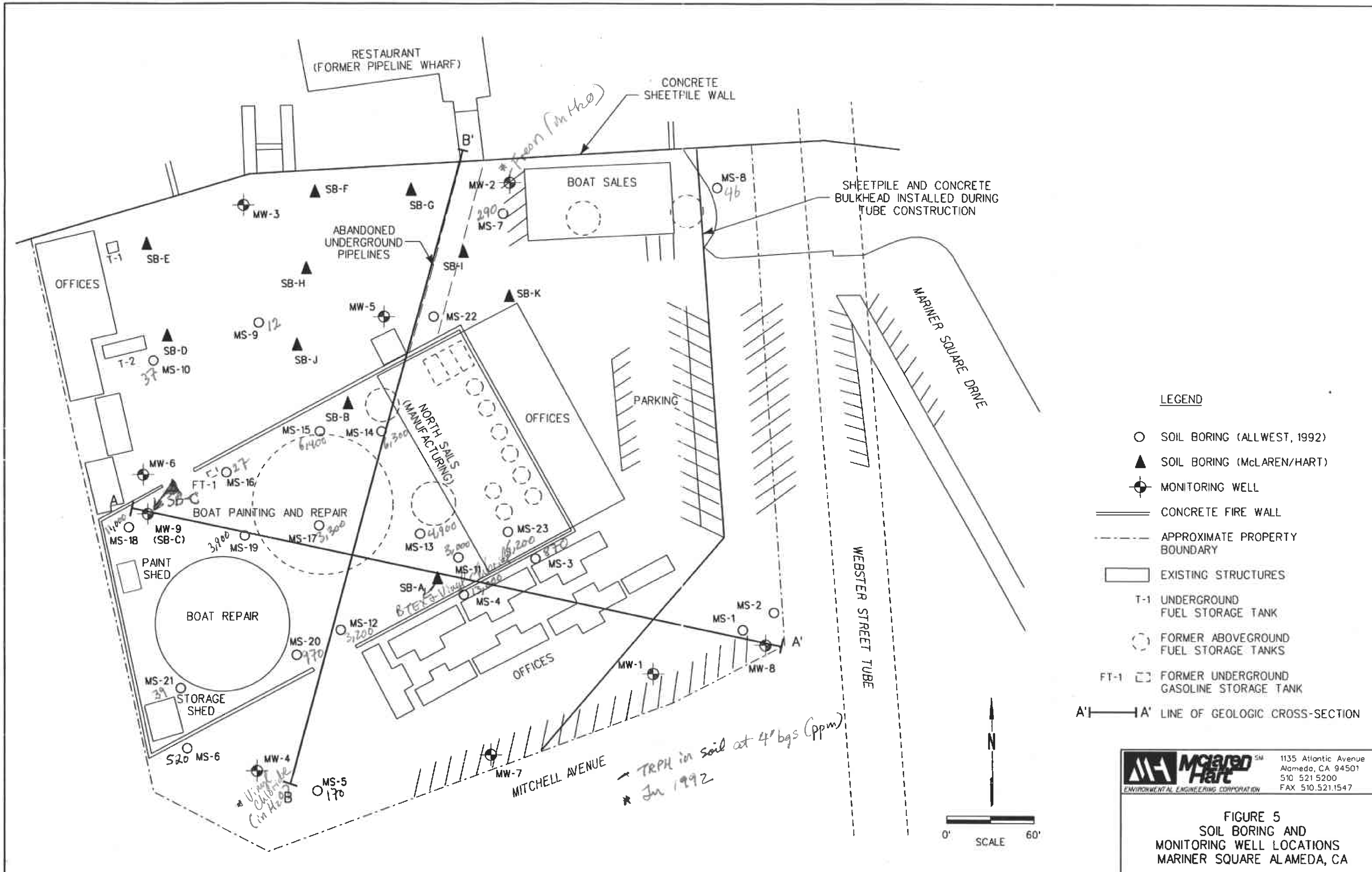

FIGURE 5
SOIL BORING AND
MONITORING WELL LOCATIONS
MARINER SQUARE ALAMEDA, CA

Mner795/05.dgn; Rev: 08-01-95

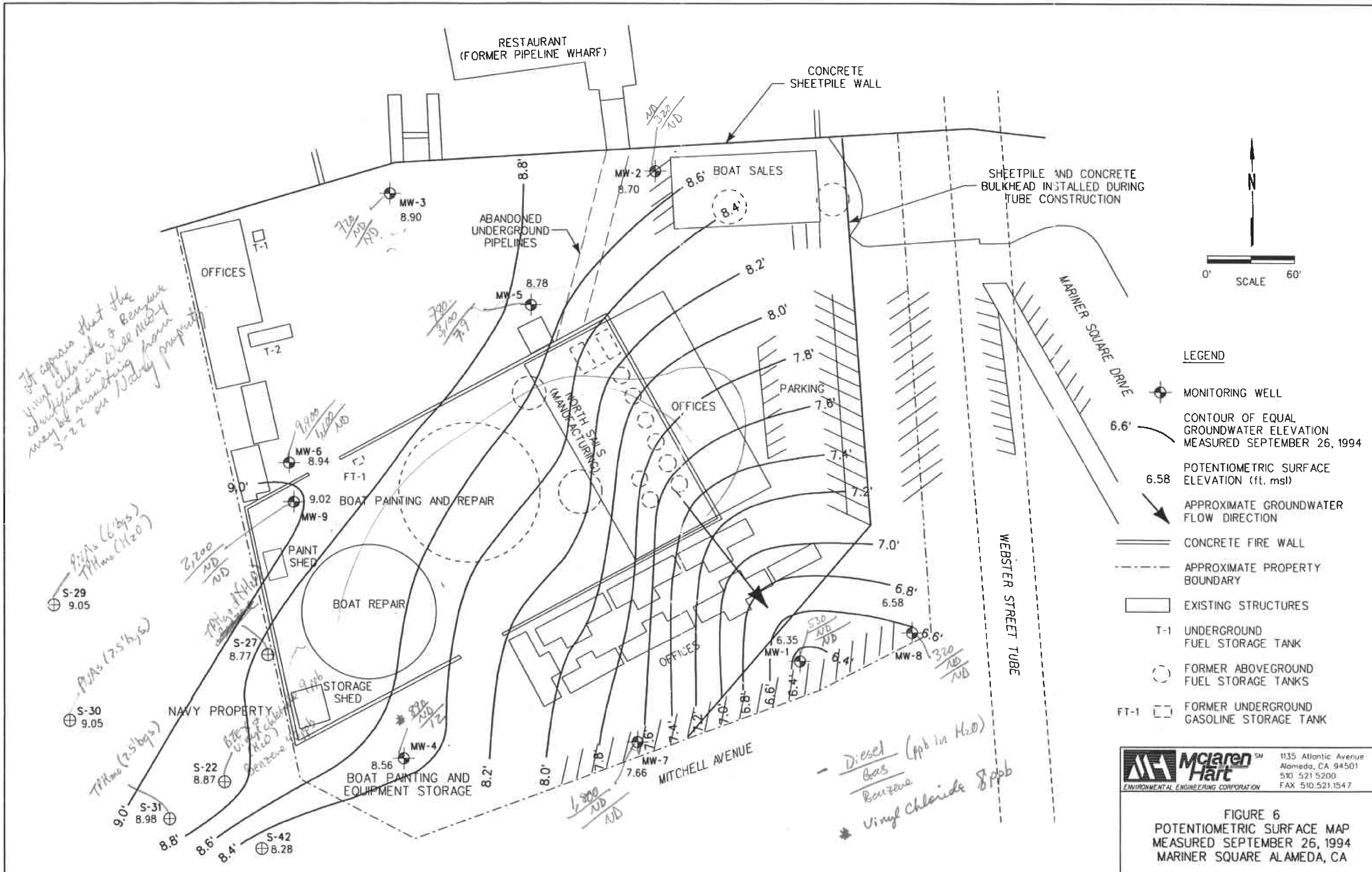

FIGURE 6
POTENTIOMETRIC SURFACE MAP
MEASURED SEPTEMBER 26, 1994
MARINER SQUARE ALAMEDA, CA

Mner795/06.dgn Rev: 07-31-95

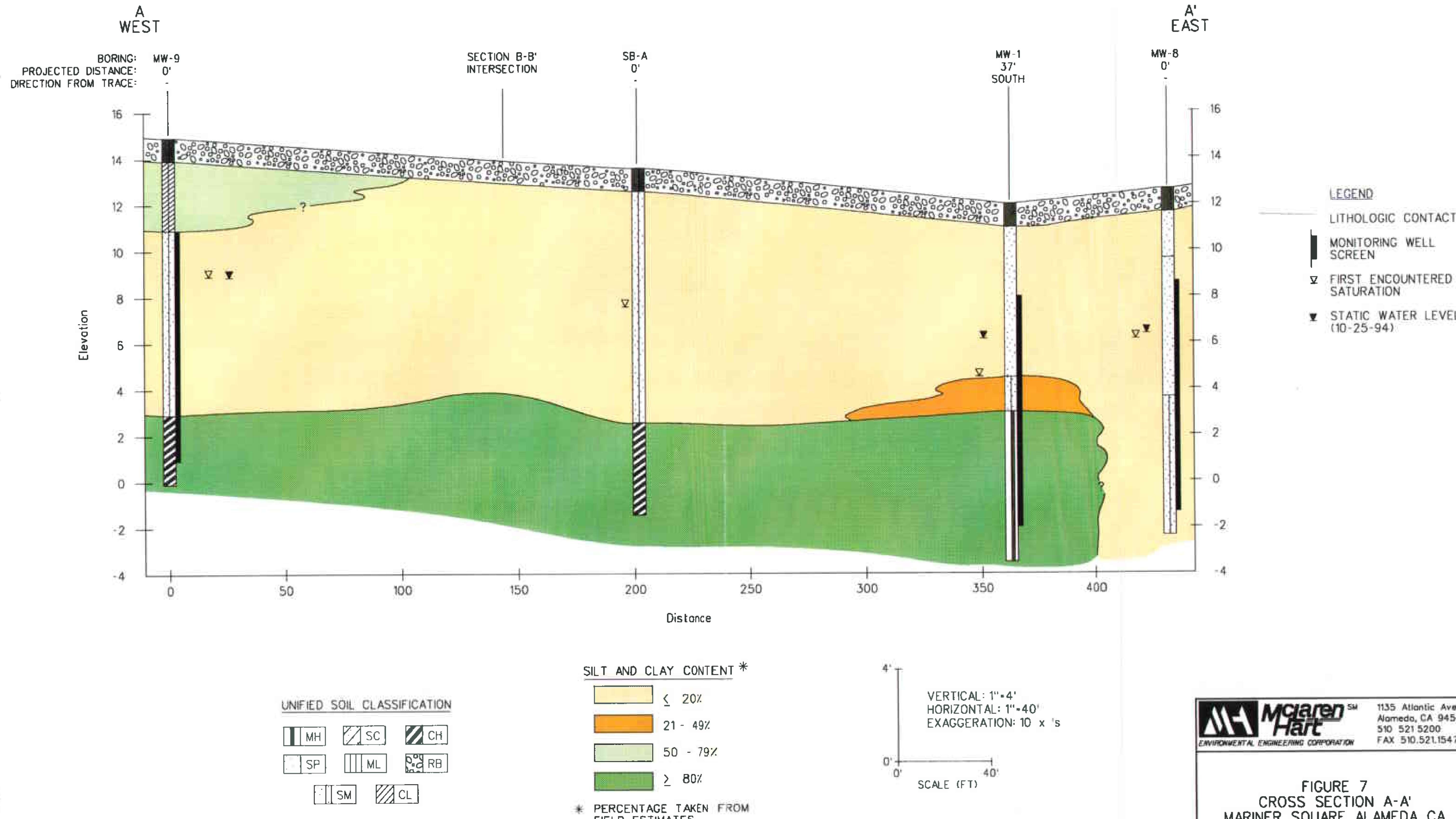

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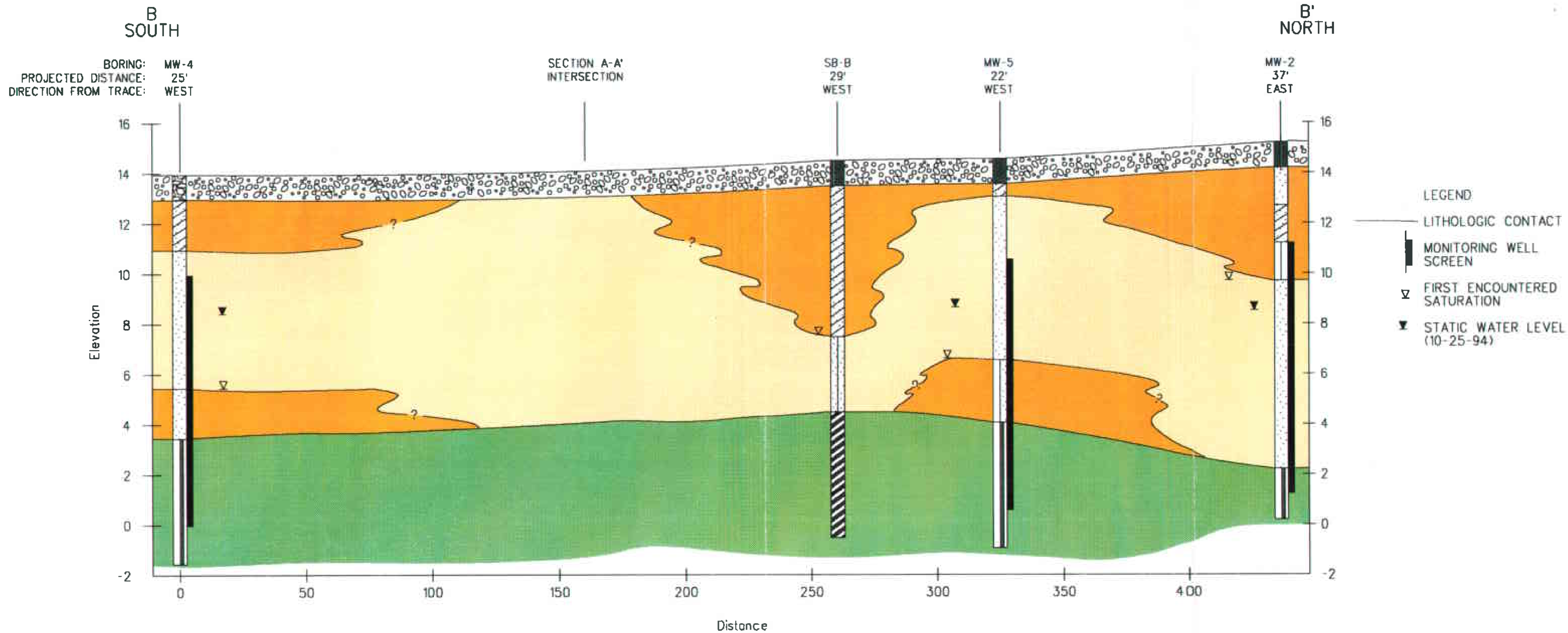
FIGURE 7
CROSS SECTION A-A'
MARINER SQUARE ALAMEDA, CA

Mner395/7.dgn: Rev:3-31-95



UNIFIED SOIL CLASSIFICATION

MH SC CH
SP ML RB
SM CL

SILT AND CLAY CONTENT *

≤ 20%
21 - 49%
50 - 79%
≥ 80%

* PERCENTAGE TAKEN FROM FIELD ESTIMATES

VERTICAL: 1"-4'
HORIZONTAL: 1"-40'
EXAGGERATION: 10 x 's

SCALE (FT)

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FIGURE 8
CROSS SECTION B-B'
MARINER SQUARE ALAMEDA, CA

Mner795/08.dgn; Rev: 07-31-95

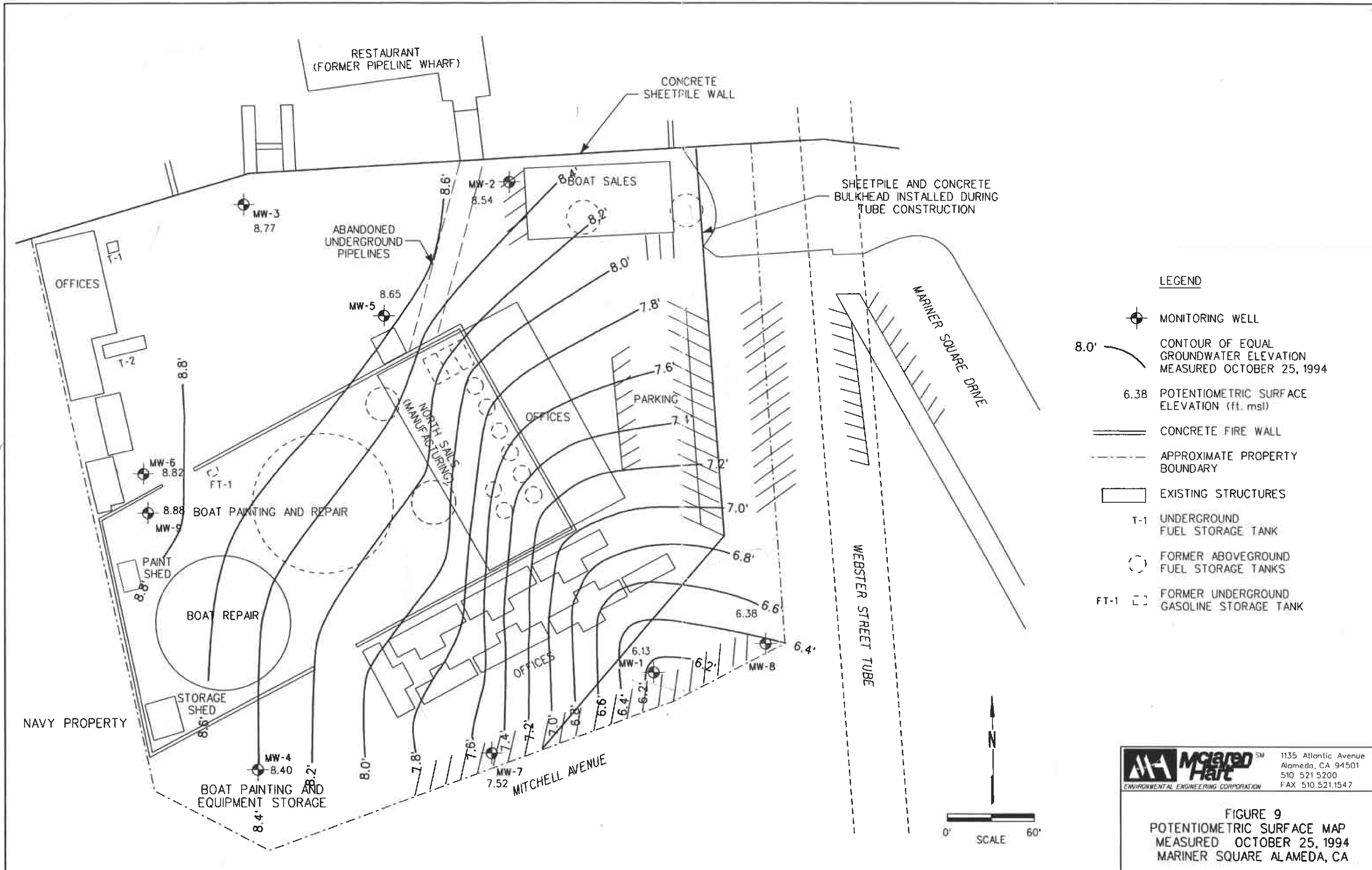

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FIGURE 9
POTENTIOMETRIC SURFACE MAP
MEASURED OCTOBER 25, 1994
MARINER SQUARE ALAMEDA, CA

Mner795/09.dgn Rev: 07-31-95

TABLE 1
HISTORICAL SOIL SAMPLE ANALYTICAL RESULTS - ORGANICS
MARINER SQUARE, ALAMEDA, CALIFORNIA

BORING/ WELL NUMBER	DEPTH (Feet)	DATE	SOURCE OF INFORMATION	TOTAL PETROLEUM HYDROCARBONS			TRPH (ppm)	OIL & GREASE (ppm)	BENZENE (ppm)	TOLUENE (ppm)	ETHYLBENZENE (ppm)	XYLENES (ppm)	VOCs (ppb)
				GAS (ppm)	DIESEL (ppm)	MOTOR OIL (ppm)							
MS-21	0.40	4/8/92	2	NA	NA	NA	39	NA	<0.005	<0.005	<0.005	<0.010	ND*
MS-22	0.40	4/8/92	2	NA	NA	NA	<10	NA	<0.005	<0.005	<0.005	<0.010	ND*
MS-23	0.30	4/8/92	2	NA	NA	NA	6,200	NA	<0.005	<0.005	<0.005	<0.010	ND*
MW-1	7.0	7/22/92	3	NA	<1	NA	NA	<50	<0.005	<0.005	<0.005	<0.005	ND*
MW-2	6.0	7/22/92	3	NA	40	NA	NA	66	<0.80	<0.80	21.0	10.0	ND*
MW-3	4.5	7/29/92	3	NA	<1	NA	NA	<50	<0.005	<0.005	<0.005	<0.005	ND*
MW-4	4.0	7/23/92	3	NA	<1	NA	NA	<50	<0.005	<0.005	<0.005	<0.005	ND*
MW-5	4.5	7/23/92	3	NA	220	NA	NA	<50	<0.40	0.50	1.6	1.4	ND*

ppm = Parts per million

ppb = Parts per billion

< = Compound not detected at or above specified laboratory reporting limits

NA = Not analyzed

ND* = Not present above laboratory reporting limits, reporting limit varies per individual compound

ND** = Compound not detected, reporting limit not specified.

Boring/Well numbers refer to locations shown on Figure 5.

<u>Source of Information:</u>

1 = Subsurface Consultants, Inc.; Environmental Engineering Services, February 20, 1991

2 = AllWest; Subsurface Investigation Report; May 1, 1992

3 = Subsurface Consultants, Inc.; Groundwater Investigation Report; November 13, 1992

TABLE 1
HISTORICAL SOIL SAMPLE ANALYTICAL RESULTS - ORGANICS
MARINER SQUARE, ALAMEDA, CALIFORNIA

BORING/ WELL NUMBER	DEPTH (Feet)	DATE	SOURCE OF INFORMATION	TOTAL PETROLEUM HYDROCARBONS			diesel TRPH (ppm)	OIL & GREASE (ppm)	BENZENE (ppm)	TOLUENE (ppm)	ETHYLBENZENE (ppm)	XYLENES (ppm)	VOCs (ppb)
				GAS (ppm)	DIESEL (ppm)	MOTOR OIL (ppm)							
T-1	5.0	12/17/90	1	ND**	NA	NA	NA	NA	ND**	ND**	ND**	0.0063	NA
T-2	5.0	12/17/90	1	ND**	NA	NA	NA	NA	ND**	0.017	ND**	0.020	NA
D-1	1.0	12/17/90	1	ND**	NA	NA	NA	NA	ND**	ND**	ND**	ND**	NA
MS-1	4.0	4/7/92	2	NA	NA	NA	<10	NA	<0.005	<0.005	<0.005	<0.010	ND*
MS-2	4.0	4/7/92	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MS-3	4.0	4/7/92	2	NA	NA	NA	870	NA	<0.005	<0.005	0.027	0.054	ND*
MS-4	4.0	4/7/92	2	NA	NA	NA	13,000	NA	<0.50	<0.50	1.00	1.20	ND*
MS-5	4.0	4/7/92	2	NA	NA	NA	170	NA	<0.005	<0.005	<0.005	<0.010	ND*
MS-6	4.0	4/7/92	2	NA	NA	NA	520	NA	<0.10	<0.10	<0.10	<0.20	ND*
MS-7	4.0	4/7/92	2	NA	NA	NA	290	NA	<0.005	<0.005	<0.005	<0.010	ND*
MS-8	4.0	4/7/92	2	NA	NA	NA	46	NA	<0.005	<0.005	<0.005	<0.010	ND*
MS-9	4.0	4/7/92	2	NA	NA	NA	12	NA	<0.005	<0.005	<0.005	<0.010	ND*
MS-10	4.0	4/7/92	2	NA	NA	NA	37	NA	<0.005	<0.005	<0.005	<0.010	ND*
MS-11	4.0	4/8/92	2	NA	NA	NA	3,000	NA	<0.005	<0.005	<0.005	<0.010	ND*
MS-12	4.0	4/8/92	2	NA	NA	NA	3,200	NA	<0.10	<0.10	0.140	0.270	ND*
MS-13	4.0	4/8/92	2	NA	NA	NA	4,900	NA	<0.10	<0.10	<0.10	<0.20	ND*
MS-14	4.0	4/8/92	2	NA	NA	NA	6,300	NA	<0.005	<0.005	<0.005	<0.010	ND*
MS-15	4.0	4/8/92	2	NA	NA	NA	6,400	NA	<0.005	<0.005	<0.005	<0.010	ND*
MS-16	0.40	4/8/92	2	NA	NA	NA	27	NA	<0.005	<0.005	<0.005	<0.010	ND*
MS-17	0.20	4/8/92	2	NA	NA	NA	3,300	NA	<0.50	<0.50	1.60	8.4	ND*
MS-18	0.40	4/8/92	2	NA	NA	NA	11,000	NA	<0.20	<0.20	<0.20	<0.40	ND*
MS-19	0.40	4/8/92	2	NA	NA	NA	3,900	NA	<0.10	<0.10	<0.10	<0.20	ND*
MS-20	0.40	4/8/92	2	NA	NA	NA	970	NA	<0.005	<0.005	<0.005	<0.005	ND*

TABLE 3
HISTORICAL GROUNDWATER SAMPLE ANALYTICAL RESULTS - ORGANICS
MARINER SQUARE, ALAMEDA, CALIFORNIA

BORING/ WELL NUMBER	DATE	SOURCE OF INFORMATION	TOTAL PETROLEUM HYDROCARBONS			TRPH (ppm)	BENZENE (ppb)	TOLUENE (ppb)	ETHYLBENZENE (ppb)	XYLENES (ppb)	VOCs (ppb)	OIL & GREASE (ppm)	PCBs (ppb)
			GAS (ppm)	DIESEL (ppm)	MOTOR OIL (ppm)								
MS-1	4/7/92	2	NA	NA	NA	<1	<5	<5	<5	<10	ND*	NA	NA
MS-7	4/7/92	2	NA	NA	NA	<1	<5	<5	<5	<10	ND*	NA	NA
MS-13	4/9/95	2	NA	NA	NA	23	<5	<5	<5	<10	ND*	NA	NA
MS-18	4/8/92	2	NA	NA	NA	1,200	<50	<50	<50	<100	ND*	NA	NA
MW-1	8/2/92	3	NA	0.58	NA	NA	<0.5	<0.5	<0.5	<0.5	ND*	<5	NA
MW-1	11/20/92	5	<0.05	0.6	NA	NA	<0.5	<0.5	<0.5	<0.5	ND*	<5	NA
MW-2	8/2/92	3	NA	2.2	NA	NA	<0.5	6.5	3.2	5.3	4 Freon-113	<5	NA
MW-2	11/20/92	5	0.34	2.1	NA	NA	<0.5	<0.5	<0.5	2.4	ND*	<5	NA
MW-3	8/2/92	3	NA	1.0	NA	NA	<0.5	1.0	<0.5	2.4	ND*	<5	NA
MW-3	11/20/92	5	0.098	2.0	NA	NA	<0.5	<0.5	0.9	1.0	ND*	<5	NA
MW-4	8/2/92	3	NA	1.3	NA	NA	16	2.6	0.6	2.7	9 Vinyl Chloride	<5	NA
MW-4	11/20/92	5	0.33	2.4	NA	NA	31	5.2	0.7	2.0	13 Vinyl Chloride	<5	NA
MW-5	8/2/92	3	NA	2.2	NA	NA	9	6	49	11	ND*	<5	NA
MW-5	11/20/92	5	4.8	1.5	NA	NA	7.6	12	5.8	26	ND*	<5	NA
MW-6	5/25/93	6	0.46	2,700	NA	NA	<5	<5	<5	<5	ND*	NA	<1

ppm = Parts per million
ppb = Parts per billion
< = Compound not detected at or above specified laboratory reporting limits
NA = Not analyzed
ND* = Not present above laboratory reporting limits, reporting limit varies per individual compound

TRPH = Total Recoverable Petroleum Hydrocarbons
VOCs = Volatile Organic Compounds
PCBs = Polychlorinated Biphenyls
Boring/Well numbers refer to locations shown on Figure 5.

Sources of Information:

2 = AllWest; Subsurface Investigation Report; May 1, 1992
3 = Subsurface Consultants, Inc.; Groundwater Investigation Report; November 13, 1992
5 = Subsurface Consultants, Inc.; Quarterly Groundwater Monitoring Report; December 23, 1992
6 = Subsurface Consultants, Inc.; Groundwater Sampling and Testing; November 8, 1993

TABLE 4
HISTORICAL GROUNDWATER SAMPLE ANALYTICAL RESULTS - INORGANICS
MARINER SQUARE, ALAMEDA, CALIFORNIA

WELL NUMBER	DATE	SOURCE OF INFORMATION	ORGANIC Pb (ppb)	TOTAL METALS (ppb)												
				Sb	As	Be	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Tl	Zn
MW-5	5/25/93	6	NA	<60	10	<2	<5	10	30	82	<0.2	<30	<5	<10	<5	60
MW-5	6/15/93	6	<100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6	5/25/93	6	NA	<60	<5	<2	<5	30	30	<3	<0.2	50	<5	<10	<5	40

ppb = Parts per billion
< = Compound not detected at or above the specified laboratory reporting limit
NA = Not analyzed
Ag = Silver
As = Arsenic
Be = Beryllium
Cd = Cadmium
Cu = Copper
Cr = Chromium
Hg = Mercury
Ni = Nickel
Pb = Lead
Sb = Antimony
Se = Selenium
Tl = Thallium
Zn = Zinc

Well numbers refer to locations shown on Figure 5.

<u>Source of Information:</u>

6 = Subsurface Consultants, Inc.; Groundwater Sampling and Testing; November 8, 1993

APPENDIX I
CAL-TRANS INTERVIEW SUMMARY

TABLE 5

GROUNDWATER ELEVATION MEASUREMENTS
SUPPLEMENTAL SITE INVESTIGATION
MARINER SQUARE, ALAMEDA, CALIFORNIA

WELL NUMBER	DATE	TOP OF CASING ELEVATION (feet, msl)	TIDAL CONDITIONS	DEPTH TO WATER (feet)	DEPTH TO SEPARATE-PHASE HYDROCARBON (feet)	SEPARATE-PHASE HYDROCARBON THICKNESS (feet)	GROUNDWATER ELEVATION (feet, msl)
MW-1	6/13/94	11.99	Low, Flood	5.69	---	0.0	6.30
	9/26/94	11.99	Low, Flood	5.64	---	0.0	6.35
	10/25/94	11.99	Low, Flood	5.86	---	0.0	6.13
MW-2	6/13/94	15.21	Low, Flood	5.92	---	0.0	9.29
	9/26/94	15.21	Low, Flood	6.51	---	0.0	8.70
	10/25/94	15.21	Low, Flood	6.67	---	0.0	8.54
MW-3	6/13/94	14.19	Low, Flood	4.91	---	0.0	9.28
	9/26/94	14.19	Low, Flood	5.29	---	0.0	8.90
	10/25/94	14.19	Low, Flood	5.42	---	0.0	8.77
MW-4	6/13/94	13.95	Low, Flood	4.50	---	0.0	9.45
	9/26/94	13.95	Low, Flood	5.39	---	0.0	8.56
	10/25/94	13.95	Low, Flood	5.55	---	0.0	8.40
MW-5	6/13/94	14.60	Low, Flood	5.30	---	0.0	9.30
	9/26/94	14.60	Low, Flood	5.82	---	0.0	8.78
	10/25/94	14.60	Low, Flood	5.95	---	0.0	8.65
MW-6	6/13/94	14.81	Low, Flood	5.96	5.94	0.02	8.87
	9/26/94	14.81	Low, Flood	5.90	5.87	0.03	9.01
	10/7/94	14.81	High, Ebb	5.82	---	0.0 (sheen)	8.99
	10/14/94	14.81	High, Ebb	5.89	---	0.0 (sheen)	8.92
	10/21/94	14.81	Low, Flood	5.90	---	0.0 (sheen)	9.01
	10/25/94	14.81	Low, Flood	5.99	---	0.0 (sheen)	8.82
MW-7	9/26/94	13.61	Low, Flood	5.95	---	0.0	7.66
	10/25/94	13.61	Low, Flood	6.09	---	0.0	7.52
MW-8	9/26/94	12.64	Low, Flood	6.06	---	0.0	6.58
	10/25/94	12.64	Low, Flood	6.26	---	0.0	6.38
MW-9	9/26/94	14.90	Low, Flood	5.88	---	0.0	9.02
	10/25/94	14.92*	Low, Flood	6.04	---	0.0	8.88

TOC = Top of casing elevation
msl = Mean sea level
--- = Not applicable/none measured
* = Well recompleted and resurveyed

TABLE 6

SOIL SAMPLE ANALYTICAL RESULTS-ORGANICS
SUPPLEMENTAL SITE INVESTIGATION
MARINER SQUARE, ALAMEDA, CALIFORNIA

BORING/ WELL NUMBER	DEPTH (feet)	DATE	TOTAL PETROLEUM HYDROCARBONS			BENZENE (ppm)	TOLUENE (ppm)	ETHYLBENZENE (ppm)	XYLENES (ppm)	VINYL CHLORIDE (ppb)	TOTAL ORGANIC CARBON (ppm)
			GAS (ppm)	DIESEL (ppm)	MOTOR OIL (ppm)						
SB-A	1.5	9/15/94	NQ	NQ	NQ	NA	NA	NA	NA	NA	6,700
SB-A	5.5	9/15/94	NQ	NQ	NQ	<0.005	<0.0063	<0.005	<0.046	<10	960
SB-B	1.5	9/16/94	NQ	NQ	NQ	NA	NA	NA	NA	NA	19,000
SB-B	4.5	9/16/94	NQ	NQ	NQ	NA	NA	NA	NA	NA	<500
SB-C	1.5	9/16/94	NQ	NQ	9,200	<0.005	13	5.8	<0.005	<20	4,000
SB-C	5.5	9/16/94	NQ	NQ	NQ	NA	NA	NA	NA	NA	<500
SB-D	4.5	9/16/94	<50	810	140	<0.050	<0.073	<0.050	1.380	NA	NA
SB-E	4.5	9/16/94	<10	<10	60	<0.005	0.019	<0.005	<0.005	NA	NA
MW-7	4.0	9/15/94	<30	<30	200	<0.005	0.014	<0.005	<0.005	<10	NA

ppm = Parts per million
ppb = Parts per billion
< = Compound not detected at or above the specified laboratory reporting limit
NA = Not analyzed
NQ = Not quantified-fuel fingerprint to determine nature of hydrocarbons performed.

Antimony

TABLE 7
SOIL SAMPLE ANALYTICAL RESULTS - INORGANICS
SUPPLEMENTAL SITE INVESTIGATION
MARINER SQUARE, ALAMEDA, CALIFORNIA

BORING NUMBER	DEPTH (feet)	DATE	TTLC METALS (ppm)																	STLC (ppm)
			Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	V	Zn	Pb
SB-A	1.5	9/15/94	29	7.2	410	0.32	<0.50	44	6.7	28	**250**	0.33	1.7	26	<0.25	<1.0	<0.50	33	370	NA
	3.0	9/15/94	NA	NA	NA	NA	NA	NA	NA	NA	4.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-B	1.5	9/16/94	<2.5	1.8	88	<0.25	1.2	40	7.3	17	**250**	0.20	<1.0	36	<0.25	<1.0	<0.50	28	580	NA
	3.0	9/16/94	NA	NA	NA	NA	NA	NA	NA	NA	14	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-C	1.5	9/16/94	<2.5	3.4	120	<0.25	<0.50	52	8.5	25	**1000**	0.26	1.4	47	<0.25	<1.0	<0.50	38	210	NA
	3.0	9/16/94	NA	NA	NA	NA	NA	NA	NA	NA	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-D	1.5	9/16/94	<2.5	3.3	36	<0.25	<0.50	35	3.8	18	8.0	<0.10	<1.0	25	<0.25	<1.0	<0.50	20	18	NA
SB-E	1.5	9/16/94	<2.5	1.4	82	<0.25	<0.50	35	4.3	14	38	<0.10	<1.0	28	<0.25	<1.0	<0.50	25	51	NA
SB-F	1.5	9/16/94	<2.5	1.2	31	<0.25	<0.50	31	3.1	6.2	12	<0.10	<1.0	20	<0.25	<1.0	<0.50	18	34	NA
SB-G	1.5	9/16/94	<2.5	2.2	69	<0.25	<0.50	39	4.9	13	**59**	<0.10	<1.0	31	<0.25	<1.0	<0.50	25	150	**2.7**
	3.0	9/16/94	NA	NA	NA	NA	NA	NA	NA	NA	25	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-H	1.5	9/16/94	<2.5	3.0	76	<0.25	<0.50	46	5.1	47	**68**	<0.10	<1.0	35	<0.25	<1.0	<0.50	28	160	**2.8**
	3.0	9/16/94	NA	NA	NA	NA	NA	NA	NA	NA	26	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-I	1.5	9/16/94	<2.5	<5.0	48	<0.25	<0.50	36	10	90	38	<0.10	1.1	29	<0.25	<1.0	<0.50	24	100	NA
SB-J	1.5	9/16/94	**170**	11	570	<0.25	1.9	54	11	**300**	**5700**	0.16	2.0	43	<0.25	<1.0	<0.50	31	**2700**	NA
	3.0	9/16/94	<2.5	NA	NA	NA	NA	NA	NA	5.4	4.6	NA	NA	NA	NA	NA	NA	NA	16	NA
SB-K	1.5	9/16/94	<2.5	5.0	96	<0.25	<0.50	44	5.6	**4200**	30	<0.10	1.3	33	<0.25	1.0	<0.50	28	150	**21**
	3.0	9/16/94	NA	NA	NA	NA	NA	NA	NA	6.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TTLC (ppm)	--	--	500	500	10,000	75	100	2500	8000	2500	1000	20	3500	2000	100	500	700	2400	5000	--
STLC (ppm)	--	--	15	5.0	100	0.75	1.0	560	80	25	5.0	0.2	350	20	1.0	5.0	7.0	24	250	--

ppm = Parts per million
< = Compound not detected at or above specified reporting limit
TTLC = Total threshold limit concentration (CCR Title 22)
STLC = Soluble threshold limit concentration (CCR Title 22)
ppm = Parts per million
NA = Not analyzed
Sb = Antimony

As = Arsenic
Ba = Barium
Be = Beryllium
Cd = Cadmium
Co = Cobalt

Cu = Copper
Pb = Lead
Hg = Mercury
Mo = Molybdenum
Ni = Nickel

Se = Selenium
Ag = Silver
Tl = Thallium
V = Vanadium
Zn = Zinc

Bold- Exceed STLC

1011TLS1.TBL

04.0601316.000

TABLE 2
HISTORICAL SOIL SAMPLE ANALYTICAL RESULTS - INORGANICS
MARINER SQUARE, ALAMEDA, CALIFORNIA

BORING/WELL NUMBER	DEPTH (Feet)	DATE	SOURCE OF INFORMATION	TOTAL LEAD (ppm)	SOLUBLE LEAD ? (ppm)
T-1	5.0	12/17/90	1	11	NA
T-2	5.0	12/17/90	1	150	NA
D-1	1.0	12/17/90	1	12	NA
MW-1	4.0	7/22/92	4	NA	0.10
MW-2	1.5	7/22/92	4	NA	28.0
MW-3	4.5	7/22/92	4	NA	0.79
MW-4	4.5	7/22/92	4	NA	0.09
MW-5	1.5	7/22/92	4	NA	20.0

ppm = Parts per million

NA = Not analyzed

Source of Information:

1 = Subsurface Consultants, Inc.; Environmental Engineering Services, February 20, 1991

4 = Subsurface Consultants, Inc.; Results of Lead Analysis in Soil; December 24, 1992

Boring/Well numbers refer to locations shown on Figure 5.

TABLE 8

SOIL SAMPLE ANALYTICAL RESULTS - PHYSICAL PARAMETERS
SUPPLEMENTAL SITE INVESTIGATION
MARINER SQUARE, ALAMEDA, CALIFORNIA

BORING NUMBER	DEPTH (feet)	DATE	C.F.U.	HORIZONTAL PERMEABILITY TO AIR (md)	INTRINSIC PERMEABILITY (md)	DRY BULK DENSITY (gm/cc)	NATURAL BULK DENSITY (gm/cc)	TOTAL POROSITY (%)	FLUID SATURATION (%)
SB-A	3.5	9/15/94	NA	15,127	---[1]	1.66	1.77	38.4	30.0
SB-A	4.0	9/15/94	20,000	NA	NA	NA	NA	NA	NA
SB-B	4.0	9/16/94	85,000	NA	NA	NA	NA	NA	NA
SB-C/MW-9	3.5	9/16/94	NA	7919	7800	1.69	1.84	30.2	50.0
SB-C/MW-9	4.0	9/16/94	820,000	NA	NA	NA	NA	NA	NA

CFU = Total Colony Forming Units per milligram of soil
NA = Not analyzed
md = Millidarcy
gm/cc = Grams per cubic centimeter
---[1] = At very high permeabilities the intrinsic permeability is difficult to determine accurately.

TABLE 9

GROUNDWATER SAMPLE ANALYTICAL RESULTS-ORGANICS AND TDS
SUPPLEMENTAL SITE INVESTIGATION
MARINER SQUARE, ALAMEDA, CALIFORNIA

WELL NUMBER	DATE	TOTAL PETROLEUM HYDROCARBONS			BENZENE (ppb)	TOLUENE (ppb)	ETHYLBENZENE (ppb)	XYLENES (ppb)	VINYL CHLORIDE (ppb)	TOTAL DISSOLVED SOLIDS (ppm)
		GAS (ppm)	DIESEL (ppm)	MOTOR OIL (ppm)						
MW-1	9/27/94	<0.050	0.53	<0.050	<0.30	<0.30	<0.30	<0.30	NA	NA
MW-2	9/26/94	0.32	<0.050	0.24	<3.0	<3.0	<3.0	<3.0	NA	740
MW-3	9/27/94	<0.050	0.72	<0.050	<3.0	<0.30	<0.30	<0.30	NA	NA
MW-4	9/27/94	<0.050	0.89	<0.050	12.0	0.43	<0.30	<0.30	8.0	580
MW-5	9/26/94	3.1	0.78	<0.50	7.9	11.0	8.7	14	NA	NA
MW-6	9/27/94	1.1	9.9	3.2	<3.0	<3.0	<3.0	<3.0	<1.0	NA
MW-7	9/27/94	<0.25	1.8	<0.25	<3.0	<3.0	<3.0	<3.0	<1.0	NA
MW-8	9/27/94	<0.050	0.32	<0.050	<0.30	<0.30	<0.30	<0.30	NA	4100
MW-9	9/26/94	<0.50	2.2	<0.50	<0.30	<0.30	<0.30	<0.30	<1.0	NA
TRIP BLANK	9/26/94	NA	NA	NA	<0.30	<0.30	<0.30	<0.30	<1.0	NA

ppm = Parts per million
ppb = Parts per billion
< = Compound not detected at or above the specified laboratory reporting limit
NA = Not analyzed

TABLE 10
GROUNDWATER SAMPLE ANALYTICAL RESULTS - INORGANICS
SUPPLEMENTAL SITE INVESTIGATION
MARINER SQUARE, ALAMEDA, CALIFORNIA

WELL NUMBER	DATE	PRIORITY POLLUTANT METALS (ppb)												
		Sb	As	Be	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Tl	Zn
MW-1	9/27/94	<50	22 / stet	<5	<10	<10	<20	<3	<0.2	<20	<5	<10	<10	<20
MW-2	9/26/94	<50	<10	<5	<10	<10	<20	<3	<0.2	<20	<5	<10	<10	<20
MW-3	9/27/94	<50	<10	<5	<10	<10	<20	<3	<0.2	<20	<5	<10	<10	<20
MW-4	9/27/94	<50	<10	<5	<10	<10	<20	<3	<0.2	<20	<5	<10	<10	<20
MW-5	9/26/94	<50	<10	<5	<10	<10	<20	<3	<0.2	<20	<5	<10	<10	<20
MW-6	9/27/94	<50	<10	<5	<10	<10	<20	<3	<0.2	<20	<5	<10	<10	<20
MW-7	9/27/94	<50	20 / stet	<5	<10	<10	<20	<3	<0.2	<20	<5	<10	<10	<20
MW-8	9/27/94	<50	13 / stet	<5	<10	<10	<20	<3	<0.2	<20	<5	<10	<10	<20
MW-9	9/26/94	<50	<10	<5	<10	<10	<20	<3	<0.2	<20	<5	<10	<10	<20
MCL	--	NE	50	NE	10	50	NE	15	2	NE	10	50	NE	5000

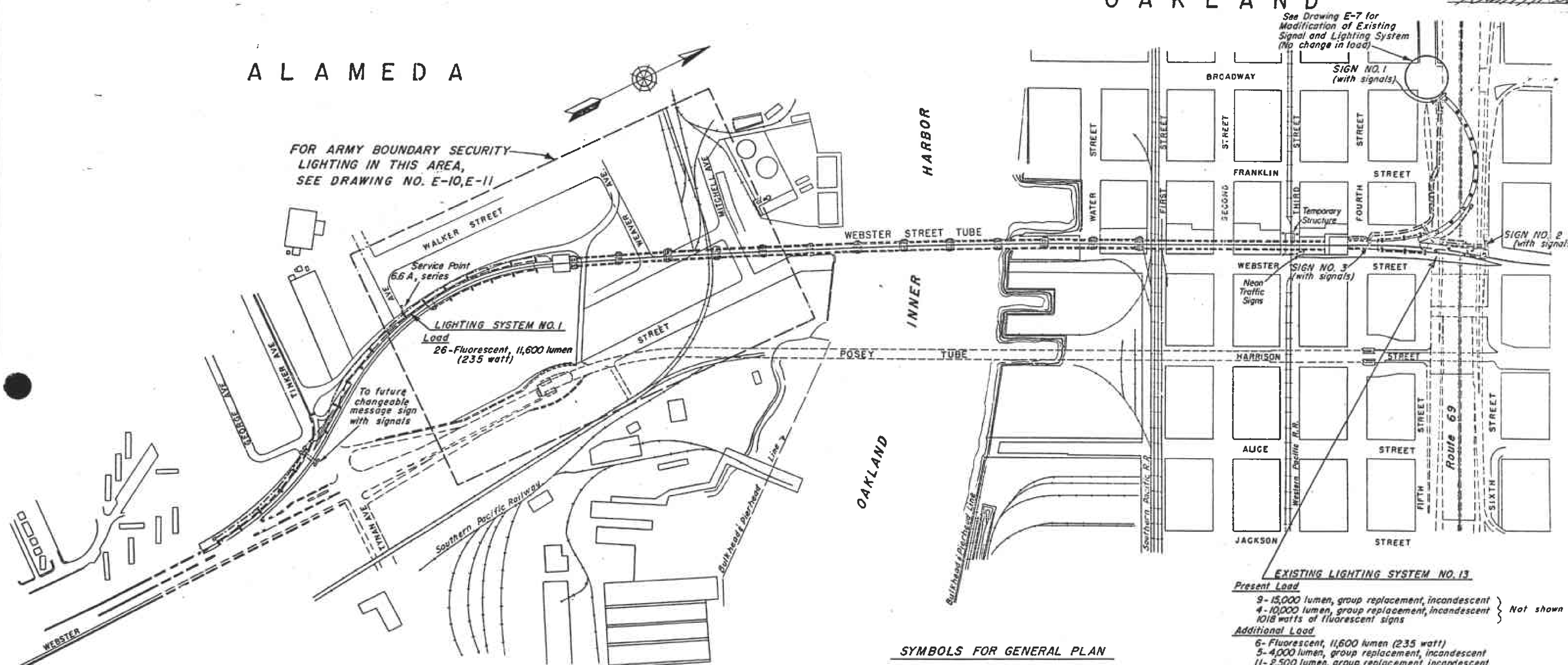
ppb = Parts per billion
Sb = Antimony
As = Arsenic
Be = Beryllium
Ca = Cadmium
Cr = Chromium (total)
Cu = Copper
Pb = Lead
Hg = Mercury
Ni = Nickel
Se = Selenium
Ag = Silver
Tl = Thallium
Zn = Zinc
MCL = Maximum Contaminant Level, California Department of Health Services, Drinking Water Standards, Primary MCL
NE = Not established

APPENDIX I
CAL-TRANS INTERVIEW SUMMARY

	STATE	FEDERAL PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
U-251 (2)	CALIF.		·	67	311

IV	Ala	226	Ala,Oak	67	91

June 15, 1959



E-1 General Plan
E-2 Roadway Electrical Plan No. 1
E-3 Webster Street Tube, Alameda Approach, Electrical Plan No. 1
E-4 Webster Street Tube, Alameda Approach, Electrical Plan No. 2
E-5 Webster Street Tube, Oakland Approach, Electrical Plan No. 3
E-6 Webster Street Tube, Oakland Approach, Electrical Plan No. 4
E-7 Roadway Electrical Plan No. 2
E-8 Illuminated Changeable Message Sign and Signal Control
E-9 Details for Illuminated Changeable Message Signs
E-10 Army Boundary Security Lighting
E-13 Standard Details No. 1, Traffic Signals and Highway Lighting
E-14 Standard Details No. 2, Traffic Signals and Highway Lighting
E-15 Standard Details No. 3, Traffic Signals and Highway Lighting
E-16 Standards, California Type

E-11 Army Boundary Security Lighting
E-12 Neon Signs - Third Street Temporary Structure

REDUCED PLAN
USE SCALE BELOW
0 1 2 3
INCHES ON ORIGINAL PLAN

SYMBOLS FOR GENERAL PLAN

EXISTING	PROPOSED	
	I	Fluorescent luminaire, 235 watt
	▯	Illuminated changeable message sign with signals
	•	Incandescent soffit light - (existing housing and conduit)
	▭	Pull box
	—·—	Conduit for changeable message sign with signals
	— — —	Power and lighting conduit

This plan accurate for electrical work only.

GENERAL PLAN FOR HIGHWAY ELECTRICAL SYSTEMS

Scale 1" = 200'

DRAWING E-1

PROJECT ENGINEER | DATE | DESIGN ENGINEER | DATE | APPROVAL RECOMMENDED BY | DATE

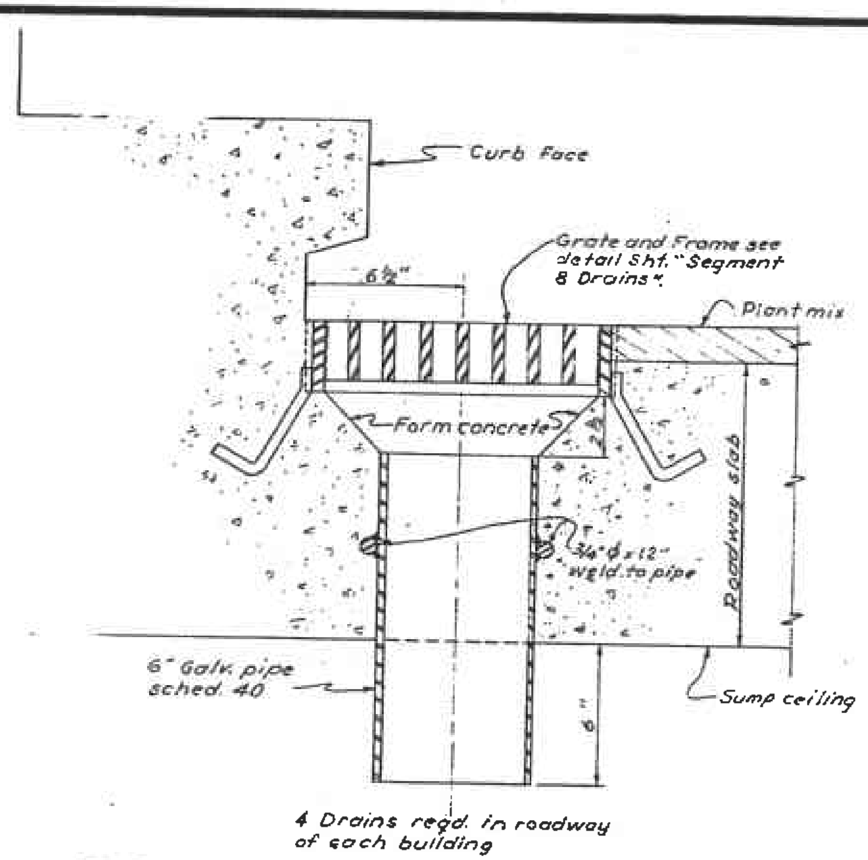
V-251 (2)

FED. ROAD DIST. NO.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	CALIF.			297	311

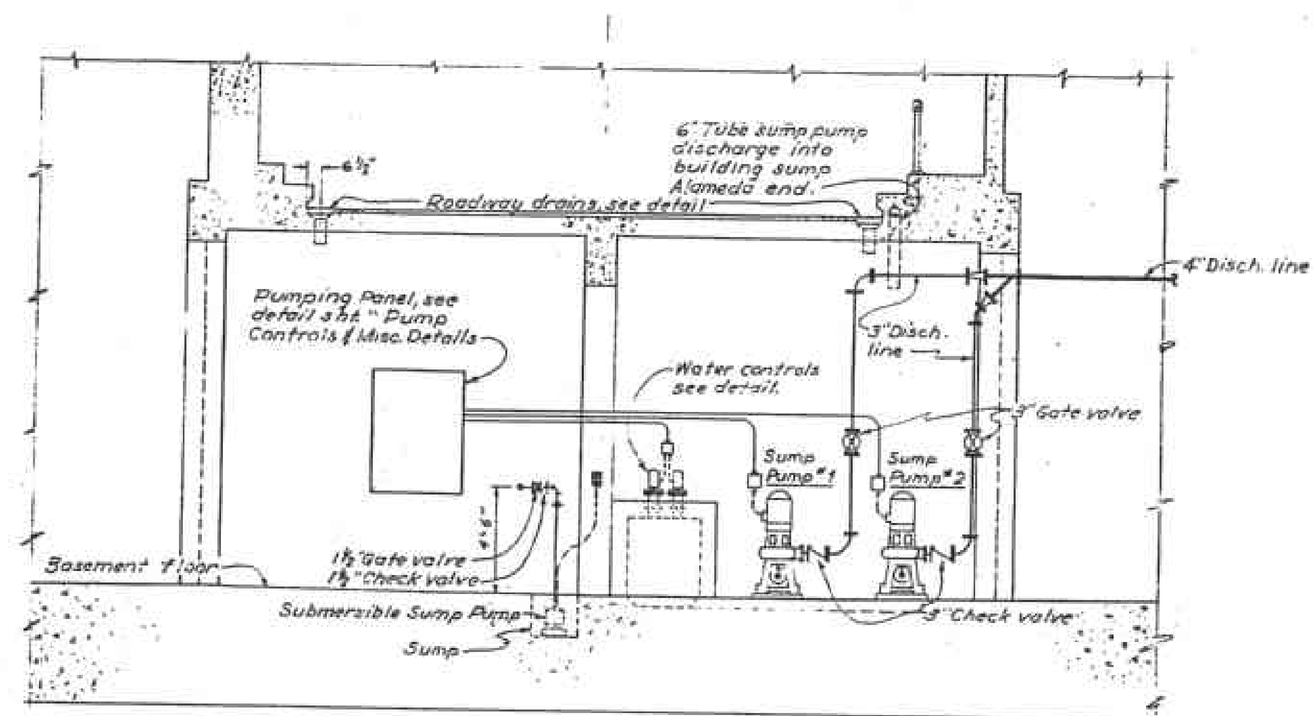
DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
IV	ALA	226	ALA-Oak	206	220

June 15 1959

REDUCED PLAN
USE SCALE BELOW
3 INCHES ON ORIGINAL PLAN

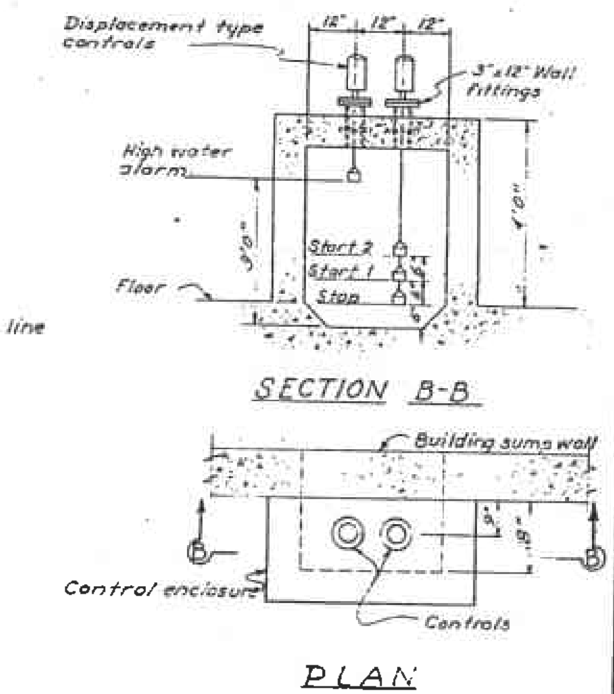


TYPICAL ROADWAY DRAIN AT BUILDINGS
¼ Scale

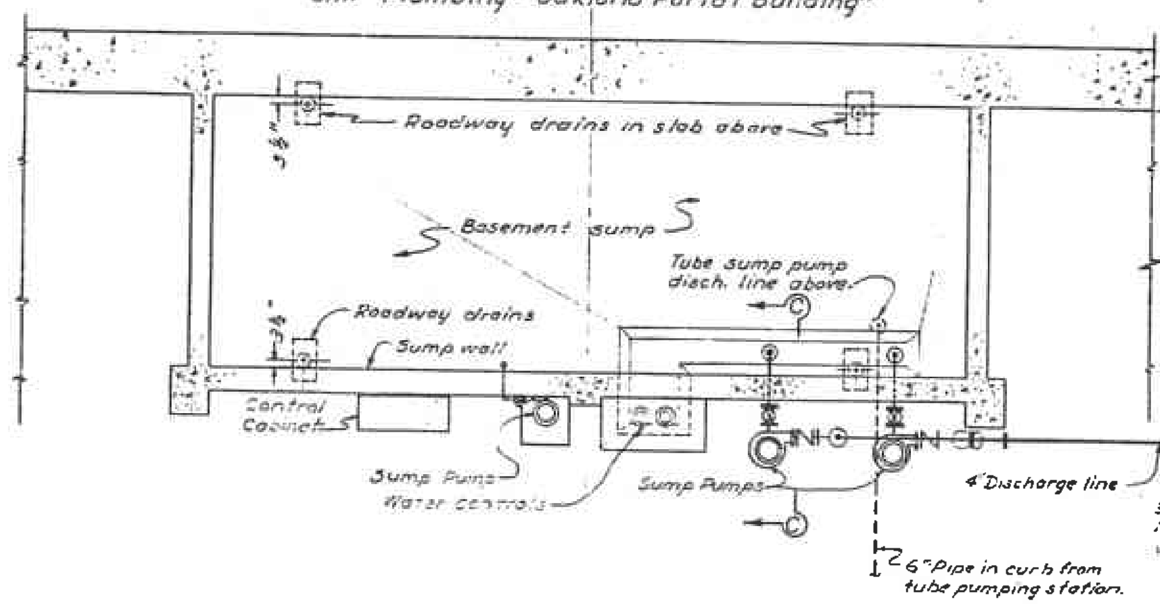


ALAMEDA BUILDING SUMP WALL ELEVATION

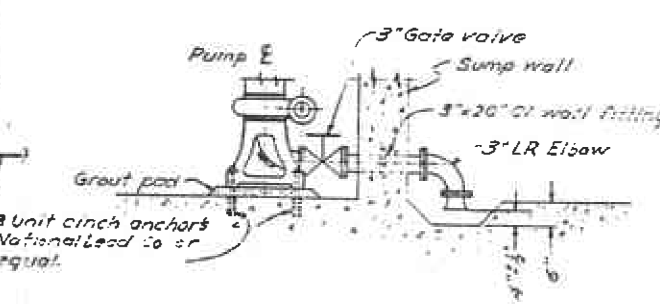
Note: Oakland building similar, for orientation see sht. "Plumbing - Oakland Portal Building"



WATER CONTROL DETAIL
Scale ~ ½" = 1'0"



PLAN
¼" = 1'-0"



SECTION C-C
Scale ~ ½" = 1'0"

BRIDGE DEPARTMENT
DESIGN SECTION 11

Project Designer: [signature]
Chief Designer: William N. Hedgpeth

	By	Checked
DESIGN	[signature]	[signature]
DETAILS	[signature]	[signature]
QUANTITIES	[signature]	W.N. Hedgpeth
SPECIFICATIONS		

Approval Recommended by: W. J. [signature]
6723

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

WEBSTER STREET TUBE
PLUMBING

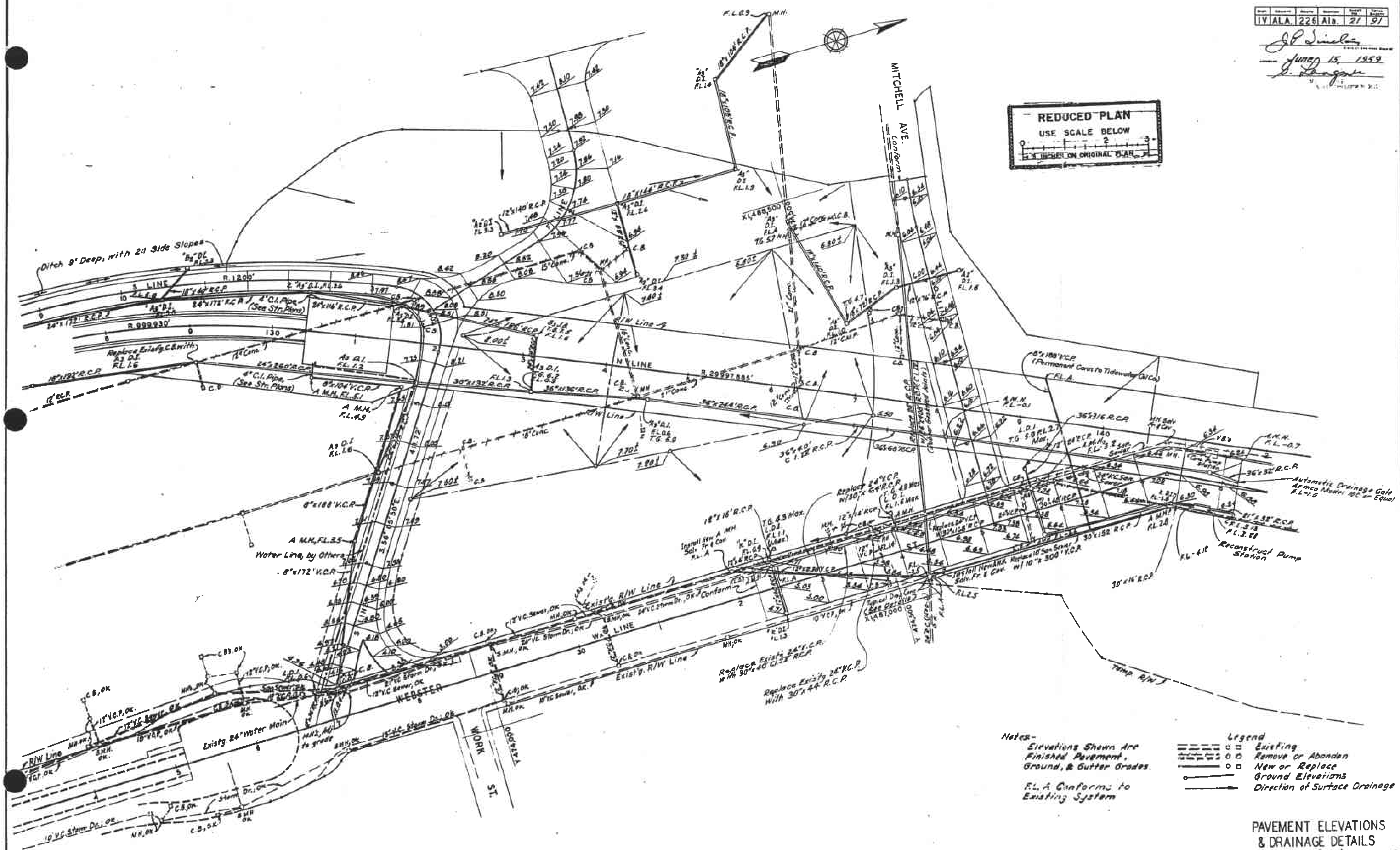
BASEMENT PUMPING STATION

SCALE As Noted | BRIDGE 33-106L | FILE | DRAWING C-5865-206

PREL. DRAWING No. P-5865

June 15, 1959

REDUCED PLAN
USE SCALE BELOW
0 1 2 3
INCHES ON ORIGINAL PLAN



Notes-
Elevations Shown Are Finished Pavement, Ground, & Gutter Grades.

F.L. A Conforms to Existing System

Legend
Existing
Remove or Abandon
New or Replace
Ground Elevations
Direction of Surface Drainage

PAVEMENT ELEVATIONS
& DRAINAGE DETAILS
Scale:-1"=50'

B

PROJECT ENGINEER | DATE | DESIGN ENGINEER | DATE | APPROVAL RECOMMENDED BY | DATE

INTERVIEW SUMMARY

Date: June 17, 1994

Location: Oakland Portal Building
415 Harrison Street
Oakland, CA

Personnel: Tom Thomas, CalTrans
Saul Germanas, McLaren/Hart

Spoke with Mr. Tom Thomas of CalTrans on Webster Street Tube construction history and details of "dewatering" system. System is float-controlled gravity drain sump system and currently pumps approximately 1,200 gallons per day. Flow is discharged to storm sewer system vault adjacent to Alameda Portal building.

Reviewed Webster Street Tube construction diagrams, requested copies of pertinent pages.

Walked the Webster Street Tube with Mr. Thomas and several other CalTrans employees. Paid close attention to drains and looked for signs of leakage at joints.

Was shown area at Alameda Portal where water seeps into Webster Street Tube from joint. Level of water entering joint believed (by CalTrans employees) to change with tides. Seepage obvious. Various sealants tried to stop leakage, none effective for long. Significant settling of Alameda Portal suspected (by CalTrans) as reason for separation at joint.

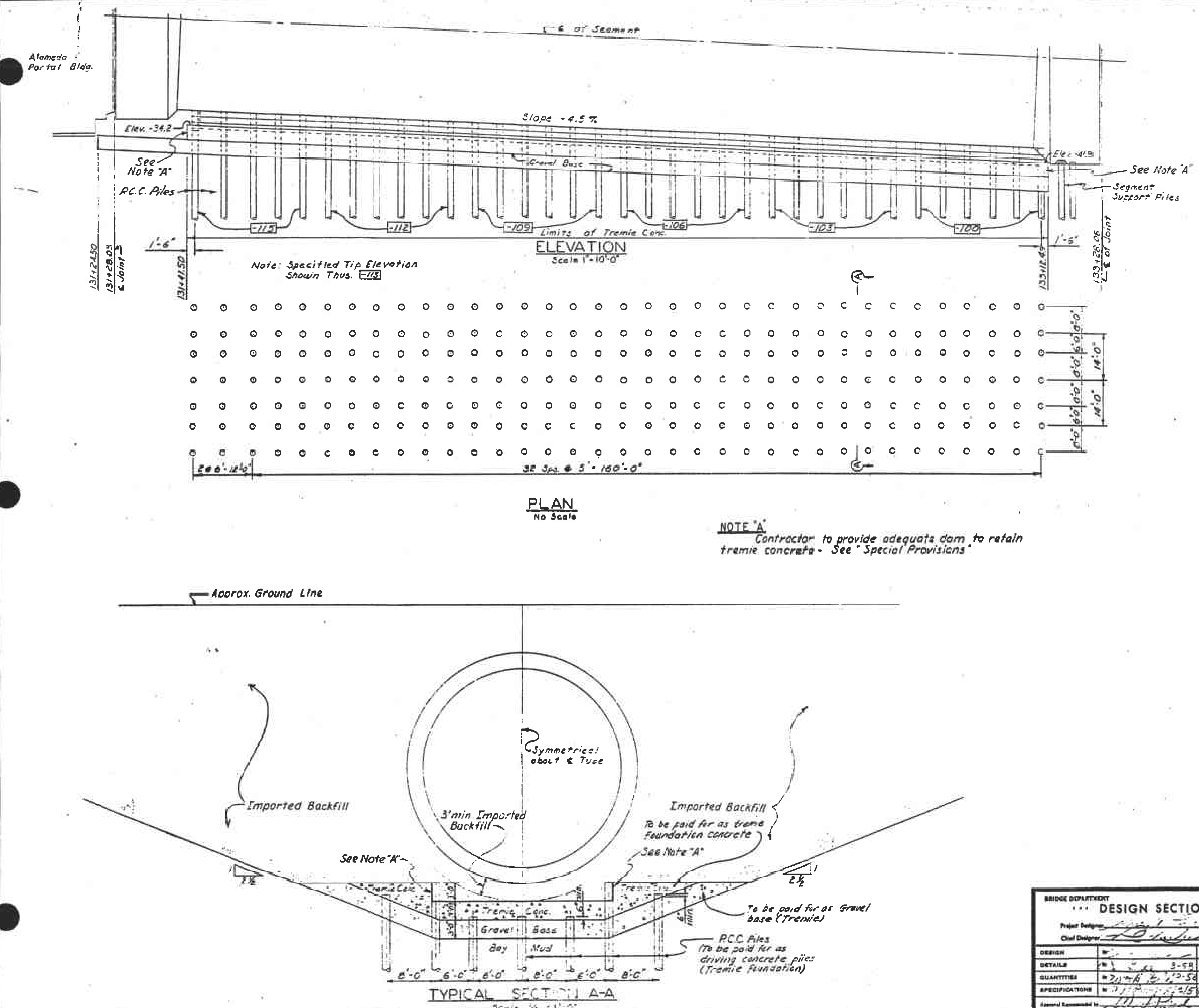
Did not observe significant water influx into the Webster Street Tube structure itself, but construction diagrams indicate dense backfill material (sand and gravel) placed over Tube. No information available from CalTrans on water entry into backfill other than suspected leakage at Alameda Portal.

U-251 (2)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.			119	311

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
IV	ALA	226	Ala/Oak	28	220

June 15, 1959



NOTE "A"
Contractor to provide adequate dam to retain tremie concrete - See "Special Provisions".

REDUCED PLAN
USE SCALE BELOW
3 INCHES ON ORIGINAL PLAN

BRIDGE DEPARTMENT
... DESIGN SECTION ... 14

Project Designer
Chief Designer

	By	Checked
DESIGN		10-58
DETAILS	3-59	
QUANTITIES	12-58	3-58
SPECIFICATIONS		

Approval Recommended by

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

WEBSTER STREET TUBE
PRECAST TUBE SEGMENTS

SEGMENT NO. 1 FOUNDATION

SCALE As Shown | BRIDGE 33-106 L | FILE | DRAWING C-5865-28

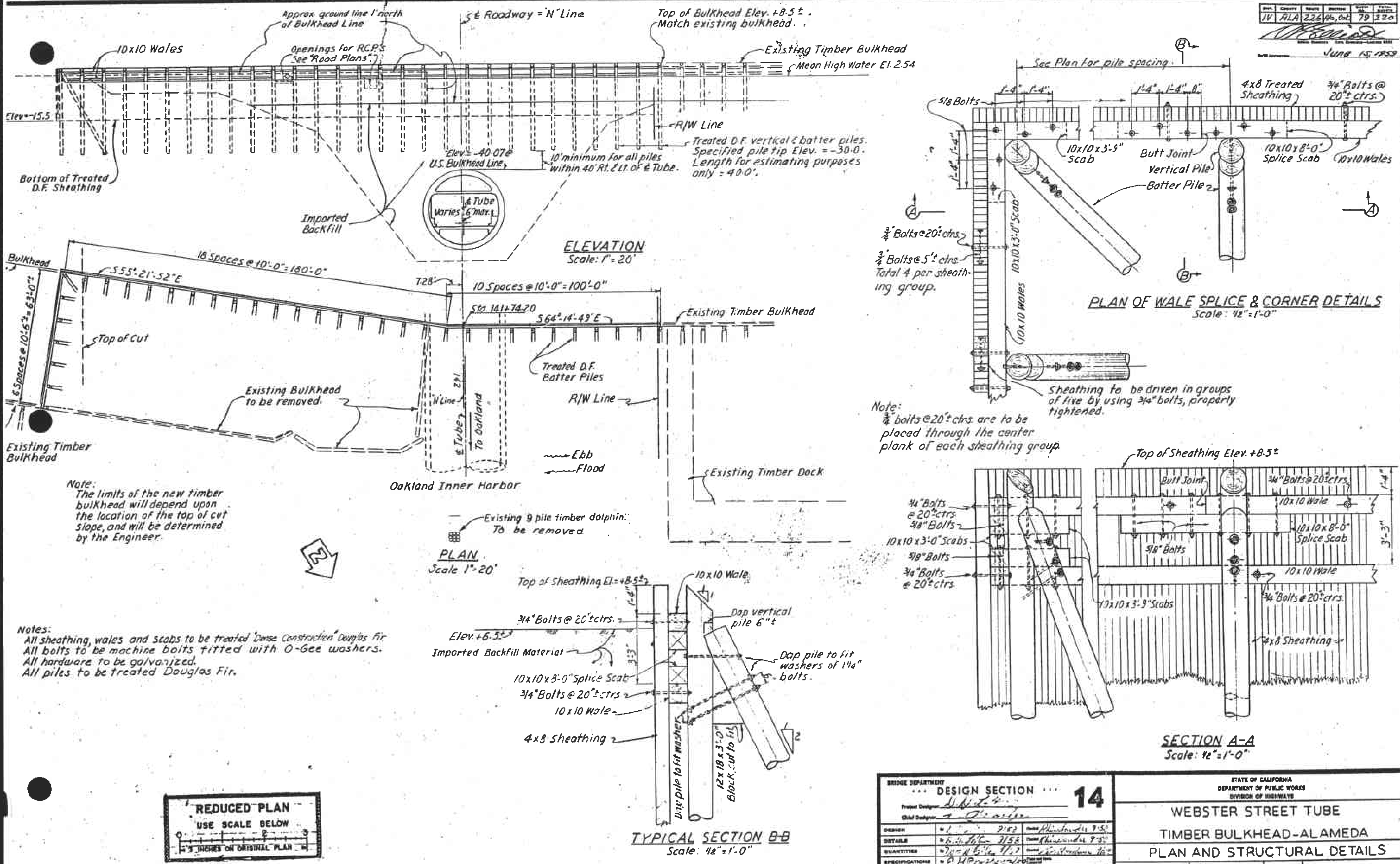
PREL. DRAWING No. P-5865

U-251 (2)

FED. ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.			170	311

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
IV	ALA	226	Ala,Oak	79	220

June 15, 1959



Note:
The limits of the new timber bulkhead will depend upon the location of the top of cut slope, and will be determined by the Engineer.

Notes:
All sheathing, wales and scabs to be treated "Dense Construction" Douglas Fir.
All bolts to be machine bolts fitted with O-Gee washers.
All hardware to be galvanized.
All piles to be treated Douglas Fir.

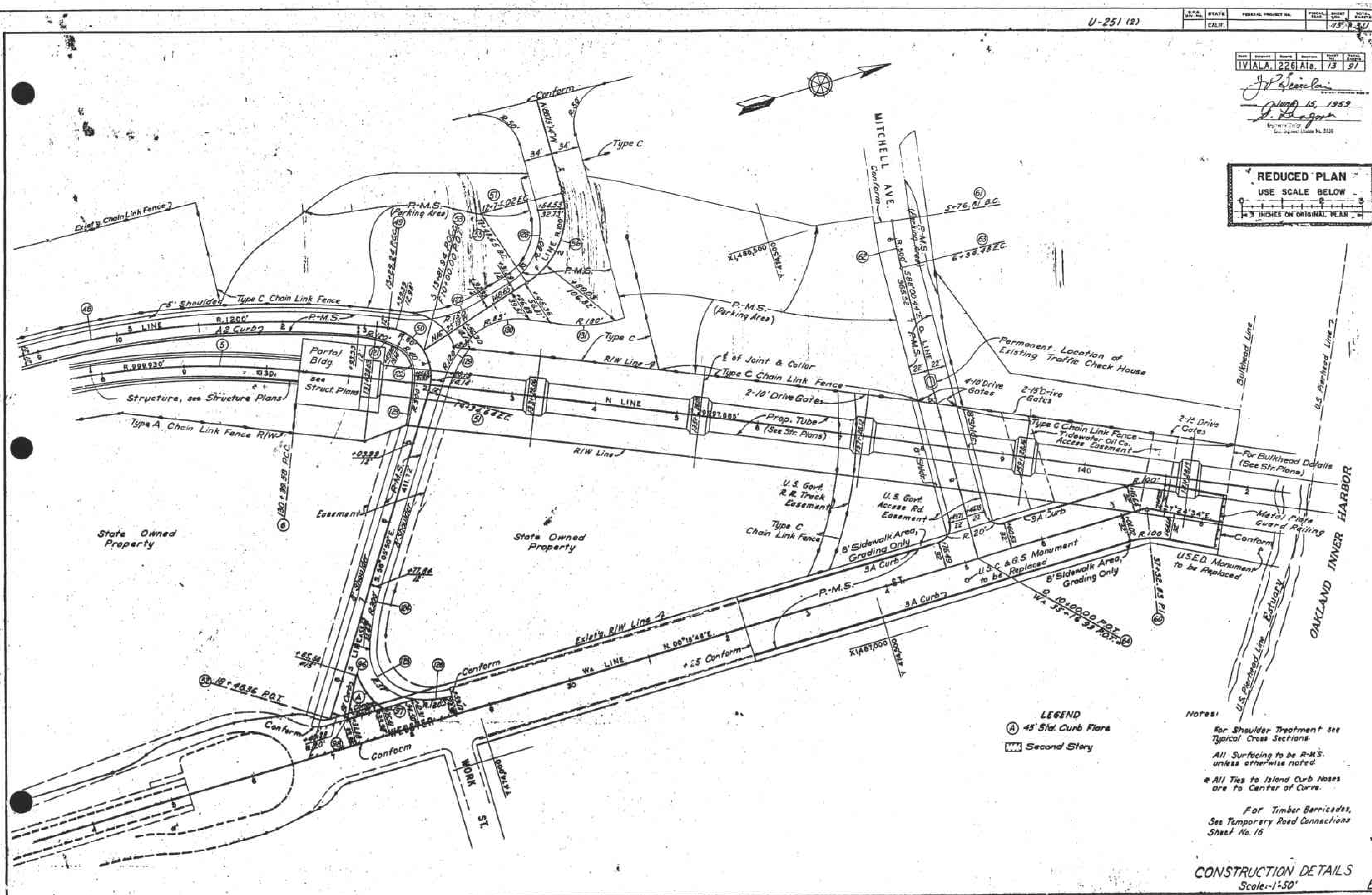
REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN

BRIDGE DEPARTMENT
DESIGN SECTION 14

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

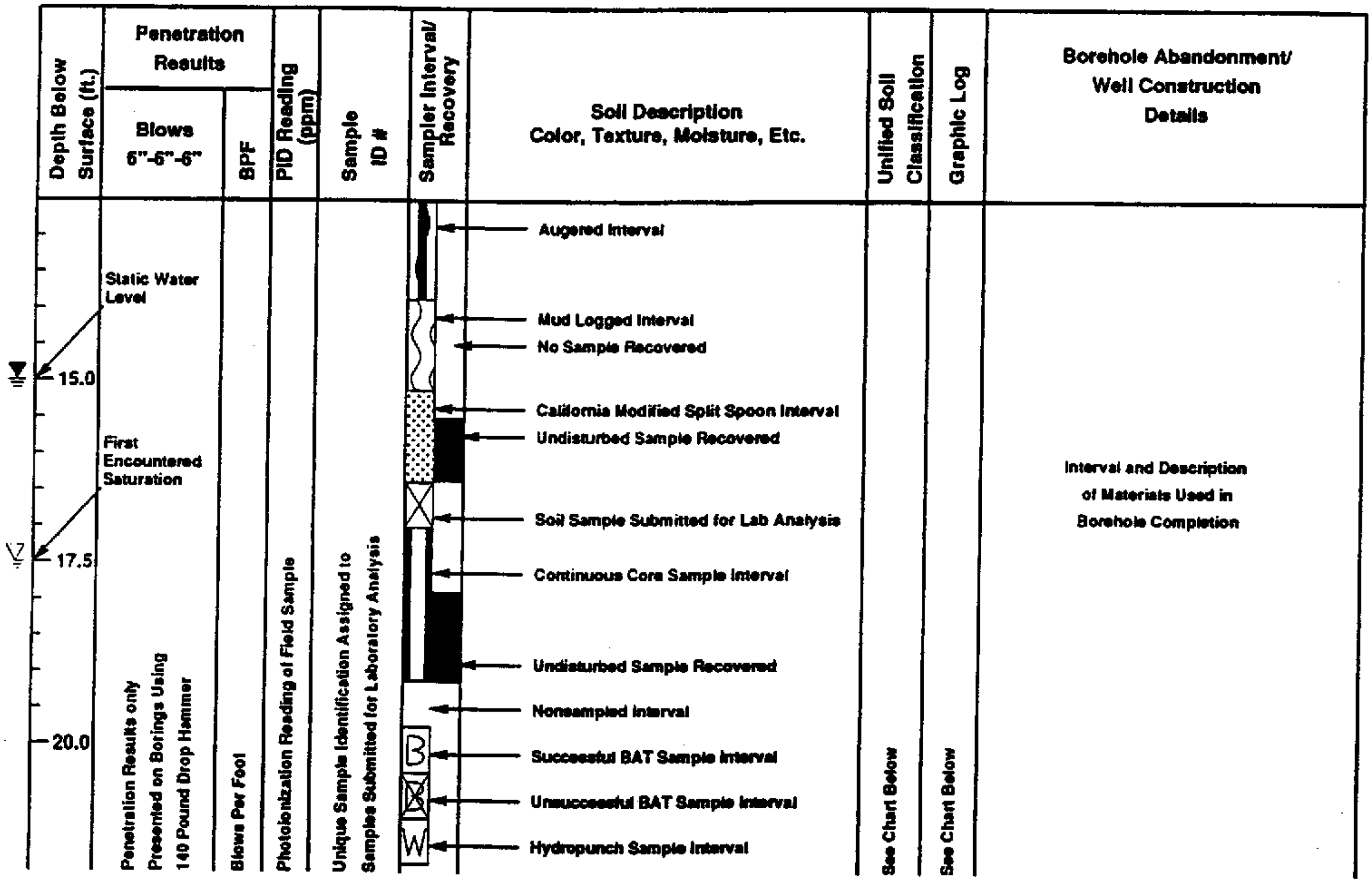
WEBSTER STREET TUBE
TIMBER BULKHEAD-ALAMEDA
PLAN AND STRUCTURAL DETAILS

SCALE AS Noted | BRIDGE 33-106L | FILE | DRAWING C-5865-79


U-251 (2)
STATE
CALIF.
FEDERAL PROJECT NO.
IV ALA. 226 Ala. 13 91
June 15, 1959
REDUCED PLAN
USE SCALE BELOW
3 INCHES ON ORIGINAL PLAN
MITCHELL AVE.
Conform
Type C
P.M.S. (Parking Area)
P.M.S. (Parking Area)
Exist'g Chain Link Fence
5' Shoulder
Type C Chain Link Fence
S LINE
R.1200'
A2 Curb
Portal Bldg.
see Struct. Plans
Structure, see Structure Plans
Type A Chain Link Fence R/W
N LINE
R/W Line
Prop. Tube (See Str. Plans)
℄ of Joint & Collar
Type C Chain Link Fence
2-10' Drive Gates
4-10' Drive Gates
2-15' Drive Gates
2-15' Drive Gates
Permanent Location of Existing Traffic Check House
Tidewater Oil Co. Access Easement
U.S. Govt. R.R. Track Easement
U.S. Govt. Access Rd. Easement
Type C Chain Link Fence
8' Sidewalk Area, Grading Only
3A Curb
U.S.C.&G.S. Monument to be Replaced
U.S.E.D. Monument to be Replaced
For Bulkhead Details (See Str. Plans)
Metal Plate Guard Railing
Bulkhead Line
U.S. Pierhead Line
OAKLAND INNER HARBOR
Estuary
State Owned Property
State Owned Property
Easement
8' Shoulder
Exist'g R/W Line
W4 LINE
N. 00°18'48" E.
Conform
WEBSTER
WORK ST.
X1,486,500
X1,487,000
LEGEND
Ⓐ 45' Std. Curb Flare
Second Story
Notes:
For Shoulder Treatment see Typical Cross Sections.
All Surfacing to be R-M.S. unless otherwise noted.
* All Ties to Island Curb Noses are to Center of Curve.
For Timber Barricades, See Temporary Road Connections Sheet No. 16
CONSTRUCTION DETAILS
Scale:-1"=50'
B

APPENDIX II
LITHOLOGIC LOGS

KEY TO SOIL BORING LOGS



UNIFIED SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS: GRAPH	SYMBOLS: LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (<10% FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (>10% FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING A NO. 4 SIEVE	CLEAN SANDS (<10% FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (>10% FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

SOIL DRILLING LOG

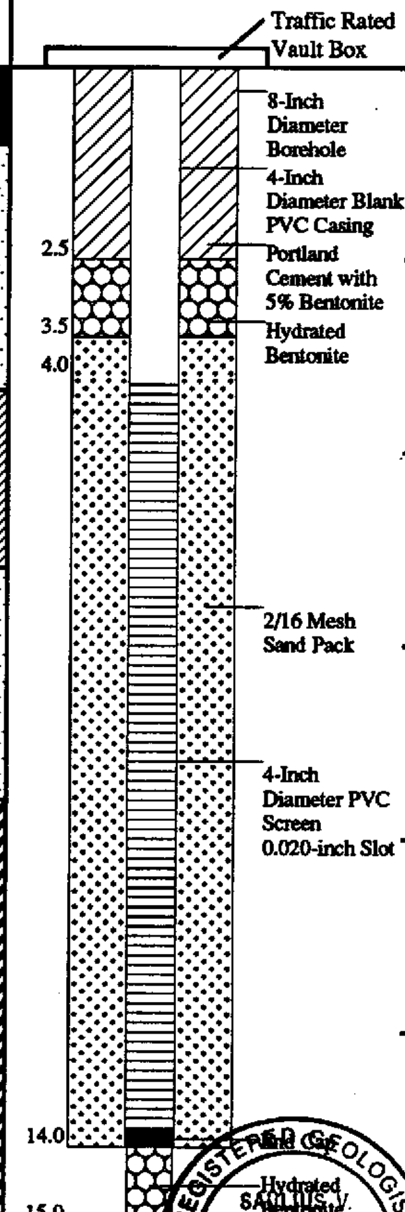
McLaren Hart

SB/MW #: MW-7
D- 23467
Page 1 of 1
Geologist: E.C. Warwick
E.C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Mariner Square and Associates LOCATION 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION 13.61' (MSL) DATE(S) 9/15/94 TOTAL DEPTH 15.0'
MONITORING DEVICE OVM SCREENED INTERVAL 4 - 14'
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ∇ =First Water ▼ =Static Water
MEMO

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	BPF	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification
					0.0 - 1.0' ASPHALT and ROADBASE	RB
	8 8 8 8	16		0.0	1.0 - 4.25' SILTY SAND (0,65,30,5):brown (7.5YR4/4); loose; fine to medium grained sand; slightly moist.	SM
2.5	4 14 15 8	23		0.0		
			52507	28	4.25 - 5.0' SILTY CLAY (0,0,75,25): very dark gray (N3/);soft to slightly stiff; medium to low plastic; slightly moist. Numerous shell fragments; high organic content. Moderate hydrocarbon odor.	CL
5.0	1 1 2 14	16		6	5.0 - 6.5' SANDY CLAY (0,20,50,30): brown (7.5YR4/3);soft to slightly stiff; medium to low plastic; slightly moist.	
7.5	23 32 24 11	35		0.0	6.5 - 9.5' SILTY SAND with GRAVEL (10,60,25,5): very dark gray (7.5YR3/1); loose to medium dense; fine to coarse subrounded sand; saturated.	SM
	2 1	3		0.0		
10.0	1	1		0.0	9.5 - 15.0' SILTY CLAY (0,10,50,40):very dark gray (N3/): soft to slightly stiff; medium to high plastic; fine grained sand; saturated; increasing organic matter with depth.	CH
	1 1 1	2		0.0		
12.5						
	1 1 1	2		0.0		
15.0						

Borehole Abandonment/ Well Construction Details



REGISTERED GEOLOGIST SAULIUS V. GERMANAS No. 5328 Exp. 12/96 STATE OF CALIFORNIA

MARSQ.3/30/95,AUGPS

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

SOIL DRILLING LOG

McLaren Hart

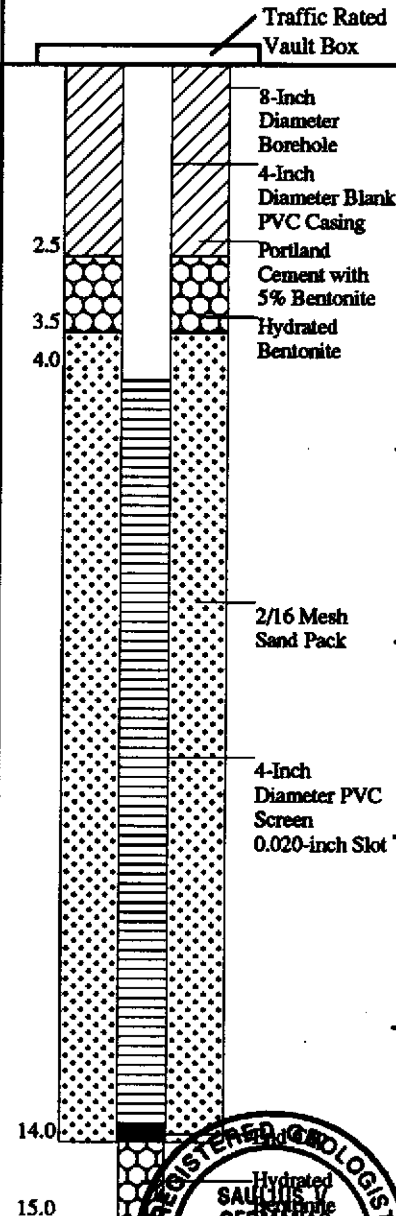
SB/MW #: MW-8
D- 23466
Page 1 of 1
Geologist: E.C. Warwick

E.C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT: Mariner Square and Associates
LOCATION: 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION: 12.64' (MSL)
DATE(S): 9/15/94
TOTAL DEPTH: 15.0'
MONITORING DEVICE: OVM
SCREENED INTERVAL: 4 - 14'
SAMPLING METHOD: Split Spoon
SUBCONTRACTOR & EQPT: SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY)
MEMO: ∇ =First Water ▼ =Static Water
MEMO:

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval/ Recovery	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification
0.0 - 1.0						0.0 - 1.0' ASPHALT and ROADBASE	RB
1.0 - 2.5	0 7 8 8	16			0.0	1.0 - 3.0' CLAYEY SAND (5,80,10,5): brown (7.5YR4/3); loose; fine to coarse grained sand; moist. Trace shell fragments.	SM
3.0	8 8 8 8	16			0.0	3.0 - 9.0' SAND (0,90,5,5) brown (7.5YR4/3); loose to medium dense; fine to coarse grained sand; moist. Trace shell fragments.	SP
5.0	4 3 4 4	8			0.0		
6.5						saturated @ 6.5'	
7.0	4 5 5 6	11			0.0		
9.0	0 3 3	6			0.0	9.0 - 15.0' SILTY SAND (5,80,10,5): dark gray (7.5YR4/1); loose; fine to medium grained sand; saturated. Shell fragments are finer.	SM
10.0	2 2 3	5			0.0		
11.5	1 2 1 1	2			0.0		
13.0	2 3 6	9			0.0		
15.0							

Borehole Abandonment/ Well Construction Details



MARSQ.3131195,AUGPS

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

REGISTERED GEOLOGIST
SAULIUS V. GERMANAS
No. 5328
Exp. 12/96
STATE OF CALIFORNIA

SOIL DRILLING LOG

McLaren Hart

SB/MW #: MW-9
D- 23469
Page 1 of 1
Geologist: E.C. Warwick

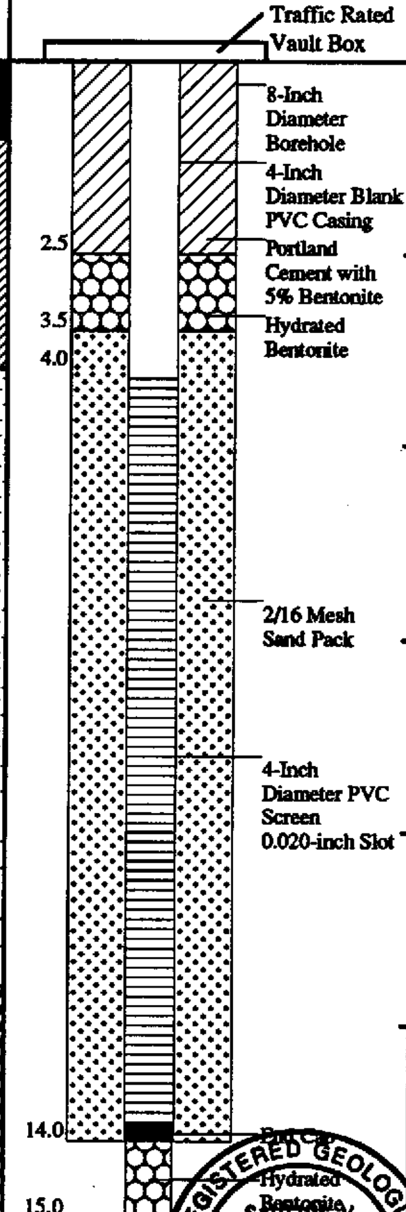
E.C. Warwick

SIGNATURE OF GEOLOGIST

PROJECT Mariner Square and Associates LOCATION 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION 14.92' (MSL) DATE(S) 9/16/94 TOTAL DEPTH 15.0'
MONITORING DEVICE OVM SCREENED INTERVAL 4 - 14'
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ∇ =First Water ▼ =Static Water
MEMO

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval/ Recovery	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log
						0.0 - 1.0' ASPHALT and ROADBASE	RB	
	8	11			0.0	1.0 - 4.0' SILTY CLAY (0,40,30,30): very dark gray (7.5YR3/1); low to medium plastic; soft to slightly stiff; fine to medium grained sand; slightly moist.	CL	
	8 5			52505	0.0			
	6			52471	0.0			
2.5					0.0			
	6	14			0.0			
	8 8			52474	0.0			
	6			52477	0.0	4.0 - 12.0' SILTY SAND (0,80,10,10): dark gray (7.5YR4/1); loose; fine to medium grained sand; moist. Abundant shell fragments.	SM	
					0.0			
5.0	2	4			0.0			
	2 2			52506	0.0			
	2			52472	0.0	saturated @ 6.0'		
					0.0			
7.5	2 2 3	5			0.0			
	1 2 4	6			0.0			
10.0	2 2 1	3			0.0			
	0 1 0 1	1			0.0	12.0 - 15.0' SILTY CLAY (0,10,50,40): very dark gray (N3/); soft to slightly stiff; medium to high plastic; fine grained sand; saturated; increasing organic content with depth.	CH	
12.5								
	1 2 4	6			0.0			
15.0								

Borehole Abandonment/ Well Construction Details



REGISTERED GEOLOGIST SANTOS V. GERMANAS No. 5328 Exp. 12/96 STATE OF CALIFORNIA

MARSQ.313095.AUGPS

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

SR. ASSOC. GEOLOGIST

TITLE

SIGNATURE OF REVIEWER

SR. ASSOC. GEOLOGIST

TITLE

SOIL DRILLING LOG

SB/MW #: SB-A
D- 23468
Page 1 of 1
Geologist: E.C. Warwick

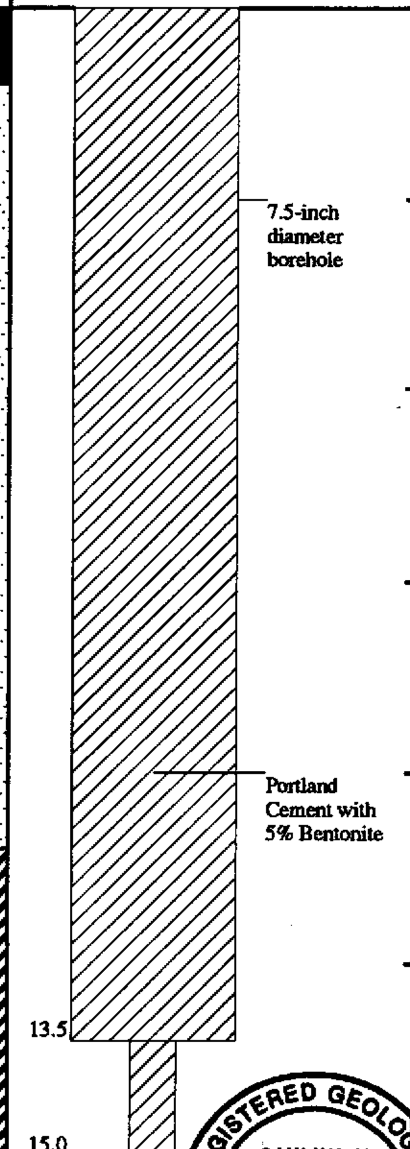
SIGNATURE OF GEOLOGIST

McLaren Hart

PROJECT: Mariner Square and Associates LOCATION: 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION ______ (MSL) DATE(S): 9/15/94 TOTAL DEPTH: 15.0'
MONITORING DEVICE: OVM SCREENED INTERVAL: ______
SAMPLING METHOD: Split Spoon SUBCONTRACTOR & EQPT: SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO: ⊽ =First Water
MEMO: ______

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	BPF	Sample ID #	PID reading (ppm)	Soil Description: Color, Texture, Moisture, Etc.	Unified Classification
					0.0 - 1.0 ASPHALT and ROADBASE	RB
	7, 10, 11, 8	19	52501, 52467	0.0	1.0 - 11.0' SILTY SAND (0,85,10,5): brown (7.5YR4/2); loose; fine to medium subrounded sand; slightly moist.	SM
-2.5				0.0		
	6, 7, 7, 9	16	52473, 52475	0.0		
-5.0	4, 4, 3, 2	5	52502, 52468	46	Color change @ 5.0' dark gray (7.5YR4/1); slight hydrocarbon odor. SATURATED @ 6.0'	
⊽						
-7.5	3, 7, 7	14			1-inch thick silt lenses from 7.0 - 8.5'.	
				200	@ 8.0'- 1.5 to 2-inch thick very dark gray (N3/) silt layer; high organic content; slight hydrocarbon and hydrogen sulfide odor.	
	1, 1, 4	5		0.0		
-10.0	0, 1, 1	2		0.0		
	1, 1, 1, 1	2		0.0	11.0 - 15.0' SILTY CLAY (0,10,50,40): very dark gray (N3/); soft to slightly stiff; medium to high plastic; fine grained sand; increased organic matter with depth.	CH
-12.5						
	1, 1, 1	2		0.0		
-15.0						

Borehole Abandonment/ Well Construction Details



MARSQ,8/1/95,AUGPS

REGISTERED GEOLOGIST SAULIUS V. GERMANAS No. 5328 Exp. 12/96 STATE OF CALIFORNIA

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

SR. ASSOC. GEOLOGIST
TITLE

SIGNATURE OF REVIEWER

SR. ASSOC. GEOLOGIST
TITLE

SOIL DRILLING LOG

McLaren Hart

SB/MW #: SB-B
D- 23470
Page 1 of 1
Geologist: E. C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Mariner Square and Associates LOCATION 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION ______ (MSL) DATE(S) 9/16/94 TOTAL DEPTH 15.0'
MONITORING DEVICE OVM SCREENED INTERVAL ______
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ▽ =First Water
MEMO ______

Depth Below Surface (ft.)	Blows 6"-6"-6"	BPF	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Borehole Abandonment/ Well Construction Details
					0.0 - 1.0 ASPHALT and ROADBASE	RB	
	3 3 3 5	8	52503 52469	0.0	1.0 - 7.0' CLAYEY SAND with GRAVEL (25,35,20,20): brown (7.5YR4/4); loose; fine to coarse subangular to subrounded sand; fine subangular gravel; slight to low plastic fines; slightly moist.	SC	
2.5				0.0			7.5-inch diameter borehole
	2 4 4 5	9	52476 52504	0.0			
5.0	3 4 4 3	7	52470	0.0	Color change @ 5.0' dark gray (7.5YR4/1).		
▽				0.0			
7.5	1 6 9	15			7.0 - 10.0' SILTY SAND (0,80,10,10): gray (7.5YR5/1); loose; fine grained sand; saturated; slight hydrocarbon odor.	SM	
	1 1 3	4		0.0			
10.0	0 1 1	2		0.0	10.0 - 15.0' SILTY CLAY (0,10,50,40): very dark gray (N3/); soft to slightly stiff; medium to high plastic; fine grained sand; increased organic matter with depth.	CH	Portland Cement with 5% Bentonite
	0 1 1 1	2		0.0			
12.5							13.5
	1 1 0	1		0.0			
15.0							15.0

MARSQ.3130/95.AUGPS

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

REGISTERED GEOLOGIST SAULIUS V. GERMANAS No. 5328 Exp. 12/96 STATE OF CALIFORNIA

SOIL DRILLING LOG

McLaren Hart

SB/MW #: SB-D
D- 23472
Page 1 of 1
Geologist: E. C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Mariner Square and Associates LOCATION 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION ______ (MSL) DATE(S) 9/16/94 TOTAL DEPTH 15.0'
MONITORING DEVICE OVM SCREENED INTERVAL ______
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ▽ =First Water
MEMO ______

Depth Below Surface (ft.)	Blows 6"-6"-6"	BPF	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification
0.0 - 1.0					0.0 - 1.0 CONCRETE and ROADBASE	CC
1.0 - 2.5	4 4 6 9	15	52463	0.0 / 0.0	1.0 - 3.0' CLAYEY SAND (0,60,20,20): brown (7.5YR4/3); loose; fine to coarse subangular to subrounded sand; slight to low plastic fines; slightly moist.	SC
3.0	5 5 5 5	10		0.0	3.0 - 10.5' SILTY SAND (0,80,10,10): dark gray (7.5YR4/1); loose; fine grained sand.	SM
4.5			52464			
5.0	3 5 5 5	10		75	SATURATED @ 6.0'; moderate hydrocarbon odor.	
7.5	3 3 3	6		27	Hydrocarbon sheen on surface of water from split spoon from 7.0 to 8.5' sample.	
8.5	2 2 3	5		0.0		
10.0	1 0 1	1		0.0		
10.5 - 12.5	1 1 1 1	2		0.0	10.5 - 15.0' SILTY CLAY (0,10,50,40): very dark gray (N3/); soft to slightly stiff; medium to high plastic; fine grained sand; increased organic matter with depth.	CH
14.0 - 15.0	0 1 1	2		0.0		

Borehole Abandonment/ Well Construction Details

7.5-inch diameter borehole

Portland Cement with 5% Bentonite

13.5

15.0

MARSQ.313195 AUGPS

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

SR. ASSOC. GEOLOGIST

TITLE

SIGNATURE OF REVIEWER

SR. ASSOC. GEOLOGIST

TITLE

REGISTERED GEOLOGIST SAULIUS V. GERMANAS No. 5328 Exp. 12/96 STATE OF CALIFORNIA

SOIL DRILLING LOG

SB/MW #: SB-E
D- 23471
Page 1 of 1
Geologist: E. C. Warwick

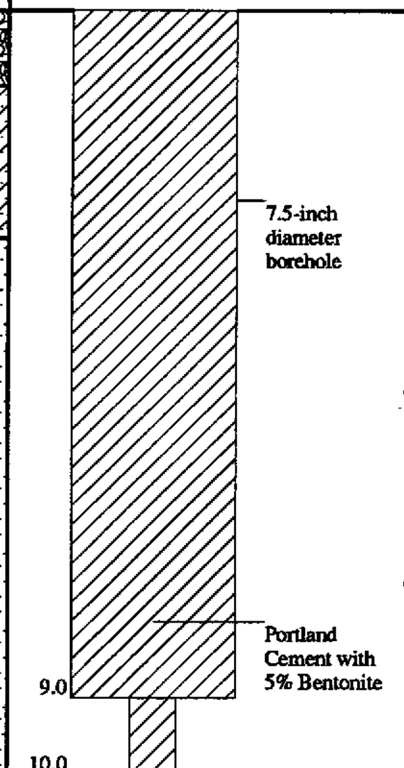
[signature]
SIGNATURE OF GEOLOGIST

McLaren Hart

PROJECT: Mariner Square and Associates LOCATION: 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION ______ (MSL) DATE(S): 9/16/94 TOTAL DEPTH: 15.0'
MONITORING DEVICE: OVM SCREENED INTERVAL: ______
SAMPLING METHOD: Split Spoon SUBCONTRACTOR & EQPT: SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO: ∇ =First Water
MEMO ______

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval/ Recovery	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log
						0.0 - 1.0 CONCRETE and ROADBASE	CC	
	5 5 5 4	9		52465	0.0 / 0.0	1.0 - 3.0' CLAYEY SAND (5,60,15,20): brown (7.5YR4/3); loose; fine to coarse subangular to subrounded sand; slight to low plastic fines; slightly moist.	SC	
2.5	3 3 4 5	9			0.0	3.0 - 10.0' SILTY SAND (0,80,10,10): dark gray (7.5YR4/1); loose; fine grained sand.	SM	
5.0	3 3 4 5	9		52466	0.0			
∇						SATURATED @ 6.5'.		
7.5	2 2 1 2	3			0.0			
	2 2	4			0.0			
10.0								

Borehole Abandonment/ Well Construction Details



MARSQ,8/1/95,AUGFS

[signature]
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

[signature]
SIGNATURE OF REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

REGISTERED GEOLOGIST
SAULIUS V. GERMANAS
No. 5328
Exp. 12/96
STATE OF CALIFORNIA

SOIL DRILLING LOG

SB/MW #: SB-F
D- 23475
Page 1 of 1
Geologist: E. C. Warwick

SIGNATURE OF GEOLOGIST

McLaren Hart

PROJECT Mariner Square and Associates LOCATION 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION ______ (MSL) DATE(S) 9/16/94 TOTAL DEPTH 4.5'
MONITORING DEVICE OVM SCREENED INTERVAL ______
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ∇ =First Water
MEMO ______

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval/ Recovery	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Borehole Abandonment/ Well Construction Details
						0.0 - 1.0' ASPHALT and ROADBASE	RB		4-Inch Diameter Borehole
	5 7 7 7	14		52451	0.0	1.0 - 4.5' SILTY SAND (0,60,30,10): very dark gray (7.5YR3/1); medium dense to dense; fine to medium grained sand.	SM		Portland Cement with 5% Bentonite
2.5									3.0
	2 2 2	4		52452	0.0				4.5

MARSQ.3/24/95.AUGPS

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

REGISTERED GEOLOGIST
SAULIUS V. GERMANAS
No. 5328
Exp. 12/96
STATE OF CALIFORNIA

SOIL DRILLING LOG

McLaren Hart

SB/MW #: SB-G
D- 23476
Page 1 of 1
Geologist: E. C. Warwick
[signature]
SIGNATURE OF GEOLOGIST

PROJECT Mariner Square and Associates LOCATION 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION ______ (MSL) DATE(S) 9/16/94 TOTAL DEPTH 4.5'
MONITORING DEVICE OVM SCREENED INTERVAL ______
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ▽ =First Water
MEMO ______

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval/ Recovery	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Borehole Abandonment/ Well Construction Details
						0.0 - 1.0' ASPHALT and ROADBASE	RB		4-Inch Diameter Borehole
	6 5 6 7	13		52453	0.0	1.0 - 4.5' SILTY SAND (0,60,30,10): very dark gray (7.5YR3/1); medium dense to dense; fine to medium grained sand: slight hydrocarbon odor.	SM		Portland Cement with 5% Bentonite
2.5									3.0
	5 4 4	8		52454	0.0				
									4.5

MARSQ.3131/95,AUGH

[signature]
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

[signature]
SIGNATURE OF REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

REGISTERED GEOLOGIST
SAULIUS V. GERMANAS
No. 5328
Exp. 12/96
STATE OF CALIFORNIA

SOIL DRILLING LOG

SB/MW #: SB-H
D- 23477
Page 1 of 1
Geologist: E. C. Warwick
SIGNATURE OF GEOLOGIST

McLaren Hart

PROJECT Mariner Square and Associates LOCATION 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION ______ (MSL) DATE(S) 9/16/94 TOTAL DEPTH 4.5'
MONITORING DEVICE OVM SCREENED INTERVAL ______
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ⊽ =First Water
MEMO ______

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	BPF	Sampler Interval/ Recovery	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Borehole Abandonment/ Well Construction Details
						0.0 - 1.0' ASPHALT and ROADBASE	RB		4-Inch Diameter Borehole
	5 6 10 10	20		52455	0.0	1.0 - 4.5' SILTY SAND (0,50,30,20): brown (7.5YR5/4); medium dense to dense; fine to coarse angular to subangular sand: increasing sand with depth.	SM		Portland Cement with 5% Bentonite
2.5									3.0
	6 7 7	14		52456	0.0				4.5

MARSQ.3/31/95,AUGPS

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
SR. ASSOC. GEOLOGIST
TITLE

REGISTERED GEOLOGIST
SAULIUS V. GERMANAS
No. 5328
Exp. 12/96
STATE OF CALIFORNIA

SOIL DRILLING LOG

McLaren Hart

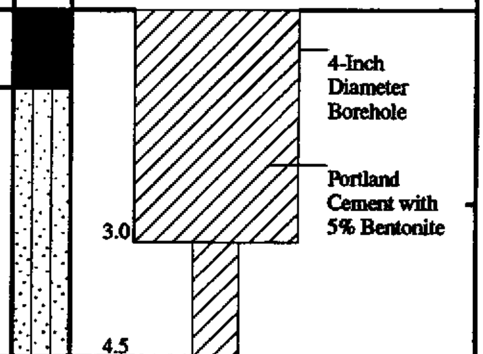
SB/MW #: SB-I
D- 23474
Page 1 of 1
Geologist; E. C. Warwick

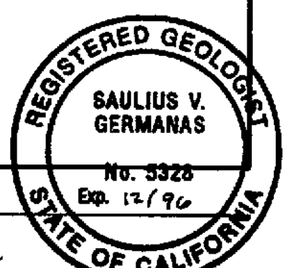
E C Warwick

SIGNATURE OF GEOLOGIST

PROJECT Mariner Square and Associates LOCATION 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION ______ (MSL) DATE(S) 9/16/94 TOTAL DEPTH 4.5'
MONITORING DEVICE OVM SCREENED INTERVAL ______
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ⊻ =First Water
MEMO ______

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	BPF	Sampler Interval/ Recovery	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Borehole Abandonment/ Well Construction Details
						0.0 - 1.0' ASPHALT and ROADBASE	RB		
	10 12 10 10	20		52457	0.0	1.0 - 4.5' SILTY SAND (10,60,15,15): brown (7.5YR4/4); medium dense to dense; fine to coarse grained sand: increasing fines with depth.	SM		
2.5									
	8 8 9	17		52458	0.0				





MARSQ 3/31/95 AUGPS

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

SR. ASSOC. GEOLOGIST

TITLE

SIGNATURE OF REVIEWER

SR. ASSOC. GEOLOGIST

TITLE

SOIL DRILLING LOG

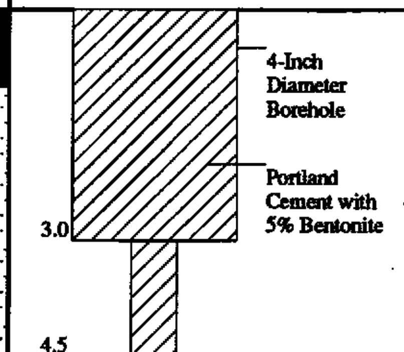
SB/MW #: SB-J
D- 23478
Page 1 of 1
Geologist: E. C. Warwick

SIGNATURE OF GEOLOGIST

McLaren Hart

PROJECT Mariner Square and Associates LOCATION 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION (MSL) DATE(S) 9/16/94 TOTAL DEPTH 4.5'
MONITORING DEVICE OVM SCREENED INTERVAL
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ⊻ =First Water
MEMO

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval/ Recovery	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Borehole Abandonment/ Well Construction Details
						0.0 - 1.0' ASPHALT and ROADBASE	RB		
	7 4 11 11	22		52459	0.0	1.0 - 4.5' SILTY SAND (10,60,15,15): brown (7.5YR4/4); medium dense to dense; fine to coarse grained sand: increasing fines with depth.	SM		
2.5									
	2 5 2	7		52460	0.0				



MARSQ.3131I95.AUGPS

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

SR. ASSOC. GEOLOGIST
TITLE

SIGNATURE OF REVIEWER

SR. ASSOC. GEOLOGIST
TITLE

REGISTERED GEOLOGIST
SAULIUS V. GERMANAS
No. 5328
Exp. 12/96
STATE OF CALIFORNIA

SOIL DRILLING LOG

McLaren Hart

SB/MW #: SB-K
D- 23473
Page 1 of 1
Geologist: E. C. Warwick

SIGNATURE OF GEOLOGIST

PROJECT Mariner Square and Associates LOCATION 2415 Mariner Square Drive, Alameda, CA
TOC ELEVATION ______ (MSL) DATE(S) 9/16/94 TOTAL DEPTH 4.5'
MONITORING DEVICE OVM SCREENED INTERVAL
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT SES/CME-75HT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ∇ =First Water
MEMO

Depth Below Surface (ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval/ Recovery	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Borehole Abandonment/ Well Construction Details
						0.0 - 1.0' ASPHALT and ROADBASE	RB		4-Inch Diameter Borehole
	10 11 11 12	23		52461	0.0	1.0 - 4.5' SILTY SAND (10,50,30,10): brown (7.5YR4/4); medium dense to dense; fine to coarse grained sand.	SM		Portland Cement with 5% Bentonite
2.5									3.0
	6 6 4	10		52462	0.0				4.5

MARSQ,3/31/95,AUGPS

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

SR. ASSOC. GEOLOGIST

TITLE

SIGNATURE OF REVIEWER

SR. ASSOC. GEOLOGIST

TITLE

REGISTERED GEOLOGIST
SAULIUS V. GERMANAS
No. 5328
Exp. 12/96
STATE OF CALIFORNIA

APPENDIX III
WELL INSTALLATION PERMIT

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (510) 484-2600

8 September 1994

McLaren/Hart Environmental Engineering
1135 Atlantic Avenue, Suite 100
Alameda, CA 94501

Gentlemen:

Enclosed is drilling permit 94571 for a monitoring well construction project at 2415 Mariner Square in Alameda for John Beery.

Please note that permit condition A-2 requires that a well construction report be submitted after completion of the work. The report should include drilling and completion logs, location sketch and permit number.

If you have any questions, please contact Wyman Hong at extension 235 or me at extension 233.

Very truly yours,

Craig A. Mayfield
Water Resources Engineer III

CM:mm
Enc.

RECEIVED
SEP 9 1994
By

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (510) 484-2600

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT MARINER SQUARE
2415 MARINER SQUARE DRIVE
ALAMEDA, CA 94501

CLIENT
Name JOHN BEERY ORGANIZATION
Address 2236 MARINER SQ. DR. Phone 510.521.2727
City ALAMEDA, CA Zip 94501

APPLICANT
Name SAUL GERMANAS
MCLAREN/HART ENV. ENGINEERING
Address 1135 ATLANTIC AVE Phone 510.521.5200
City ALAMEDA, CA Zip 94501

TYPE OF PROJECT

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

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

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger ✓
Cable ___ Other ______

DRILLER'S LICENSE NO. C-57 582.696

WELL PROJECTS
Drill Hole Diameter 12 in. Maximum
Casing Diameter 4 in. Depth 15 to 20 ft.
Surface Seal Depth ~4 ft. Number 3
NOTE: TWO 4" DIAMETER WELLS
ONE 2" DIAMETER WELL

GEOTECHNICAL PROJECTS
Number of Borings 10 Maximum
Hole Diameter 8 in. Depth 15 ft.

ESTIMATED STARTING DATE SEPT. 12, 1994
ESTIMATED COMPLETION DATE SEPT. 14, 1994

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

APPLICANT'S SIGNATURE [signature] Date 9/1/94

FOR OFFICE USE

PERMIT NUMBER 94571
LOCATION NUMBER ______

PERMIT CONDITIONS

Circled Permit Requirements Apply

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

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

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

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

E. WELL DESTRUCTION. See attached.

Approved Craig A. Mayfield Date 8-Sep-94
CRAIG A. MAYFIELD

51991

APPENDIX IV
SURVEY DATA SHEETS

TRONOFF ASSOCIATES
LAND AND HYDROGRAPHIC SURVEYING • CONSTRUCTION ENGINEERING SURVEYS
560 PINE STREET, THIRD FLOOR, SAN FRANCISCO, CALIFORNIA 94108 (415) 392-3215

JUNE 13, 1995

SURVEY 4049 DATA SHEET
McLAREN/HART JOB NO. 04.0601316.000
MARINER SQUARE
2415 MARINER SQUARE DRIVE
CITY AND COUNTY OF ALAMEDA, CALIFORNIA

prepared for

McLAREN/HART ENVIRONMENTAL ENGINEERING CORPORATION

WELL	ELEV(TOB)	ELEV(TOC)
MW-1	12.45	11.99
MW-2	15.60	15.21
MW-3	14.87	14.19
MW-4	14.33	13.95
MW-5	14.94	14.60
MW-6	15.07	14.81
*MW-7	13.87	13.61
*MW-8	12.83	12.64
**MW-9	15.25	14.92
*NAVY S-42	-	13.22

NOTES:

1. TOB = SET PUNCHMARK TOP NORTHERLY SIDE CHRISTY BOX.
2. TOC = SET NOTCH ON NORTHERLY SIDE OF PVC CASING OR ON HIGH POINT OF PVC CASING.
3. VERTICAL DATUM = MEAN SEA LEVEL PURSUANT TO DATA PROVIDED CITY OF ALAMEDA ENGINEER'S OFFICE.
4. * = ELEVATIONS ESTABLISHED 09/26/94.
5. ** = ELEVATIONS ESTABLISHED 10/28/94.

LICENSED LAND SURVEYOR
BRUCE T. TRONOFF
NO. 6415
STATE OF CALIFORNIA

40491028.DAT

RENEWAL DATE 12/31/98

APPENDIX V
WELL DEVELOPMENT DATA SHEETS

McLaren Hart

WELL DEVELOPMENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-8

PROJECT MARINER SQUARE SAMPLER C. WARWICK DATE 09-19-94

Well / Hydrologic statistics

Well type MW (MW, EW, etc.)

diameter 4"

equals 0.65 gal/ft. casing

SWL (if above screen)

packer / intake / bailer depth (circle one) 13 ft.

4 TOP

SWL (if in screen) 6.15

14 BOP

measured T.D. 13.34

T.D. (as built)

Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1513	1.5 GPM	
	1525		6.32
Stop	1556		6.32
Sampled			
(Final IWL)			

Purge calculation

0.65 gal/ft. • 7.85 ft. = 5.10 gals x 10 = 51.0 gals.

SWL to BOP or packer to BOP; one volume; purge volume-10 casings

Head purge calculation (Airlift only)

____ gal/ft. • ____ ft. = ____ gals.

packer to SWL

Actual gallons purged 52

Actual volumes purged 10.2

Well yield ⊕ (see below) HY

Equipment Used / Sampling Method / Description of Event/Comments:

CENTRIFUGAL PUMP

4" SURGE BLOCK; BAILER

PURGE TO SAMPLE AT 1.0 GPM

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	Ph	TURBIDITY (NTU)		
1. 5	74.1	19,010	7.20	75.7		
2. 10	75.4	19,040	7.50	60.6		
3. 15	73.0	19,900	7.50	18.90		
4. 20	72.2	19080	7.47	3.39		
5. 25	72.2	18,080	7.33	0.55		
6. 30	71.5	18,540	7.29	0.10		
7. 35	72.2	18,730	7.23	0.46		
8. 40	71.7	18,640	7.19	0.53		
9. 45	71.6	18,480	7.21	0.48		
10. 50	71.1	18,570	7.22	0.04		
11.						
12.						

* Take measurement at approximately each casing volume purged.

⊕ HY - Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

McLaren Hart

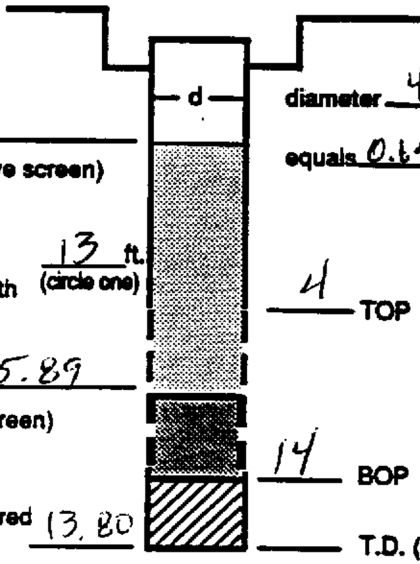
WELL DEVELOPMENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-7

PROJECT Mariner Square SAMPLER C. Warwick DATE 09-19-94

Well / Hydrologic statistics



Well type MW (MW, EW, etc.)

diameter 4"

equals 0.65 gal/ft. casing

SWL ____ (if above screen)

packer / intake / bailer depth (circle one) 13 ft.

4 TOP

SWL 5.89 (if in screen)

14 BOP

measured T.D. 13.80

T.D. (as built)

Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1238	0.5 GPM	
	1242	↓	7.47
	1251	0.75 GPM	7.29
	1257	↓	9.50
	1304	↓	11.28
STOP	1306	REFUEL	11.34
	1332	0.75	12.20
~~Stop~~	1357	↓	1236
~~Sampled~~ STOP	1401		
~~(Final IWL)~~	1419	↓	6.72
STOP	1446		11.56

Purge calculation

0.65 gal/ft. • 8.11 ft. = 5.27 gals x 10 = 52.7 gals.

SWL to BOP or packer to BOP; one volume; purge volume - 10 casings

Head purge calculation (Airlift only)

____ gal/ft. • ____ ft. = ____ gals.

packer to SWL

Actual gallons purged 70

Actual volumes purged 13.28

Well yield ⊕ (see below) HY/MY

Equipment Used / Sampling Method / Description of Event/Comments:

CENTRIFUGAL PUMP - SURGED AGAIN AT 1419

4" SURGE BLOCK; BAILER

PURGE TO SAMPLE AT 0.5 GPM

Gallons purged *	TEMP °C/°F (circle one)	EC (µs / cm)	Ph	TURBIDITY (NTU)		
1. 5	78.3	6530	7.14	2200		
2. 10	78.7	6520	6.94	27.5		
3. 15	79.4	6690	6.97	21.9		
4. 20	76.3	6310	7.11	16.49		
5. 25	77.5	6400	7.10	16.81		
6. 30	77.4	7160	7.09	51.5		
7. 35	81.3	6920	7.16	76.2		
8. 40	77.6	6750	7.16	65.2	STOP & BAIL AGAIN	
9. 45	77.6	6410	7.18	83.7		
10. 50	77.8	6310	7.04	92.8		
11. 55	78.6	6300	7.01	74.5		
12. 60	79.3	6390	6.96	38.4		

* Take measurement at approximately each casing volume purged.

⊕ HY - Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

McLaren Hart

WELL DEVELOPMENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-9

PROJECT MARINER SQUARE SAMPLER C. WARWICK DATE 09-19-94

Well / Hydrologic statistics

Well type MW (MW, EW, etc.)

diameter 2"

equals 0.16 gal/ft. casing

SWL (if above screen) START - 13'

packer / intake / bailer depth 13 ft. (circle one)

4 TOP

SWL 5.91 (if in screen)

14 BOP

measured T.D. 13.86

T.D. (as built)

Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1058	0.5 GPM	
	1109	1.5 GPM	7.24
	1120		7.44
Stop	1122		7.46
Sampled			
(Final IWL)	1128		6.06

Purge calculation

0.16 gal/ft. * 8.09 ft. = 1.29 gals x 10 = 12.9 gals.

SWL to BOP or packer to BOP; one volume; purge volume- 10 casings

Head purge calculation (Airlift only)

____ gal/ft. * ____ ft. = ____ gals.

packer to SWL

Actual gallons purged 25

Actual volumes purged 19.38

Well yield ⊕ (see below) HY

Equipment Used / Sampling Method / Description of Event/Comments:

CENTRIFUGAL PUMP
2" SURGE BLOCK, BAILER

MW6 - DTP = 5.89' @1135
DTW = 5.92'

PURGE TO SAMPLE AT 0.5 GPM

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	Ph	TURBIDITY (NTU)		
1. 1.25	74.1	2920	7.34	>200		
2. 2.50	78.0	2930	6.96	>200		
3. 3.75	74.6	2600	7.13	26.7		
4. 5.0	74.6	2540	7.12	10.50		
5. 6.25	74.7	2520	6.94	7.53		
6. 7.50	75.3	2520	6.89	6.41		
7. 8.75	75.7	2520	6.85	5.83		
8. 10.0	75.5	2550	6.81	4.52		
9. 11.25	75.3	2520	6.80	4.54		
10. 12.5	75.1	2500	6.80	2.75		
11.						
12.						

* Take measurement at approximately each casing volume purged.

⊕ HY- Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

APPENDIX VI
SAMPLING EVENT DATA SHEETS

McLaren Hart

HYDRODATA

DATE: 6-13-94

PROJECT: MARINER SQUARE EVENT: SOUNDING SAMPLER: GERMANAS

NO.	WELL OR LOCATION	DATE MO	DATE DA	DATE YR	TIME HR	TIME MIN	MEASUREMENT	CODE	COMMENTS
1	MW-1	6	13	94	11	37	5.69		
2	MW-2	6	13	94	12	17	5.92		
3	MW-3	6	13	94	12	29	4.91		
4	MW-4	6	13	94	11	44	4.50		
5	MW-5	6	13	94	12	20	5.30		
6	MW-6	6	13	94	11	47	5.94 OIL 5.96 OWI		0.02" PRODUCT, APPEARS TO BE OIL.
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

CODES:

*SWL - Static Water Level (Feet)
*IWL - Instant Water Level; Non-Static (Feet)
*OIL - Oil Level (Feet)
*OWI - Oil/Water Interface (Feet)
*MTD - Measured Total Depth (Feet)
FLO - Flow Rate (Gallons/Minute)
CUM - Cumulative (Gallons)

HRS - Total (Hours)
PSI - Pressure (psi)[2]
pH - 1 to 14
Ec - Conductivity (µm HOS)
TMP - Temperature (°C)
TRB - Turbidity (NTU)
___ - __________ (Additional Code)

*All levels are depth from inner casing - describe any other reference points in comments column; when in doubt, describe reference point.

Note in comments column if well is not: properly labeled, locked, or able to be locked. Describe corrective action.

McLaren Hart

HYDRODATA

DATE: 09-26-94

PROJECT: MARINER SQUARE EVENT: 1ST ROUND SAMPLER: C. WARWICK

NO.	WELL OR LOCATION	DATE MO	DATE DA	DATE YR	TIME HR	TIME MIN	MEASUREMENT	CODE	COMMENTS
1	mw-1	09	26	94	11	21	5.64	SWL	
2	mw-2				11	35	6.51		
3	mw-3				11	26	5.29		
4	mw-4				11	16	5.39		
5	mw-5				11	33	5.82		MOD. HYDROCARBON ODOR
6	mw-6				11	43	5.87/5.90	DTP/DTW	
7	mw-7				11	18	5.95	SWL	
8	mw-8				11	38	6.06		
9	mw-9				11	24	5.88		CALIBRATE OIL/WATER PROBE DTW = 5.93
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

CODES:

- *SWL - Static Water Level (Feet)
- *IWL - Instant Water Level; Non-Static (Feet)
- *OIL - Oil Level (Feet)
- *OWI - Oil/Water Interface (Feet)
- *MTD - Measured Total Depth (Feet)
- FLO - Flow Rate (Gallons/Minute)
- CUM - Cumulative (Gallons)
- HRS - Total (Hours)
- PSI - Pressure (psi)
- pH - 1 to 14
- Ec - Conductivity (μm HOS)
- TMP - Temperature (°C)
- TRB - Turbidity (NTU)
- ___ - ___________ (Additional Code)

*All levels are depth from inner casing - describe any other reference points in comments column; when in doubt, describe reference point.

Note in comments column if well is not: properly labeled, locked, or able to be locked. Describe corrective action.

McLaren Hart

SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-1

PROJECT MARINER SQUARE EVENT INITIAL SAMPLER C. WARWICK DATE 09-27-94

Well / Hydrologic statistics

Well type MW (MW, EW, etc.)

diameter 2"

equals 0.16 gal/ft. casing

SWL (if above screen)

packer / intake / bailer depth 7 ft. (circle one)

4 TOP

SWL 5.64 (if in screen)

14 BOP

measured T.D. 14.66

T.D. (as built)

Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1320	0.375 GPM	
Stop	1332		5.94
Sampled	1335		
(Final IWL)	1402		5.66

Purge calculation

0.16 gal/ft. · 9.02 ft. = 1.44 gals x 3 = 4.32 gals.

SWL to BOP or packer to BOP — one volume — purge volume- 3 casings

Head purge calculation (Airlift only)

____ gal/ft. · ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

CENTRIFUGAL PUMP w/ DISPOSABLE BAILER
METALS SAMPLE COLLECTED AND FILTERED USING PERISTALTIC PUMP & Lg. FILTER

USED MEASURED T.D. IN PURGE CALCULATION

Additional comments:

Actual gallons purged 4.5

Actual volumes purged 3.125

Well yield (see below) ⊕ HY

COC # 9781

Sample I.D.	Analysis	Lab
244295-6	8015M	MBT
244297-300	8020 BTEX	↓
260462	PP METALS	↓

Gallons purged *	TEMP °C / °F (circle one)	EC (μs / cm)	PH	TURBIDITY (NTU)		
1. 1.375	83.9	4730	7.90	45.9		
2. 2.75	85.6	4050	7.70	28.4		
3. 4.125	86.2	3900	7.61	21.7		
4. SAMPLE				24.5		
5.						

* Take measurement at approximately each casing volume purged.

⊕ HY - Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

McLaren Hart

SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-2

PROJECT MARINER SQUARE EVENT INITIAL SAMPLER C. WARWICK DATE 09-26-94

Well / Hydrologic statistics

Well type MW (MW, EW, etc.)

diameter 2"

equals 0.16 gal/ft. casing

SWL (if above screen)

packer / intake / bailer depth (circle one) 10 ft.

5 TOP

SWL 6.49 (if in screen)

13.5 BOP

measured T.D. 12.14

— T.D. (as built)

Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1517	0.62 GPM	
Stop	1528		7.90
Sampled	1536		
(Final IWL)	1636		6.57

Purge calculation

0.16 gal/ft. • 7.01 ft. = 1.12 gals x 3 = 3.36 gals.

SWL to BOP or packer to BOP — one volume — purge volume-3 casings

Head purge calculation (Airlift only)

____ gal/ft. • ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

CENTRIFUGAL PUMP W/DISPOSABLE BAILER

METALS SAMPLES COLLECTED AND FILTERED USING PERISTALTIC PUMP (600 RPM) & Lg. FILTERS.

TMP=1500

Actual gallons purged 6.82

Actual volumes purged 6.09

Well yield (see below) ⊕ HY

COC # 9781

Sample I.D.	Analysis	Lab
244428-31	8240 VC (TB)	MBT
244432-5	8020 BTEX (TB)	
244436-7	8015 M	
244438-41	8020 BTEX	
244442	TDS	
244443	METALS	

Additional comments:

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 1.0	74.2	2010	7.35	3.20		
2. 2.0	77.7	1790	7.22	2.13		
3. 3.0	78.3	1770	7.24	1.39		
4. SAMPLE				3.70		
5.						

* Take measurement at approximately each casing volume purged.

⊕ HY - Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

McLaren Hart

SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-3

PROJECT MARINER SQUARE EVENT INITIAL SAMPLER C.WARWICK DATE 09-27-94

Well / Hydrologic statistics

Well type MW (MW, EW, etc.)

diameter 2"

equals 0.16 gal/ft. casing

SWL (if above screen)

packer / intake / bailer depth (circle one) 7 ft.

TOP 4

SWL (if in screen) 5.29

BOP 14

measured T.D. 10.58

T.D. (as built) —

Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1552	0.5 GPM	
Stop	1605		5.80
Sampled	1611		
(Final IWL)	1635		5.28

Purge calculation

0.16 gal/ft. · 8.71 ft. = 1.39 gals x 3 = 4.17 gals.

SWL to BOP or packer to BOP; one volume; purge volume- 3 casings

Head purge calculation (Airlift only)

___ gal/ft. · ___ ft. = ___ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

CENTRIFUGAL PUMP W/ DISPOSABLE BAILER

METALS SAMPLES COLLECTED AND FILTERED USING PERISTALTIC PUMP AND LG. FILTER.

Actual gallons purged 6.5

Actual volumes purged 4.68

Well yield ⊕ (see below) HY

COC # 9781

Sample I.D.	Analysis	Lab
260471-2	8015M	MBT
260473-6	8020 BTEX	↓
260477	PP METALS	↓

Additional comments:

USED MEASURED T.D. IN PURGE CALCULATION

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 1.25	78.1	5350	7.80	96.4		
2. 2.50	80.2	3650	7.63	72.9		
3. 3.75	81.0	2810	7.62	67.5		
4. 5.00	81.3	2570	7.57	83.0		
5. SAMPLE				43.0		

* Take measurement at approximately each casing volume purged.

⊕ HY- Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

McLaren Hart

SAMPLING EVENT DATA SHEET

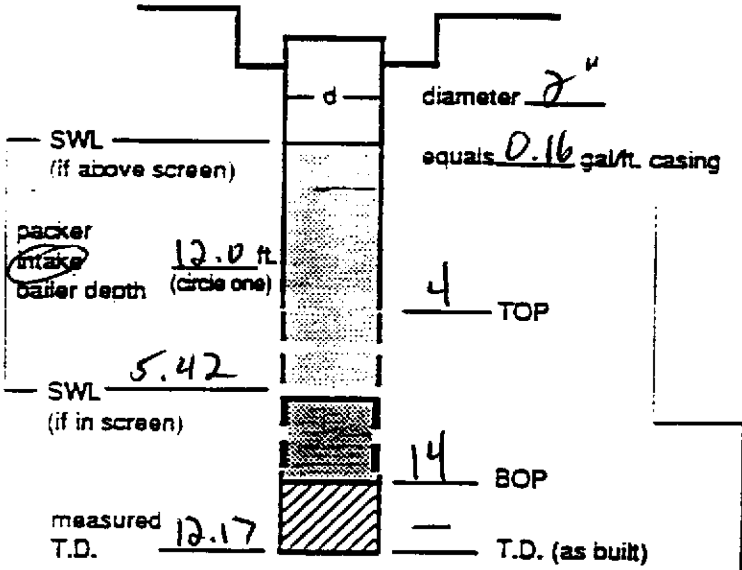
(fill out completely)

WELL OR LOCATION MW-4

PROJECT MARINER SQUARE EVENT INITIAL SAMPLER C. WARWICK DATE 09-27-94

Well / Hydrologic statistics

Well type MW
(MW, EW, etc.)



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1004	0.6 GPM	
Stop	1011		12.00
Sampled	1016		5.65
(Final IWL)	1049		5.49

Purge calculation

0.16 gal/ft. · 8.58 ft. = 1.37 gals x 3 = 4.11 gals.

SWL to BOP or packer to BOP — one volume — purge volume-3 casings

Head purge calculation (Airlift only)

____ gal/ft. · ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

CENTRIFUGAL PUMP w/ DISPOSABLE BAILER
METALS SAMPLES COLLECTED AND FILTERED USING PERISTALTIC PUMP AND Lg. FILTER.

Actual gallons purged 4.5

Actual volumes purged 3.28

Well yield ⊕ (see below) MY

COC # 9781

Sample I.D.	Analysis	Lab
260439-40	8015m	MBT
260441-4	8020 BTEX	
260445-8	8240 VC	
260449	TDS	
260450	PP METALS	

Additional comments:

USED MEASURED T.D. IN PURGE CALCULATION

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 1.25	74.0	4320	7.80	60.0		
2. 2.50	76.1	2310	7.56	56.0		
3. 3.75	76.4	2410	7.50	>200		
4. SAMPLE				35.1		
5.						

* Take measurement at approximately each casing volume purged.

⊕ HY- Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

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SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-5

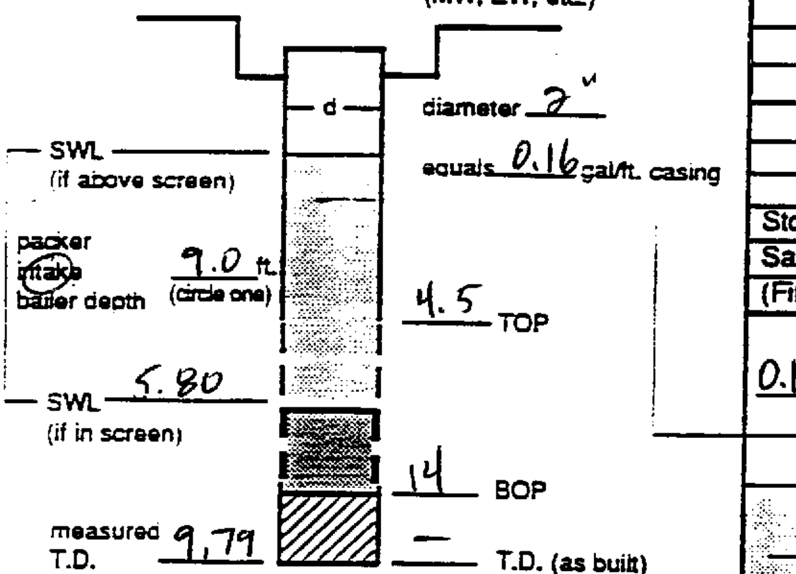
PROJECT MARINER SQUARE EVENT INITIAL SAMPLER C. WARWICK DATE 09-26-94

Well / Hydrologic statistics

Well type MW (MW, EW, etc.)

diameter 2"

equals 0.16 gal/ft. casing



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1706	0.62 GPM	
Stop	1715		8.34
Sampled	1720		
(Final IWL)	1750		5.92

Purge calculation

0.16 gal/ft. • 8.20 ft. = 1.31 gals x 3 = 3.93 gals.

SWL to BOP or packer to BOP; one volume; purge volume-3 casings

Head purge calculation (Airlift only)

____ gal/ft. • ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

CENTRIFUGAL PUMP w/ DISPOSABLE BAILER

METALS SAMPLES COLLECTED AND FILTERED USING PERISTALTIC PUMP AND Lg. FILTERS.

DISCHARGE SLIGHTLY FROTHY.

MOD - STRONG HYDROCARBON ODOR

Actual gallons purged 5.58

Actual volumes purged 4.26

Well yield ⊕ (see below) MY

COC # 9781

Sample I.D.	Analysis	Lab
244444-5	8015M	MBT
244446-9	8020 BTEX	
244450	PP METALS	

Additional comments:

USED MEASURED T.D. IN PURGE CALCULATION

Gallons purged *	TEMP °C °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 1.25	69.0	1960	7.80	6.80		
2. 2.50	73.0	2450	7.56	9.75		
3. 3.75	73.9	2440	7.45	3.20		
4. SAMPLE				3.54		
5.						

* Take measurement at approximately each casing volume purged.

⊕ HY- Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

McLaren Hart SAMPLING EVENT DATA SHEET
(fill out completely)

WELL OR LOCATION MW-6

PROJECT MARINER SQUARE EVENT INITIAL SAMPLER C. WARWICK DATE 09-27-94

Well / Hydrologic statistics

Well type MW
(MW, EW, etc.)

d

diameter 2"

equals 0.16 gal/ft. casing

SWL
(if above screen)

packer
intake
bailer depth 8 ft.
(circle one)

4.1 TOP

SWL 5.87
(if in screen)

14 BOP

measured T.D. 12.57

— T.D. (as built)

Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1730	0.53 GPM	
Stop	1738		6.94
Sampled	1745		
(Final IWL)	1810		5.88

Purge calculation

0.16 gal/ft. · 8.13 ft. = 1.30 gals x 3 = 3.90 gals.

SWL to BOP or packer to BOP — one volume — purge volume-3 casings

Head purge calculation (Airlift only)

_____ gal/ft. · _____ ft. = _____ gals.
packer to SWL

Equipment Used / Sampling Method / Description of Event:

CENTRIFUGAL PUMP W/DISPOSABLE BAILER
METALS SAMPLES COLLECTED AND FILTERED USING PERISTALTIC PUMP AND Lg. FILTER.

TOP = 4.1' BELOW TOC.

Actual gallons purged 4.25

Actual volumes purged 3.27

Well yield (see below) HY

COC # 9781

Sample I.D.	Analysis	Lab
260478-9	8015M	MAT
260480-3	8020BTEX	
260484-7	8240 VC	
260488	PP METALS	

Additional comments:

DTP = 5.86 } - PUMPED PRODUCT OFF w/PERI PUMP
DTW = 5.89 } BEFORE PUMPING PRODUCT

DTW = 5.87 - AFTER PUMPING PRODUCT (OIL/WATER SOUNDER INDICATED NO PRODUCT)

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 1.25	76.4	1990	7.91	112.5		
2. 2.50	78.5	1940	7.68	69.1		
3. 3.75	78.9	1960	7.58	50.2		
4. SAMPLE				7.69		
5.						

* Take measurement at approximately each casing volume purged.

⊕ HY - Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

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SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-7

PROJECT MARINER SQUARE EVENT INITIAL SAMPLER C. WARWICK DATE 09-27-94

Well / Hydrologic statistics

Well type MW (MW, EW, etc.)

diameter 4"

equals 0.65 gal/ft. casing

SWL (if above screen)

packer / intake / bailer depth (circle one) 9 ft.

4 TOP

SWL (if in screen) 5.96

14 BOP

measured T.D. 13.24

— T.D. (as built)

Action	Time	Pump rate	IWL (low yield)
Start pump/ Begin	1120	0.40 GPM	
Stop	1200		8.72
Sampled	1205		
(Final IWL)	1225		6.03

Purge calculation

0.65 gal/ft. · 8.04 ft. = 5.23 gals x 3 = 15.69 gals.

SWL to BOP or packer to BOP; one volume; purge volume-3 casings

Head purge calculation (Airlift only)

_____ gal/ft. · _____ ft. = _____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

CENTRIFUGAL PUMP w/ DISPOSABLE BAILER

METALS SAMPLES COLLECTED AND FILTERED USING PERISTALTIC PUMP AND Lg. FILTER

Actual gallons purged 16.25

Actual volumes purged 3.11

Well yield (see below) ⊕ MY

COC # 9781

Sample I.D.	Analysis	Lab
260451-2	8015 M	MBT
260453-6	8020 BTEX	
260457-60	8240 VC	
260461	PP METALS	

Additional comments:

USED MEASURED T.D. IN PURGE CALCULATION

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 5	79.7	7600	7.36	88.5		
2. 10	82.0	7510	6.33	67.1		
3. 15	82.7	7480	6.53	59.0		
4. SAMPLE				30.2		
5.						

* Take measurement at approximately each casing volume purged.

⊕ HY - Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

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SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-8

PROJECT MARINER SQUARE EVENT INITIAL SAMPLER C. WARWICK DATE 09-28-94

Well / Hydrologic statistics

Well type MW (MW, EW, etc.)

diameter (d) 4"

equals 0.65 gal/ft. casing

SWL (if above screen)

packer / intake / bailer depth 8 ft. (circle one)

TOP 4

SWL 6.07 (if in screen)

BOP 14

measured T.D. 13.51

T.D. (as built)

Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1430	1.75 GPM	
	1438		6.27
Stop	1443		6.29
Sampled	1447		
(Final IWL)	1519		6.07

Purge calculation

0.65 gal/ft. · 7.93 ft. = 5.15 gals x 3 = 15.45 gals.

SWL to BOP or packer to BOP — one volume — purge volume-3 casings

Head purge calculation (Airlift only)

____ gal/ft. · ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

CENTRIFUGAL PUMP w/ DISPOSABLE BAILER

METALS SAMPLES COLLECTED AND FILTERED USING PERISTALTIC PUMP AND Lg. FILTER

Actual gallons purged 16.25

Actual volumes purged 3.16

Well yield (see below) HY

COC # 9781

Sample I.D.	Analysis	Lab
260463-4	8015M	MBT
260465-8	8020 BTEX	↓
260469	TDS	
260470	PP METALS	

Additional comments:

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 5	73.8	8840	8.26	21.3		
2. 10	74.2	11,340	8.01	17.85		
3. 15	73.7	11,030	7.97	20.4		
4. SAMPLE				18.25		
5.						

* Take measurement at approximately each casing volume purged.

HY - Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

McLaren Hart

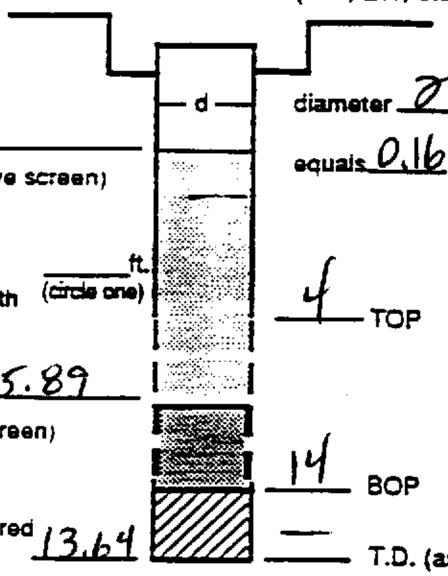
SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-9

PROJECT MARINER SQUARE EVENT INITIAL SAMPLER C. WARWICK DATE 09-26-94

Well / Hydrologic statistics



Well type MW (MW, EW, etc.)

d — diameter 2"

equals 0.16 gal/ft. casing

— SWL — (if above screen)

packer / intake / bailer depth ____ ft. (circle one)

4 — TOP

— SWL 5.89 (if in screen)

14 — BOP

measured T.D. 13.64

— T.D. (as built)

Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1810	0.62 GPM	
Stop	1817		6.76
Sampled	1823		
(Final IWL)	1847		5.93

Purge calculation

0.16 gal/ft. · 8.11 ft. = 1.30 gals x 3 = 3.9 gals.

SWL to BOP or packer to BOP — one volume — purge volume- 3 casings

Head purge calculation (Airlift only)

____ gal/ft. · ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

CENTRIFUGAL PUMP w/ DISPOSABLE BAILER

METALS SAMPLES COLLECTED AND FILTERED USING PERISTALTIC PUMP (600 RPM) AND Lg. FILTERS.

Actual gallons purged 4.34

Actual volumes purged 3.34

Well yield (see below) ⊕ HY

COC # 9781

Sample I.D.	Analysis	Lab
260633-4	8015M	MBT
260635-8	8020BTEX	
260639-42	8240VC	
260643	PP METALS	

Additional comments:

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 1.25	69.1	1780	7.78	1.67		
2. 2.50	71.8	1740	7.39	1.26		
3. 3.75	72.6	1760	7.40	0.41		
4. SAMPLE				31.5		
5.						

* Take measurement at approximately each casing volume purged.

⊕ HY- Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day

VLY - Minimal recharge - unable to purge 3 volumes.

McLaren Hart

HYDRODATA

DATE: 10-25-94

PROJECT: MARINER SQUARE EVENT: MONTHLY SAMPLER: C. WARWICK

NO.	WELL OR LOCATION	DATE MO	DATE DA	DATE YR	TIME HR	TIME MIN	MEASUREMENT	CODE	COMMENTS
1	mw-1	10	25	94	11	48	5.86	SWL	OIL/WATER SOUNDER USED
2	mw-2				12	25	6.67		
3	mw-3				12	03	5.42		
4	mw-4				11	55	5.55		SL. HYDROCARB. ODOR; NO SHEEN OBSERVED
5	mw-5				12	19	5.95		
6	mw-6				12	33	5.99		NO PRODUCT LAYER OBSERVED; SHEEN OBSERVED ON WATER SURFACE
7	mw-7				11	51	6.09		
8	mw-8				11	44	6.26		
9	mw-9				12	29	6.04		
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

CODES:

*SWL - Static Water Level (Feet)
*IWL - Instant Water Level; Non-Static (Feet)
*OIL - Oil Level (Feet)
*OWI - Oil/Water Interface (Feet)
*MTD - Measured Total Depth (Feet)
FLO - Flow Rate (Gallons/Minute)
CUM - Cumulative (Gallons)

HRS - Total (Hours)
PSI - Pressure (psi)[2]
pH - 1 to 14
Ec - Conductivity (μm HOS)
TMP - Temperature (°C)
TRB - Turbidity (NTU)
___ - ________ (Additional Code)

*All levels are depth from inner casing - describe any other [illegible]

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SAMPLING EVENT DATA SHEET

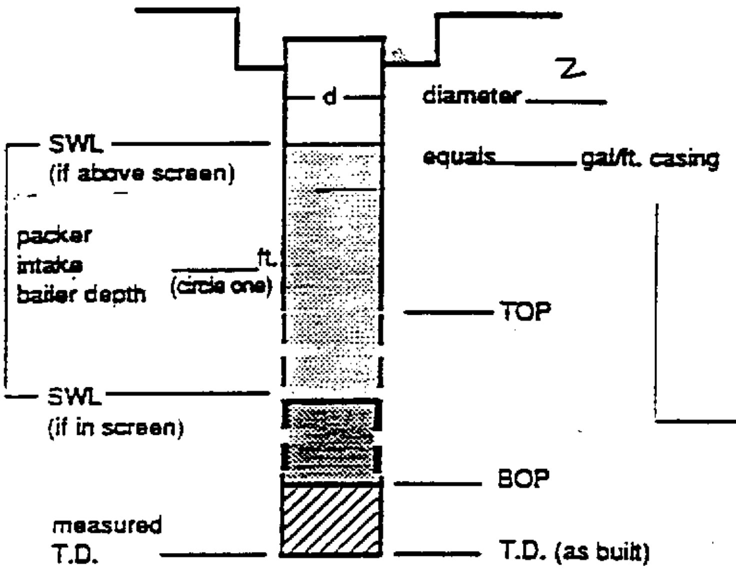
(fill out completely)

WELL OR LOCATION ______

PROJECT MARINER SQUARE EVENT WEEKLY BAILING SAMPLER S GERMANO DATE 10/7/94

Well / Hydrologic statistics

Well type MW-6
(MW, EW, etc.)



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin			
Stop			
Sampled			
(Final IWL)			

Purge calculation

____ gal/ft. * ____ ft. = ____ gals x 3 = ____ gals.

SWL to BOP or packer to BOP — one volume — purge volume-3 casings

Head purge calculation (Airlift only)

____ gal/ft. * ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

MARINO MOISTURE CONTROL
DTO = 5.82'
2:10 PM DTW = 5.82'

OT = 0.0'

SHEEN OBSERVED
NO MEASUREABLE PRODUCT

Actual gallons purged ____

Actual volumes purged ____

Well yield ⊕ ____
(see below)

COC # Sample I.D.	Analysis	Lab

Additional comments:

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1.						
2.						
3.						
4.						
5.						

* Take measurement at approximately each casing volume purged.

⊕ HY - Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

McLaren Hart

SAMPLING EVENT DATA SHEET

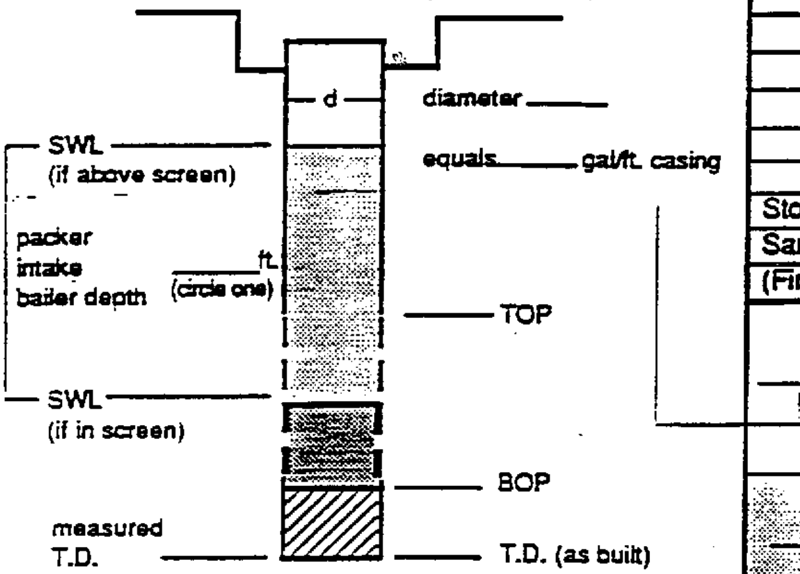
(fill out completely)

WELL OR LOCATION MW-6

PROJECT MARINER SQ. EVENT WEEKLY PROD. SAMPLER GERMANAS DATE 10.4.94

Well / Hydrologic statistics

Well type MW-6
(MW, EW, etc.)



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin			
Stop			
Sampled			
(Final IWL)			

Purge calculation

______ gal/ft. * ______ ft. = ______ gals x 3 = ______ gals.

SWL to BOP or packer to BOP — one volume — purge volume- 3 casings

Head purge calculation (Airlift only)

______ gal/ft. * ______ ft. = ______ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

MARINA MOISTURE CONTROL

DTO = 5.89'

DTW = 5.89'

P.T = 0.0'

SHOBH OBSERVED
NO MEASURABLE
PRODUCT

Actual gallons purged ______

Actual volumes purged ______

Well yield ⊕ ______
(see below)

COC # ______

Sample I.D.	Analysis	Lab

Additional comments:

Gallons purged *	TEMP °C / °F (circle one)	EC (us / cm)	PH	TURBIDITY (NTU)		
1.						
2.						
3.						
4.						
5.						

* Take measurement at approximately each casing volume purged.

⊕ HY- Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

McLaren Hart — SAMPLING EVENT DATA SHEET

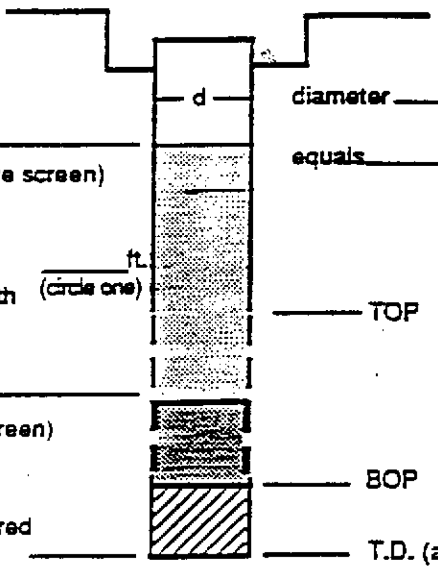
(fill out completely)

WELL OR LOCATION MW-6

PROJECT MACARTHUR SQUARE EVENT WEEKLY DTP SAMPLER GERMANAS DATE 10/21/94

Well / Hydrologic statistics

Well type ________ (MW, EW, etc.)



diameter ______

equals ______ gal/ft. casing

SWL ______ (if above screen)

packer / intake / bailer depth ______ ft. (circle one)

TOP

SWL ______ (if in screen)

BOP

measured T.D. ______

T.D. (as built)

Action	Time	Pump rate	IWL (low yield)
Start pump / Begin			
Stop			
Sampled			
(Final IWL)			

Purge calculation

______ gal/ft. * ______ ft. = ______ gals x 3 = ______ gals.

SWL to BOP or packer to BOP — one volume — purge volume-3 casings

Head purge calculation (Airlift only)

______ gal/ft. * ______ ft. = ______ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

DTW = 5.90′

NO PRODUCT

Actual gallons purged ______

Actual volumes purged ______

Well yield ⊕ ______ (see below)

COC # ______

Sample I.D.	Analysis	Lab

Additional comments:

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1.						
2.						
3.						
4.						

* Take measurement at approximately each casing volume purged.

⊕ HY- Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

McLaren Hart

SAMPLING EVENT DATA SHEET

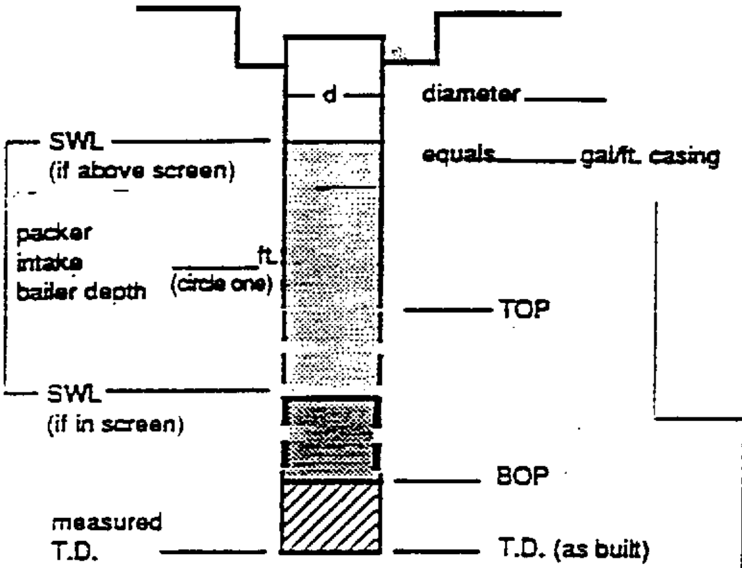
(fill out completely)

WELL OR LOCATION MW-6

PROJECT MAR. S P. EVENT WEEKLY SAMPLER GERMANAS DATE 11/4/94

Well / Hydrologic statistics

Well type MW
(MW, EW, etc.)



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	2:50pm		
Stop			
Sampled			
(Final IWL)			

Purge calculation

____ gal/ft. * ____ ft. = ____ gals x 3 = ____ gals.

SWL to BOP or packer to BOP — one volume — purge volume-3 casings

Head purge calculation (Airlift only)

____ gal/ft. * ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

DTW = 5.96'

DTO = 5.96'

O.T. = 0.0'

NO MEASURABLE PRODUCT
SHEEN OBSERVED
(DARK BLOBS)

Actual gallons purged ____

Actual volumes purged ____

Well yield ⊕ ____
(see below)

COC # ____

Sample I.D.	Analysis	Lab

Additional comments:

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1.						
2.						
3.						
4.						
5.						

* Take measurement at approximately each casing volume purged.

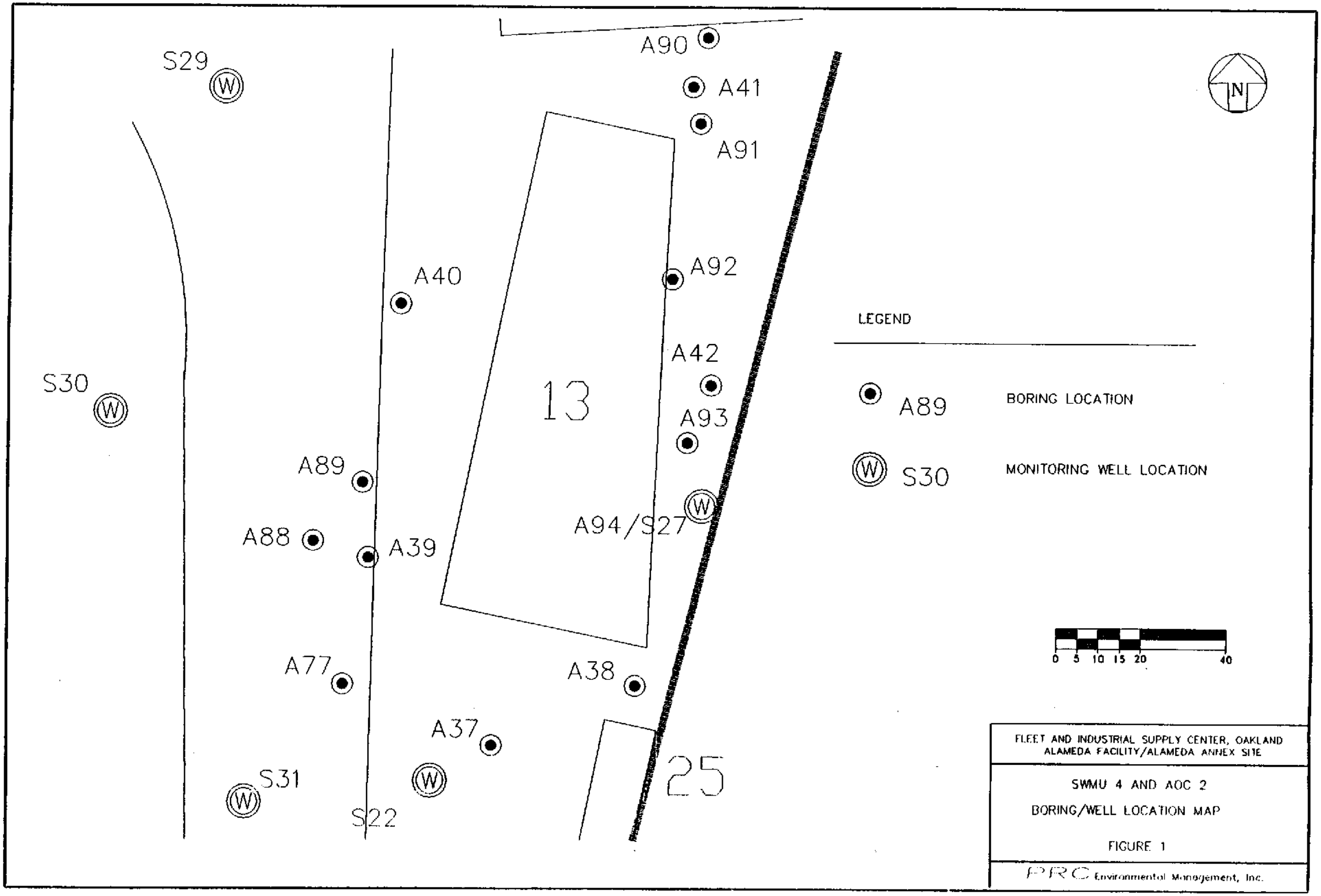
⊕ HY- Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

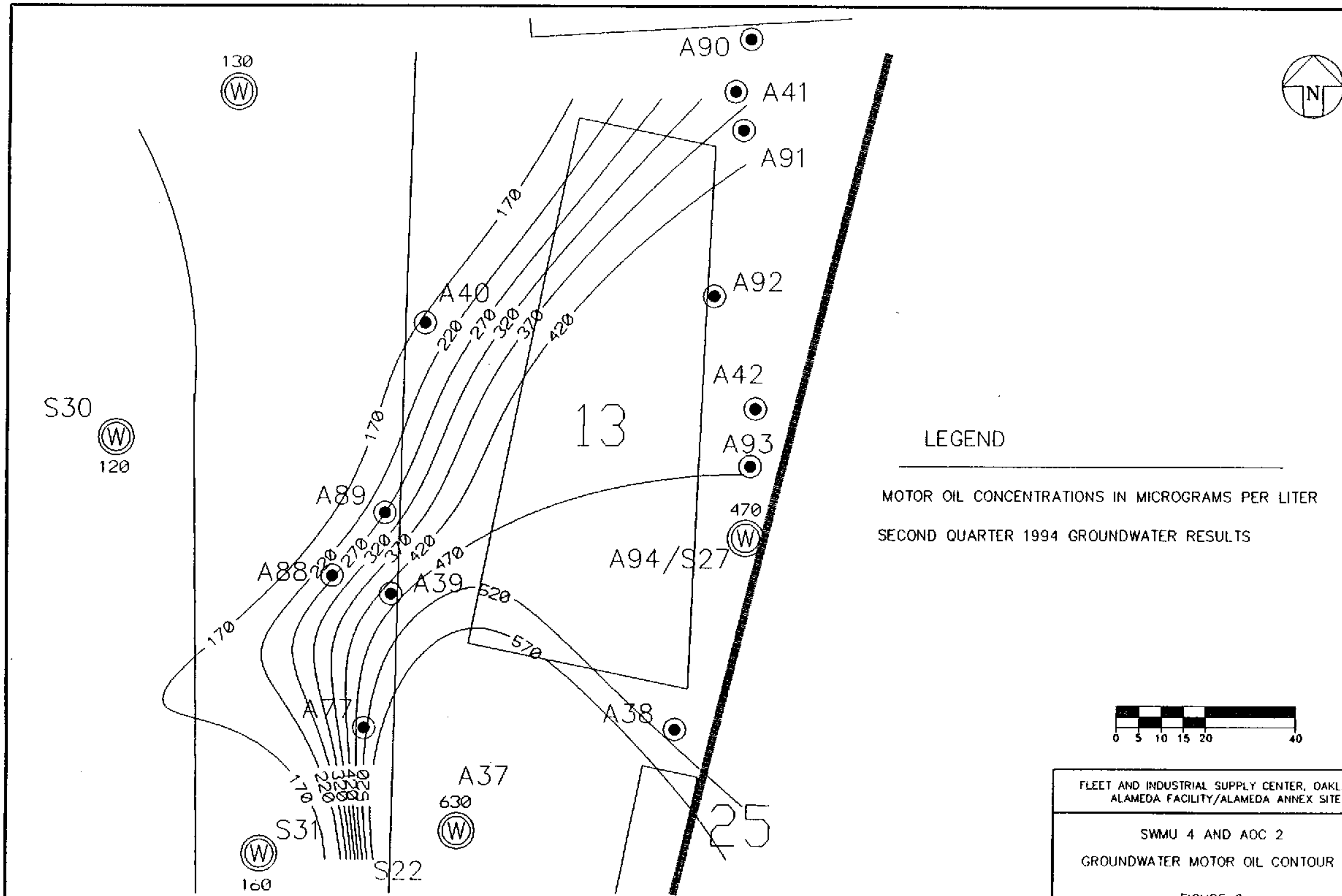
LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

APPENDIX VII
NAVY SITE INVESTIGATION DATA



S29
A90
A41
A91
A40
A92
S30
13
A42
A93
A89
A88
A39
A94/S27
A77
A38
A37
S31
S22
25
LEGEND
A89 BORING LOCATION
S30 MONITORING WELL LOCATION
0 5 10 15 20 40
N
FLEET AND INDUSTRIAL SUPPLY CENTER, OAKLAND
ALAMEDA FACILITY/ALAMEDA ANNEX SITE
SWMU 4 AND AOC 2
BORING/WELL LOCATION MAP
FIGURE 1
PRC Environmental Management, Inc.



LEGEND

MOTOR OIL CONCENTRATIONS IN MICROGRAMS PER LITER

SECOND QUARTER 1994 GROUNDWATER RESULTS

0 5 10 15 20 40

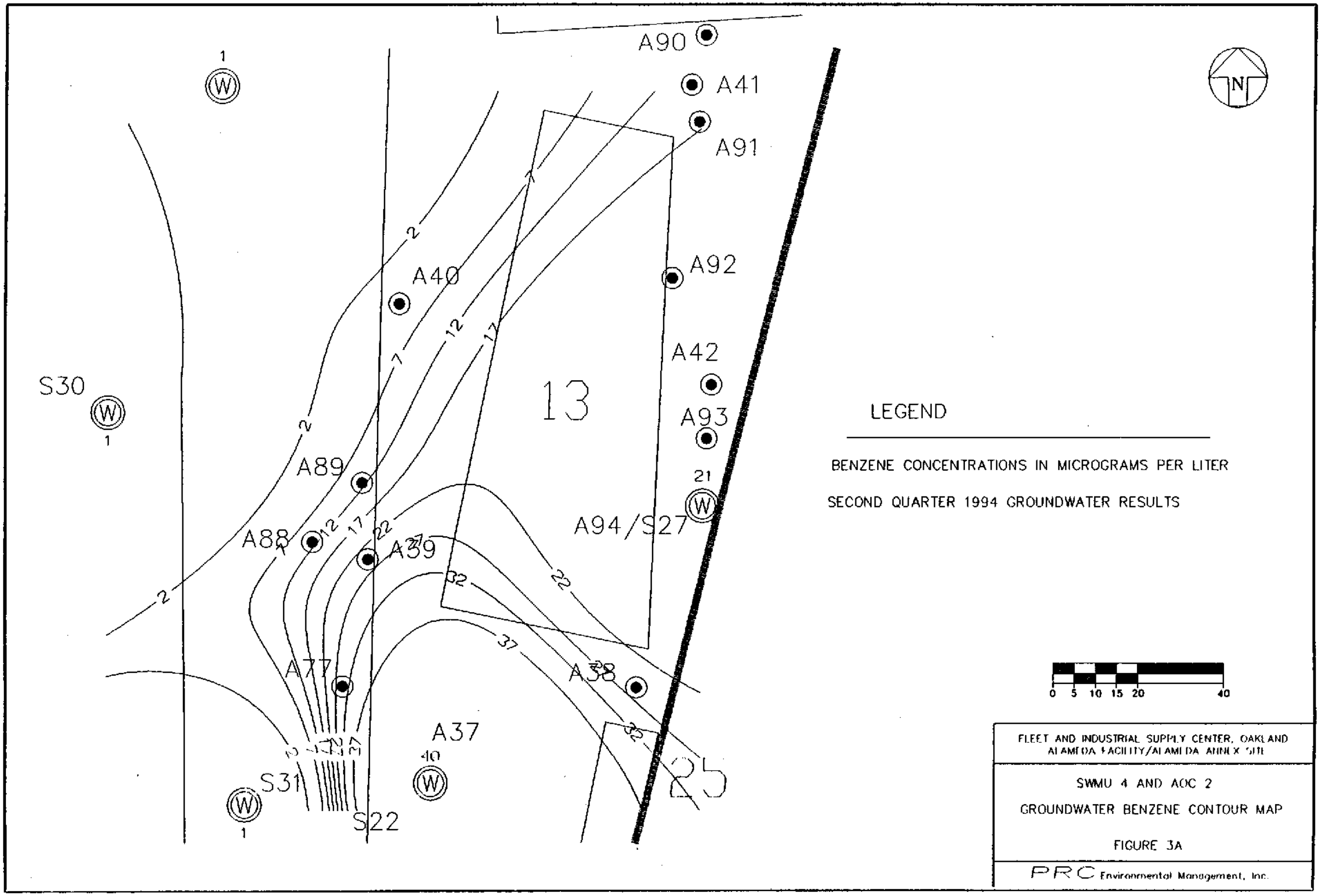
FLEET AND INDUSTRIAL SUPPLY CENTER, OAKLAND
ALAMEDA FACILITY/ALAMEDA ANNEX SITE

SWMU 4 AND AOC 2

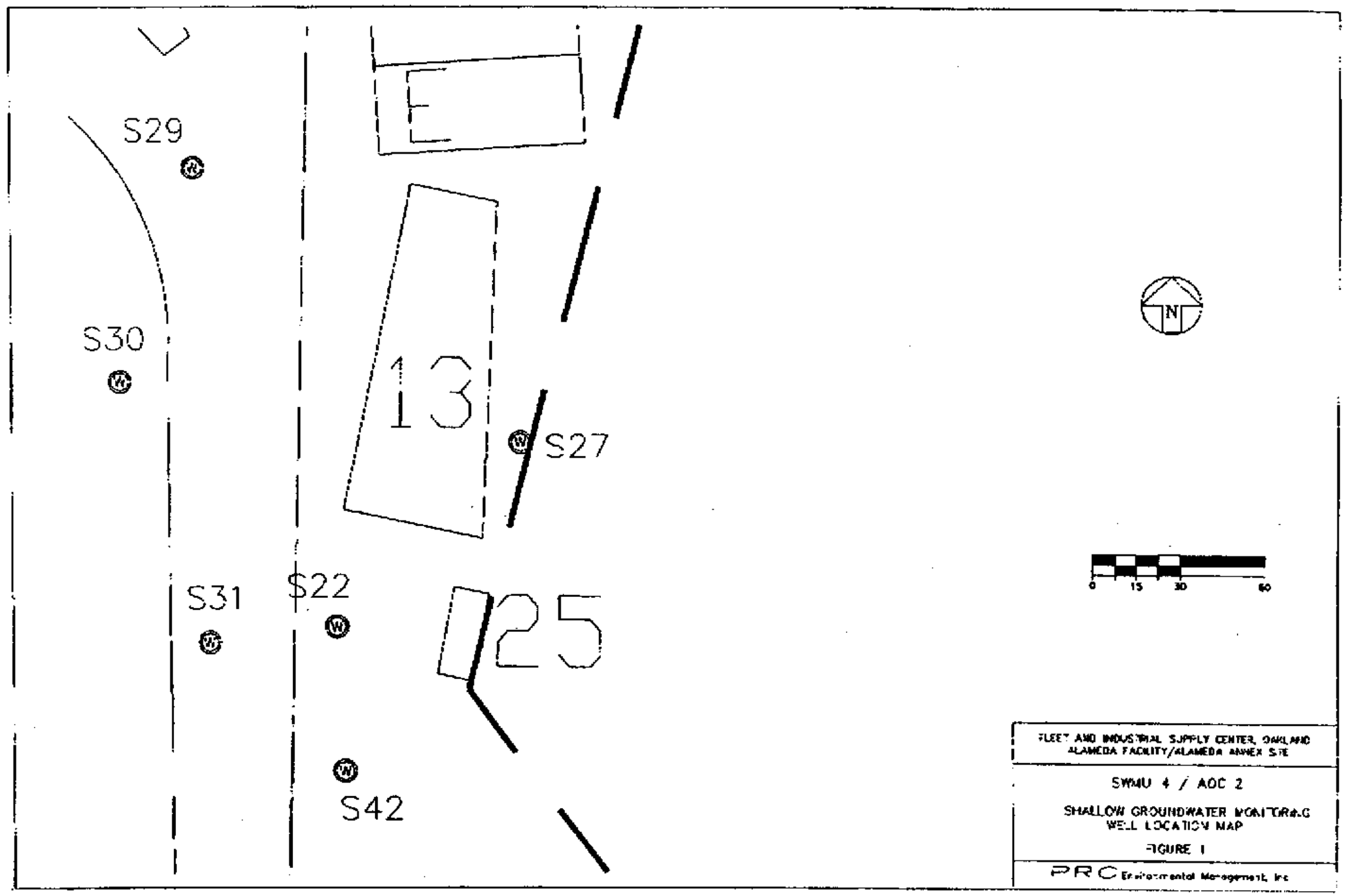
GROUNDWATER MOTOR OIL CONTOUR MAP

FIGURE 2

PRC Environmental Management, Inc.



A90
A41
A91
A92
A40
A42
13
A93
21
A94/S27
A89
A88
A39
S30
1
A77
A38
A37
40
S31
S22
25
N
LEGEND
BENZENE CONCENTRATIONS IN MICROGRAMS PER LITER
SECOND QUARTER 1994 GROUNDWATER RESULTS
0 5 10 15 20 40
FLEET AND INDUSTRIAL SUPPLY CENTER, OAKLAND
ALAMEDA FACILITY/ALAMEDA ANNEX SITE
SWMU 4 AND AOC 2
GROUNDWATER BENZENE CONTOUR MAP
FIGURE 3A
PRC Environmental Management, Inc.


S29
S30
S31
S22
S42
S27
13
25
N
0 15 30 60
FLEET AND INDUSTRIAL SUPPLY CENTER, OAKLAND
ALAMEDA FACILITY/ALAMEDA ANNEX SITE
SWMU 4 / AOC 2
SHALLOW GROUNDWATER MONITORING
WELL LOCATION MAP
FIGURE 1
PRC Environmental Management, Inc

SWMU 4 POSITIVE HITS VOLATILES

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	Matrix
A3720	A37	2	2-BUTANONE	11	J	UG/KG	S
A3755	A37	5.5	2-BUTANONE	11	J	UG/KG	S
A3755	A37	5.5	XYLENE (TOTAL)	3	J	UG/KG	S
A3815	A38	1.5	2-BUTANONE	6	J	UG/KG	S
A3840	A38	4	2-BUTANONE	6	J	UG/KG	S
A3940	A39	4	2-BUTANONE	8	J	UG/KG	S
A4125D	A41	2.5	CHLOROFORM	20		UG/KG	S
A4125D	A41	2.5	TOLUENE	5	J	UG/KG	S
A771.5	A77	1.5	ACETONE	6	BJ	UG/KG	S
A775.0	A77	5	ACETONE	56	B	UG/KG	S
A771.5	A77	1.5	METHYLENE CHLORIDE	8	BJ	UG/KG	S
A775.0	A77	5	METHYLENE CHLORIDE	7	BJ	UG/KG	S
A881.0	A88	1	ACETONE	15		UG/KG	S
A884.5	A88	4.5	ACETONE	64		UG/KG	S
A884.5	A88	4.5	CARBON DISULFIDE	5	J	UG/KG	S
A881.0	A88	1	ETHYLBENZENE	4	J	UG/KG	S
A881.0	A88	1	METHYLENE CHLORIDE	15		UG/KG	S
A884.5	A88	4.5	METHYLENE CHLORIDE	12		UG/KG	S
A881.0	A88	1	XYLENE (TOTAL)	24		UG/KG	S
A89C0.5	A89	.5	ACETONE	14		UG/KG	S
A89C3.5	A89	3.5	ACETONE	34		UG/KG	S
A89C5.0	A89	5	ACETONE	32		UG/KG	S
A89C0.5	A89	.5	METHYLENE CHLORIDE	14	B	UG/KG	S
A89C3.5	A89	3.5	METHYLENE CHLORIDE	17		UG/KG	S
A89C5.0	A89	5	METHYLENE CHLORIDE	13		UG/KG	S
A90A1.0	A90	1	ACETONE	24		UG/KG	S
A90A4.0	A90	4	ACETONE	14		UG/KG	S
A90A6.5	A90	6.5	ACETONE	24		UG/KG	S
A90A4.0	A90	4	CHLOROFORM	5	J	UG/KG	S
A90A1.0	A90	1	METHYLENE CHLORIDE	22		UG/KG	S
A90A4.0	A90	4	METHYLENE CHLORIDE	33	B	UG/KG	S
A90A6.5	A90	6.5	METHYLENE CHLORIDE	27	B	UG/KG	S
A911.0	A91	1	ACETONE	140		UG/KG	S
A915.5	A91	5.5	ACETONE	22		UG/KG	S
A911.0	A91	1	METHYLENE CHLORIDE	13		UG/KG	S
A914.0	A91	4	METHYLENE CHLORIDE	13		UG/KG	S
A915.5	A91	5.5	METHYLENE CHLORIDE	9	J	UG/KG	S
A921.0	A92	1	ACETONE	37		UG/KG	S
A923.0	A92	3	ACETONE	53		UG/KG	S
A925.0	A92	5	ACETONE	18		UG/KG	S
A925.5D	A92	5.5	ACETONE	22		UG/KG	S
A921.0	A92	1	METHYLENE CHLORIDE	22	B	UG/KG	S
A923.0	A92	3	METHYLENE CHLORIDE	19	B	UG/KG	S
A925.0	A92	5	METHYLENE CHLORIDE	20	B	UG/KG	S
A925.5D	A92	5.5	METHYLENE CHLORIDE	24	B	UG/KG	S
A93A1.0	A93	1	ACETONE	9	J	UG/KG	S
A93A3.5	A93	3.5	ACETONE	200		UG/KG	S
A93A1.0	A93	1	METHYLENE CHLORIDE	16		UG/KG	S
A93A3.5	A93	3.5	METHYLENE CHLORIDE	50	J	UG/KG	S
A941.5	A94	1.5	ACETONE	35		UG/KG	S
A941.5	A94	1.5	METHYLENE CHLORIDE	26	B	UG/KG	S
S223.0	S22	3	ACETONE	43	B	UG/KG	S
S223.0	S22	3	METHYLENE CHLORIDE	6	BJ	UG/KG	S
S294.0	S29	4	2-BUTANONE	8	J	UG/KG	S
S291.5	S29	1.5	ACETONE	7	J	UG/KG	S
S294.0	S29	4	ACETONE	44		UG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
S296.0	S29	6	ACETONE	28		UG/KG	S
S296.0	S29	6	CARBON DISULFIDE	8	J	UG/KG	S
S291.5	S29	1.5	METHYLENE CHLORIDE	13	B	UG/KG	S
S294.0	S29	4	METHYLENE CHLORIDE	12	B	UG/KG	S
S296.0	S29	6	METHYLENE CHLORIDE	16	B	UG/KG	S
S302.5	S30	2.5	2-BUTANONE	23		UG/KG	S
S300.5	S30	.5	4-METHYL-2-PENTANONE	6	J	UG/KG	S
S302.5	S30	2.5	ACETONE	150	B	UG/KG	S
S305.5	S30	5.5	ACETONE	47	B	UG/KG	S
S300.5	S30	.5	METHYLENE CHLORIDE	15		UG/KG	S
S302.5	S30	2.5	METHYLENE CHLORIDE	16		UG/KG	S
S305.5	S30	5.5	METHYLENE CHLORIDE	14		UG/KG	S
S300.5	S30	.5	XYLENE (TOTAL)	13		UG/KG	S
S312.5	S31	2.5	2-BUTANONE	15		UG/KG	S
S310.5	S31	.5	ACETONE	26	B	UG/KG	S
S312.5	S31	2.5	ACETONE	100		UG/KG	S
S314.5	S31	4.5	ACETONE	29		UG/KG	S
S312.5	S31	2.5	CARBON DISULFIDE	6	J	UG/KG	S
S310.5	S31	.5	METHYLENE CHLORIDE	13		UG/KG	S
S312.5	S31	2.5	METHYLENE CHLORIDE	12	BJ	UG/KG	S
S314.5	S31	4.5	METHYLENE CHLORIDE	28		UG/KG	S
GW2S22	S22		1,2-DICHLOROETHENE (TOTAL)	.8	J	UG/L	W
GW2S22D	S22		1,2-DICHLOROETHENE (TOTAL)	.8	J	UG/L	W
EBS22	S22	0	ACETONE	11		UG/L	W
GW2S22	S22		BENZENE	39		UG/L	W
GW2S22D	S22		BENZENE	40		UG/L	W
GW2S22	S22		ETHYLBENZENE	.7	J	UG/L	W
GW2S22D	S22		ETHYLBENZENE	.7	J	UG/L	W
TBEBS22	S22		METHYLENE CHLORIDE	.9	J	UG/L	W
GW2S22D	S22		STYRENE	.5	J	UG/L	W
EBS22	S22	0	TOLUENE	2	J	UG/L	W
GW2S22	S22		TOLUENE	3	J	UG/L	W
GW2S22D	S22		TOLUENE	4	J	UG/L	W
GW2S22	S22		VINYL CHLORIDE	8		UG/L	W
GW2S22D	S22		VINYL CHLORIDE	9		UG/L	W
EBS22	S22	0	XYLENE (TOTAL)	2	J	UG/L	W
GW2S22	S22		XYLENE (TOTAL)	4	J	UG/L	W
GW2S22D	S22		XYLENE (TOTAL)	4	J	UG/L	W
GW2S27	S27		ACETONE	7	J	UG/L	W
GW2S27	S27		BENZENE	21		UG/L	W
GW2S27	S27		ETHYLBENZENE	.8	J	UG/L	W
GW2S27	S27		TOLUENE	5	J	UG/L	W
GW2S27	S27		XYLENE (TOTAL)	5	J	UG/L	W
TBS29	S29		METHYLENE CHLORIDE	2	BJ	UG/L	W
GW2S29	S29		TOLUENE	1	J	UG/L	W
GW2S29D	S29		TOLUENE	2	J	UG/L	W
GW2S29EB	S29		TOLUENE	2	J	UG/L	W
GW2S29	S29		XYLENE (TOTAL)	1	J	UG/L	W
GW2S29D	S29		XYLENE (TOTAL)	2	J	UG/L	W
GW2S29EB	S29		XYLENE (TOTAL)	2	J	UG/L	W
TBS30	S30		METHYLENE CHLORIDE	2	BJ	UG/L	W
GW2S30	S30		TOLUENE	1	J	UG/L	W
GW2S30	S30		XYLENE (TOTAL)	1	J	UG/L	W
TBS31	S31		METHYLENE CHLORIDE	2	BJ	UG/L	W
GW2S31	S31		TOLUENE	2	J	UG/L	W
GW2S31	S31		XYLENE (TOTAL)	2	J	UG/L	W

GW SAMPLING
~~[illegible]~~ '94
JUNE

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A3755	A37	5.5	FLUORANTHENE	50	J	UG/KG	S
A3755	A37	5.5	PYRENE	68	J	UG/KG	S
A3815	A38	1.5	ANTHRACENE	19	J	UG/KG	S
A3815	A38	1.5	BENZO(A)ANTHRACENE	72	J	UG/KG	S
A3840	A38	4	BENZO(A)ANTHRACENE	30	J	UG/KG	S
A3840 RE	A38	4	BENZO(A)ANTHRACENE	30	J	UG/KG	S
A3815	A38	1.5	BENZO(A)PYRENE	96	J	UG/KG	S
A3815	A38	1.5	BENZO(B)FLUORANTHENE	71	J	UG/KG	S
A3815	A38	1.5	BENZO(G,H,I)PERYLENE	110	J	UG/KG	S
A3815	A38	1.5	BENZO(K)FLUORANTHENE	40	J	UG/KG	S
A3815	A38	1.5	CHRYSENE	170	J	UG/KG	S
A3840	A38	4	CHRYSENE	74	J	UG/KG	S
A3840 RE	A38	4	CHRYSENE	78	J	UG/KG	S
A3815	A38	1.5	FLUORANTHENE	84	J	UG/KG	S
A3840	A38	4	FLUORANTHENE	26	J	UG/KG	S
A3840 RE	A38	4	FLUORANTHENE	26	J	UG/KG	S
A3815	A38	1.5	INDENO(1,2,3-CD)PYRENE	48	J	UG/KG	S
A3815	A38	1.5	PHENANTHRENE	120	J	UG/KG	S
A3840	A38	4	PHENANTHRENE	61	J	UG/KG	S
A3840 RE	A38	4	PHENANTHRENE	61	J	UG/KG	S
A3815	A38	1.5	PYRENE	210	J	UG/KG	S
A3840	A38	4	PYRENE	82	J	UG/KG	S
A3840 RE	A38	4	PYRENE	79	J	UG/KG	S
A3920	A39	2	2-METHYLNAPHTHALENE	36	J	UG/KG	S
A3940	A39	4	ACENAPHTHENE	76	J	UG/KG	S
A3920	A39	2	ACENAPHTHYLENE	44	J	UG/KG	S
A3940	A39	4	ACENAPHTHYLENE	270	J	UG/KG	S
A3940 DL	A39	4	ACENAPHTHYLENE	280	J	UG/KG	S
A3920	A39	2	ANTHRACENE	46	J	UG/KG	S
A3940	A39	4	ANTHRACENE	860		UG/KG	S
A3940 DL	A39	4	ANTHRACENE	850	D	UG/KG	S
A3920	A39	2	BENZO(A)ANTHRACENE	420		UG/KG	S
A3940	A39	4	BENZO(A)ANTHRACENE	1500		UG/KG	S
A3940 DL	A39	4	BENZO(A)ANTHRACENE	1600	D	UG/KG	S
A3920	A39	2	BENZO(A)PYRENE	1000		UG/KG	S
A3940	A39	4	BENZO(A)PYRENE	2400		UG/KG	S
A3940 DL	A39	4	BENZO(A)PYRENE	2900	D	UG/KG	S
A3920	A39	2	BENZO(B)FLUORANTHENE	690		UG/KG	S
A3940	A39	4	BENZO(B)FLUORANTHENE	1300		UG/KG	S
A3940 DL	A39	4	BENZO(B)FLUORANTHENE	1800	D	UG/KG	S
A3920	A39	2	BENZO(G,H,I)PERYLENE	2000		UG/KG	S
A3940	A39	4	BENZO(G,H,I)PERYLENE	2000	J	UG/KG	S
A3940 DL	A39	4	BENZO(G,H,I)PERYLENE	2400	D	UG/KG	S
A3920	A39	2	BENZO(K)FLUORANTHENE	320	J	UG/KG	S
A3940	A39	4	BENZO(K)FLUORANTHENE	1400		UG/KG	S
A3940 DL	A39	4	BENZO(K)FLUORANTHENE	1800	D	UG/KG	S
A3920	A39	2	CHRYSENE	640		UG/KG	S
A3940	A39	4	CHRYSENE	1700		UG/KG	S
A3940 DL	A39	4	CHRYSENE	1800	D	UG/KG	S
A3920	A39	2	FLUORANTHENE	280	J	UG/KG	S
A3940	A39	4	FLUORANTHENE	3900	J	UG/KG	S
A3940 DL	A39	4	FLUORANTHENE	4600	D	UG/KG	S
A3940	A39	4	FLUORENE	360	J	UG/KG	S
A3940 DL	A39	4	FLUORENE	370	J	UG/KG	S
A3920	A39	2	INDENO(1,2,3-CD)PYRENE	830		UG/KG	S
A3940	A39	4	INDENO(1,2,3-CD)PYRENE	1400		UG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A3940 DL	A39	4	INDENO(1,2,3-CD)PYRENE	1800	D	UG/KG	S
A3920	A39	2	NAPHTHALENE	29	J	UG/KG	S
A3920	A39	2	PHENANTHRENE	350	J	UG/KG	S
A3940	A39	4	PHENANTHRENE	3800	J	UG/KG	S
A3940 DL	A39	4	PHENANTHRENE	4700	D	UG/KG	S
A3920	A39	2	PYRENE	1300		UG/KG	S
A3940	A39	4	PYRENE	4200	J	UG/KG	S
A3940 DL	A39	4	PYRENE	5400	D	UG/KG	S
A4030	A40	3	ANTHRACENE	10	J	UG/KG	S
A4030	A40	3	BENZO(A)ANTHRACENE	51	J	UG/KG	S
A4030	A40	3	BENZO(A)PYRENE	69	J	UG/KG	S
A4030	A40	3	BENZO(B)FLUORANTHENE	42	J	UG/KG	S
A4030	A40	3	BENZO(K)FLUORANTHENE	52	J	UG/KG	S
A4030	A40	3	CHRYSENE	70	J	UG/KG	S
A4030	A40	3	FLUORANTHENE	130	J	UG/KG	S
A4030	A40	3	PHENANTHRENE	53	J	UG/KG	S
A4030	A40	3	PYRENE	170	J	UG/KG	S
A4125D	A41	2.5	2-METHYLNAPHTHALENE	51	J	UG/KG	S
A4125D	A41	2.5	ANTHRACENE	36	J	UG/KG	S
A4120	A41	2	BENZO(A)ANTHRACENE	43	J	UG/KG	S
A4120	A41	2	BENZO(A)PYRENE	63	J	UG/KG	S
A4125D	A41	2.5	BENZO(A)PYRENE	190	J	UG/KG	S
A4120	A41	2	BENZO(B)FLUORANTHENE	51	J	UG/KG	S
A4125D	A41	2.5	BENZO(B)FLUORANTHENE	190	J	UG/KG	S
A4125D	A41	2.5	BENZO(G,H,I)PERYLENE	210	J	UG/KG	S
A4120	A41	2	BENZO(K)FLUORANTHENE	29	J	UG/KG	S
A4125D	A41	2.5	BENZO(K)FLUORANTHENE	120	J	UG/KG	S
A4120	A41	2	CHRYSENE	60	J	UG/KG	S
A4125D	A41	2.5	CHRYSENE	260	J	UG/KG	S
A4120	A41	2	FLUORANTHENE	48	J	UG/KG	S
A4125D	A41	2.5	FLUORANTHENE	240	J	UG/KG	S
A4125D	A41	2.5	INDENO(1,2,3-CD)PYRENE	150	J	UG/KG	S
A4125D	A41	2.5	NAPHTHALENE	81	J	UG/KG	S
A4120	A41	2	PHENANTHRENE	54	J	UG/KG	S
A4125D	A41	2.5	PHENANTHRENE	310	J	UG/KG	S
A4120	A41	2	PYRENE	91	J	UG/KG	S
A4125D	A41	2.5	PYRENE	400		UG/KG	S
A4245	A42	4.5	ANTHRACENE	83	J	UG/KG	S
A4215	A42	1.5	BENZO(A)ANTHRACENE	130	J	UG/KG	S
A4245	A42	4.5	BENZO(A)ANTHRACENE	230	J	UG/KG	S
A4215	A42	1.5	BENZO(A)PYRENE	310	J	UG/KG	S
A4245	A42	4.5	BENZO(A)PYRENE	170	J	UG/KG	S
A4215	A42	1.5	BENZO(B)FLUORANTHENE	170	J	UG/KG	S
A4245	A42	4.5	BENZO(B)FLUORANTHENE	180	J	UG/KG	S
A4245	A42	4.5	BENZO(G,H,I)PERYLENE	200	J	UG/KG	S
A4215	A42	1.5	BENZO(K)FLUORANTHENE	100	J	UG/KG	S
A4245	A42	4.5	BENZO(K)FLUORANTHENE	170	J	UG/KG	S
A4215	A42	1.5	CHRYSENE	220	J	UG/KG	S
A4245	A42	4.5	CHRYSENE	250	J	UG/KG	S
A4245	A42	4.5	DIBENZ(A,H)ANTHRACENE	30	J	UG/KG	S
A4215	A42	1.5	FLUORANTHENE	210	J	UG/KG	S
A4245	A42	4.5	FLUORANTHENE	690		UG/KG	S
A4215	A42	1.5	INDENO(1,2,3-CD)PYRENE	180	J	UG/KG	S
A4245	A42	4.5	INDENO(1,2,3-CD)PYRENE	150	J	UG/KG	S
A4215	A42	1.5	PHENANTHRENE	130	J	UG/KG	S
A4245	A42	4.5	PHENANTHRENE	510		UG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A4215	A42	1.5	PYRENE	640	J	UG/KG	S
A4245	A42	4.5	PYRENE	720		UG/KG	S
A771.5	A77	1.5	BIS(2-ETHYLHEXYL)PHTHALATE	910	B	UG/KG	S
A775.0	A77	5	BIS(2-ETHYLHEXYL)PHTHALATE	1100	B	UG/KG	S
A884.5	A88	4.5	ANTHRACENE	56	J	UG/KG	S
A884.5	A88	4.5	BENZO(A)ANTHRACENE	220	J	UG/KG	S
A884.5	A88	4.5	BENZO(A)PYRENE	280	J	UG/KG	S
A884.5	A88	4.5	BENZO(B)FLUORANTHENE	280	J	UG/KG	S
A884.5	A88	4.5	BENZO(G,H,I)PERYLENE	150	J	UG/KG	S
A884.5	A88	4.5	BENZO(K)FLUORANTHENE	91	J	UG/KG	S
A881.0 DL	A88	1	BIS(2-ETHYLHEXYL)PHTHALATE	4300		UG/KG	S
A884.5	A88	4.5	CHRYSENE	230	J	UG/KG	S
A884.5	A88	4.5	FLUORANTHENE	440		UG/KG	S
A884.5	A88	4.5	INDENO(1,2,3-CD)PYRENE	120	J	UG/KG	S
A881.0	A88	1	PHENANTHRENE	20	J	UG/KG	S
A884.5	A88	4.5	PHENANTHRENE	140	J	UG/KG	S
A884.5	A88	4.5	PYRENE	620		UG/KG	S
A89C0.5	A89	.5	BIS(2-ETHYLHEXYL)PHTHALATE	250	J	UG/KG	S
A89C0.5 DL	A89	.5	BIS(2-ETHYLHEXYL)PHTHALATE	170	J	UG/KG	S
A89C5.0	A89	5	FLUORANTHENE	84	J	UG/KG	S
A89C5.0	A89	5	PHENANTHRENE	53	J	UG/KG	S
A89C5.0	A89	5	PYRENE	140	J	UG/KG	S
A90A4.0	A90	4	2-METHYLNAPHTHALENE	34	J	UG/KG	S
A90A4.0	A90	4	ANTHRACENE	13	J	UG/KG	S
A90A4.0	A90	4	BENZO(A)ANTHRACENE	67	J	UG/KG	S
A90A4.0	A90	4	BENZO(A)PYRENE	54	J	UG/KG	S
A90A4.0	A90	4	BENZO(B)FLUORANTHENE	68	J	UG/KG	S
A90A4.0	A90	4	BENZO(G,H,I)PERYLENE	60	J	UG/KG	S
A90A4.0	A90	4	BENZO(K)FLUORANTHENE	20	J	UG/KG	S
A90A1.0	A90	1	BIS(2-ETHYLHEXYL)PHTHALATE	7500	E	UG/KG	S
A90A1.0 DL	A90	1	BIS(2-ETHYLHEXYL)PHTHALATE	2700	B	UG/KG	S
A90A4.0	A90	4	BIS(2-ETHYLHEXYL)PHTHALATE	220	J	UG/KG	S
A90A6.5	A90	6.5	BIS(2-ETHYLHEXYL)PHTHALATE	470	B	UG/KG	S
A90A4.0	A90	4	CHRYSENE	120	J	UG/KG	S
A90A4.0	A90	4	FLUORANTHENE	82	J	UG/KG	S
A90A4.0	A90	4	NAPHTHALENE	27	J	UG/KG	S
A90A4.0	A90	4	PHENANTHRENE	130	J	UG/KG	S
A90A4.0	A90	4	PYRENE	160	J	UG/KG	S
A911.0	A91	1	2-METHYLNAPHTHALENE	98	J	UG/KG	S
A914.0	A91	4	2-METHYLNAPHTHALENE	93	J	UG/KG	S
A914.0	A91	4	ACENAPHTHENE	140	J	UG/KG	S
A914.0	A91	4	ACENAPHTHYLENE	9	J	UG/KG	S
A915.5	A91	5.5	ACENAPHTHYLENE	97	J	UG/KG	S
A914.0	A91	4	ANTHRACENE	120	J	UG/KG	S
A915.5	A91	5.5	ANTHRACENE	230	J	UG/KG	S
A914.0	A91	4	BENZO(A)ANTHRACENE	100	J	UG/KG	S
A915.5	A91	5.5	BENZO(A)ANTHRACENE	620		UG/KG	S
A914.0	A91	4	BENZO(A)PYRENE	61	J	UG/KG	S
A915.5	A91	5.5	BENZO(A)PYRENE	860		UG/KG	S
A914.0	A91	4	BENZO(B)FLUORANTHENE	93	J	UG/KG	S
A915.5	A91	5.5	BENZO(B)FLUORANTHENE	820		UG/KG	S
A914.0	A91	4	BENZO(G,H,I)PERYLENE	49	J	UG/KG	S
A915.5	A91	5.5	BENZO(G,H,I)PERYLENE	770		UG/KG	S
A914.0	A91	4	BENZO(K)FLUORANTHENE	27	J	UG/KG	S
A915.5	A91	5.5	BENZO(K)FLUORANTHENE	180	J	UG/KG	S
A911.0	A91	1	BIS(2-ETHYLHEXYL)PHTHALATE	85	J	UG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A914.0	A91	4	BIS(2-ETHYLHEXYL)PHTHALATE	86	J	UG/KG	S
A914.0	A91	4	CHRYSENE	110	J	UG/KG	S
A915.5	A91	5.5	CHRYSENE	650		UG/KG	S
A914.0	A91	4	DIBENZOFURAN	100	J	UG/KG	S
A914.0	A91	4	FLUORANTHENE	330	J	UG/KG	S
A915.5	A91	5.5	FLUORANTHENE	1400		UG/KG	S
A914.0	A91	4	FLUORENE	150	J	UG/KG	S
A915.5	A91	5.5	FLUORENE	81	J	UG/KG	S
A914.0	A91	4	INDENO(1,2,3-CD)PYRENE	35	J	UG/KG	S
A915.5	A91	5.5	INDENO(1,2,3-CD)PYRENE	540		UG/KG	S
A911.0	A91	1	NAPHTHALENE	20	J	UG/KG	S
A914.0	A91	4	NAPHTHALENE	190	J	UG/KG	S
A911.0	A91	1	PHENANTHRENE	49	J	UG/KG	S
A914.0	A91	4	PHENANTHRENE	690		UG/KG	S
A915.5	A91	5.5	PHENANTHRENE	1100		UG/KG	S
A914.0	A91	4	PYRENE	440		UG/KG	S
A915.5	A91	5.5	PYRENE	1700		UG/KG	S
A923.0	A92	3	2-METHYLNAPHTHALENE	53	J	UG/KG	S
A923.0	A92	3	ANTHRACENE	15	J	UG/KG	S
A923.0	A92	3	BENZO(A)ANTHRACENE	130	J	UG/KG	S
A921.0	A92	1	BIS(2-ETHYLHEXYL)PHTHALATE	4900	E	UG/KG	S
A921.0 DL	A92	1	BIS(2-ETHYLHEXYL)PHTHALATE	4100		UG/KG	S
A923.0	A92	3	BIS(2-ETHYLHEXYL)PHTHALATE	300	BJ	UG/KG	S
A925.0	A92	5	BIS(2-ETHYLHEXYL)PHTHALATE	410	B	UG/KG	S
A925.5D	A92	5.5	BIS(2-ETHYLHEXYL)PHTHALATE	310	BJ	UG/KG	S
A925.5D RE	A92	5.5	BIS(2-ETHYLHEXYL)PHTHALATE	210	BJ	UG/KG	S
A923.0	A92	3	CARBAZOLE	39	J	UG/KG	S
A923.0	A92	3	CHRYSENE	250	J	UG/KG	S
A923.0	A92	3	FLUORANTHENE	110	J	UG/KG	S
A925.5D	A92	5.5	FLUORANTHENE	22	J	UG/KG	S
A923.0	A92	3	NAPHTHALENE	35	J	UG/KG	S
A921.0	A92	1	PHENANTHRENE	62	J	UG/KG	S
A923.0	A92	3	PHENANTHRENE	220	J	UG/KG	S
A923.0	A92	3	PYRENE	290	J	UG/KG	S
A925.5D	A92	5.5	PYRENE	47	J	UG/KG	S
A93A3.5	A93	3.5	2-METHYLNAPHTHALENE	29	J	UG/KG	S
A93A5.5	A93	5.5	2-METHYLNAPHTHALENE	1100	J	UG/KG	S
A93A3.5	A93	3.5	ACENAPHTHENE	37	J	UG/KG	S
A93A3.5	A93	3.5	BENZO(A)ANTHRACENE	67	J	UG/KG	S
A93A3.5	A93	3.5	CHRYSENE	110	J	UG/KG	S
A93A3.5	A93	3.5	DIBENZOFURAN	46	J	UG/KG	S
A93A3.5	A93	3.5	FLUORANTHENE	270	J	UG/KG	S
A93A5.5	A93	5.5	FLUORANTHENE	680	J	UG/KG	S
A93A3.5	A93	3.5	FLUORENE	93	J	UG/KG	S
A93A5.5	A93	5.5	FLUORENE	1800	J	UG/KG	S
A93A3.5	A93	3.5	NAPHTHALENE	47	J	UG/KG	S
A93A3.5	A93	3.5	PHENANTHRENE	230	J	UG/KG	S
A93A5.5	A93	5.5	PHENANTHRENE	1400	J	UG/KG	S
A93A1.0	A93	1	PYRENE	27	J	UG/KG	S
A93A3.5	A93	3.5	PYRENE	200	J	UG/KG	S
A93A5.5	A93	5.5	PYRENE	1000	J	UG/KG	S
A941.5	A94	1.5	BIS(2-ETHYLHEXYL)PHTHALATE	2800	E	UG/KG	S
A941.5 DL	A94	1.5	BIS(2-ETHYLHEXYL)PHTHALATE	3100		UG/KG	S
A941.5	A94	1.5	PHENANTHRENE	63	J	UG/KG	S
S223.0	S22	3	ACENAPHTHYLENE	19	J	UG/KG	S
S223.0	S22	3	ANTHRACENE	23	J	UG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
S223.0	S22	3	BENZO(A)ANTHRACENE	160	J	UG/KG	S
S223.0	S22	3	BENZO(A)PYRENE	410		UG/KG	S
S223.0	S22	3	BENZO(B)FLUORANTHENE	370	J	UG/KG	S
S223.0	S22	3	BENZO(G,H,I)PERYLENE	900		UG/KG	S
S223.0	S22	3	BENZO(K)FLUORANTHENE	77	J	UG/KG	S
S223.0	S22	3	BIS(2-ETHYLHEXYL)PHTHALATE	130	BJ	UG/KG	S
S223.0	S22	3	CHRYSENE	250	J	UG/KG	S
S223.0	S22	3	FLUORANTHENE	230	J	UG/KG	S
S223.0	S22	3	INDENO(1,2,3-CD)PYRENE	440		UG/KG	S
S223.0	S22	3	NAPHTHALENE	16	J	UG/KG	S
S223.0	S22	3	PHENANTHRENE	140	J	UG/KG	S
S223.0	S22	3	PYRENE	640		UG/KG	S
S294.0	S29	4	2-METHYLNAPHTHALENE	110	J	UG/KG	S
S296.0	S29	6	2-METHYLNAPHTHALENE	54	J	UG/KG	S
S296.0	S29	6	ACENAPHTHENE	73	J	UG/KG	S
S294.0	S29	4	ACENAPHTHYLENE	21	J	UG/KG	S
S296.0	S29	6	ACENAPHTHYLENE	270	J	UG/KG	S
S296.0 DL	S29	6	ACENAPHTHYLENE	320	J	UG/KG	S
S294.0	S29	4	ANTHRACENE	48	J	UG/KG	S
S296.0	S29	6	ANTHRACENE	420		UG/KG	S
S296.0 DL	S29	6	ANTHRACENE	340	J	UG/KG	S
S294.0	S29	4	BENZO(A)ANTHRACENE	150	J	UG/KG	S
S296.0	S29	6	BENZO(A)ANTHRACENE	2400		UG/KG	S
S296.0 DL	S29	6	BENZO(A)ANTHRACENE	2000		UG/KG	S
S294.0	S29	4	BENZO(A)PYRENE	160	J	UG/KG	S
S296.0	S29	6	BENZO(A)PYRENE	3200	E	UG/KG	S
S296.0 DL	S29	6	BENZO(A)PYRENE	3800		UG/KG	S
S294.0	S29	4	BENZO(B)FLUORANTHENE	180	J	UG/KG	S
S296.0	S29	6	BENZO(B)FLUORANTHENE	3100		UG/KG	S
S296.0 DL	S29	6	BENZO(B)FLUORANTHENE	4100		UG/KG	S
S294.0	S29	4	BENZO(G,H,I)PERYLENE	200	J	UG/KG	S
S296.0	S29	6	BENZO(G,H,I)PERYLENE	3800	E	UG/KG	S
S296.0 DL	S29	6	BENZO(G,H,I)PERYLENE	1700	J	UG/KG	S
S294.0	S29	4	BENZO(K)FLUORANTHENE	50	J	UG/KG	S
S296.0	S29	6	BENZO(K)FLUORANTHENE	1300		UG/KG	S
S296.0 DL	S29	6	BENZO(K)FLUORANTHENE	1100	J	UG/KG	S
S294.0	S29	4	BIS(2-ETHYLHEXYL)PHTHALATE	70	J	UG/KG	S
S294.0	S29	4	CHRYSENE	210	J	UG/KG	S
S296.0	S29	6	CHRYSENE	2900		UG/KG	S
S296.0 DL	S29	6	CHRYSENE	2600		UG/KG	S
S296.0	S29	6	DIBENZOFURAN	47	J	UG/KG	S
S294.0	S29	4	FLUORANTHENE	410		UG/KG	S
S296.0	S29	6	FLUORANTHENE	4500	E	UG/KG	S
S296.0 DL	S29	6	FLUORANTHENE	6200		UG/KG	S
S296.0	S29	6	FLUORENE	88	J	UG/KG	S
S294.0	S29	4	INDENO(1,2,3-CD)PYRENE	130	J	UG/KG	S
S296.0	S29	6	INDENO(1,2,3-CD)PYRENE	2500		UG/KG	S
S296.0 DL	S29	6	INDENO(1,2,3-CD)PYRENE	1500	J	UG/KG	S
S294.0	S29	4	NAPHTHALENE	74	J	UG/KG	S
S296.0	S29	6	NAPHTHALENE	61	J	UG/KG	S
S294.0	S29	4	PHENANTHRENE	370		UG/KG	S
S296.0	S29	6	PHENANTHRENE	2400		UG/KG	S
S296.0 DL	S29	6	PHENANTHRENE	2100		UG/KG	S
S294.0	S29	4	PYRENE	580		UG/KG	S
S296.0	S29	6	PYRENE	16000	E	UG/KG	S
S296.0 DL	S29	6	PYRENE	8100		UG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
S302.5	S30	2.5	2-METHYLNAPHTHALENE	610		UG/KG	S
S302.5 DL	S30	2.5	2-METHYLNAPHTHALENE	470	J	UG/KG	S
S302.5	S30	2.5	ACENAPHTHENE	360	J	UG/KG	S
S302.5 DL	S30	2.5	ACENAPHTHENE	270	J	UG/KG	S
S305.5	S30	5.5	ACENAPHTHENE	40	J	UG/KG	S
S302.5	S30	2.5	ANTHRACENE	200	J	UG/KG	S
S302.5 DL	S30	2.5	ANTHRACENE	150	J	UG/KG	S
S302.5	S30	2.5	BENZO(A)ANTHRACENE	460		UG/KG	S
S302.5 DL	S30	2.5	BENZO(A)ANTHRACENE	320	J	UG/KG	S
S302.5	S30	2.5	BENZO(A)PYRENE	280	J	UG/KG	S
S302.5 DL	S30	2.5	BENZO(A)PYRENE	190	J	UG/KG	S
S302.5	S30	2.5	BENZO(B)FLUORANTHENE	330	J	UG/KG	S
S302.5	S30	2.5	BENZO(K)FLUORANTHENE	90	J	UG/KG	S
S302.5	S30	2.5	CARBAZOLE	100	J	UG/KG	S
S302.5	S30	2.5	CHRYSENE	440		UG/KG	S
S302.5 DL	S30	2.5	CHRYSENE	360	J	UG/KG	S
S302.5	S30	2.5	DIBENZOFURAN	86	J	UG/KG	S
S302.5	S30	2.5	FLUORANTHENE	750		UG/KG	S
S302.5 DL	S30	2.5	FLUORANTHENE	660	J	UG/KG	S
S305.5	S30	5.5	FLUORANTHENE	71	J	UG/KG	S
S302.5	S30	2.5	FLUORENE	150	J	UG/KG	S
S302.5 DL	S30	2.5	FLUORENE	120	J	UG/KG	S
S302.5	S30	2.5	NAPHTHALENE	5800	E	UG/KG	S
S302.5 DL	S30	2.5	NAPHTHALENE	4100		UG/KG	S
S302.5	S30	2.5	PHENANTHRENE	940		UG/KG	S
S302.5 DL	S30	2.5	PHENANTHRENE	720	J	UG/KG	S
S305.5	S30	5.5	PHENANTHRENE	35	J	UG/KG	S
S302.5	S30	2.5	PYRENE	970		UG/KG	S
S302.5 DL	S30	2.5	PYRENE	640	J	UG/KG	S
S305.5	S30	5.5	PYRENE	85	J	UG/KG	S
S314.5	S31	4.5	BENZO(A)ANTHRACENE	64	J	UG/KG	S
S310.5	S31	.5	BIS(2-ETHYLHEXYL)PHTHALATE	400		UG/KG	S
S310.5 DL	S31	.5	BIS(2-ETHYLHEXYL)PHTHALATE	240	J	UG/KG	S
S314.5	S31	4.5	CHRYSENE	74	J	UG/KG	S
S314.5	S31	4.5	FLUORANTHENE	110	J	UG/KG	S
S314.5	S31	4.5	PHENANTHRENE	51	J	UG/KG	S
S312.5	S31	2.5	PYRENE	1100	J	UG/KG	S
S314.5	S31	4.5	PYRENE	180	J	UG/KG	S
GW2S22	S22		ACENAPHTHENE	4	J	UG/L	W
GW2S22D	S22		ACENAPHTHENE	3	J	UG/L	W
EBS22	S22	0	BIS(2-ETHYLHEXYL)PHTHALATE	1	J	UG/L	W
GW2S22	S22		BIS(2-ETHYLHEXYL)PHTHALATE	3	J	UG/L	W
GW2S22D	S22		BIS(2-ETHYLHEXYL)PHTHALATE	4	J	UG/L	W
GW2S27	S27		2-METHYLNAPHTHALENE	.9	J	UG/L	W
GW2S27	S27		ACENAPHTHENE	.9	J	UG/L	W
GW2S27	S27		BIS(2-ETHYLHEXYL)PHTHALATE	3	BJ	UG/L	W
GW2S27	S27		FLUORENE	1	J	UG/L	W
GW2S29	S29		ACENAPHTHENE	1	J	UG/L	W
GW2S29D	S29		ACENAPHTHENE	1	J	UG/L	W
GW2S29	S29		BIS(2-ETHYLHEXYL)PHTHALATE	.8	J	UG/L	W
GW2S29D	S29		BIS(2-ETHYLHEXYL)PHTHALATE	2	J	UG/L	W
GW2S29	S29		FLUORANTHENE	.9	J	UG/L	W
GW2S29D	S29		FLUORANTHENE	.8	J	UG/L	W
GW2S29	S29		PHENANTHRENE	.6	J	UG/L	W
GW2S29	S29		PYRENE	2	J	UG/L	W
GW2S29D	S29		PYRENE	2	J	UG/L	W

J= detection limit (?)

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
GW2S30	S30		ACENAPHTHENE	12		UG/L	W
GW2S30	S30		ACENAPHTHYLENE	.6	J	UG/L	W
GW2S30	S30		BIS(2-ETHYLHEXYL)PHTHALATE	4	BJ	UG/L	W
GW2S30	S30		FLUORANTHENE	.8	J	UG/L	W
GW2S30	S30		PHENANTHRENE	.9	J	UG/L	W
GW2S30	S30		PYRENE	2	J	UG/L	W
GW2S31	S31		ACENAPHTHENE	3	J	UG/L	W
GW2S31	S31		BIS(2-ETHYLHEXYL)PHTHALATE	9	BJ	UG/L	W
GW2S31	S31		PYRENE	.6	J	UG/L	W

345 rows selected.

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old   4: WHERE C.SUB_AREA LIKE '%&&SUBAREA%'
new   4: WHERE C.SUB_AREA LIKE '%SWMU 4%'
```

SWMU 4 POSITIVE HITS PESTICIDES

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A90A6.5	A90	6.5	4,4'-DDT	2.2	J	UG/KG	S
A925.0	A92	5	4,4'-DDT	1.8	J	UG/KG	S

```
old   4: WHERE C.SUB_AREA LIKE '%&&SUBAREA%'
new   4: WHERE C.SUB_AREA LIKE '%SWMU 4%'
```

SWMU 4 POSITIVE HITS TPH

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A3720	A37	2	TPH MOTOR	14000		UG/KG	S
A3815	A38	1.5	TPH MOTOR	380000		UG/KG	S
A3840	A38	4	TPH MOTOR	1300000		UG/KG	S
A3920	A39	2	TPH MOTOR	1000000		UG/KG	S
A4030	A40	3	TPH MOTOR	30000		UG/KG	S
A4120	A41	2	TPH MOTOR	160000		UG/KG	S
A4125D	A41	2.5	TPH MOTOR	530000		UG/KG	S
A4245	A42	4.5	TPH GASOLI	590	J	UG/KG	S
A4215	A42	1.5	TPH MOTOR	260000		UG/KG	S
A4245	A42	4.5	TPH MOTOR	29000		UG/KG	S
A771.5	A77	1.5	TPH MOTOR	170000		UG/KG	S
A881.0	A88	1	TPH MOTOR	2800000		UG/KG	S
A884.5	A88	4.5	TPH MOTOR	11000	J	UG/KG	S
A89C0.5	A89	.5	TPH MOTOR	2100000		UG/KG	S
A89C3.5	A89	3.5	TPH MOTOR	76000		UG/KG	S
A89C5.0	A89	5	TPH MOTOR	600000		UG/KG	S
A90A1.0	A90	1	TPH GASOLI	270	J	UG/KG	S
A90A1.0	A90	1	TPH MOTOR	1900000		UG/KG	S
A90A4.0	A90	4	TPH MOTOR	330000		UG/KG	S
A911.0	A91	1	TPH MOTOR	1600000		UG/KG	S
A914.0	A91	4	TPH MOTOR	70000		UG/KG	S
A915.5	A91	5.5	TPH MOTOR	31000		UG/KG	S
A921.0	A92	1	TPH MOTOR	1700000		UG/KG	S
A923.0	A92	3	TPH MOTOR	470000		UG/KG	S
A93A1.0	A93	1	TPH DIESEL	120000	J	UG/KG	S
A93A5.5	A93	5.5	TPH DIESEL	1.1E+07		UG/KG	S
A93A1.0	A93	1	TPH GASOLI	970		UG/KG	S
A93A3.5	A93	3.5	TPH GASOLI	72000		UG/KG	S
A93A5.5	A93	5.5	TPH GASOLI	1300000		UG/KG	S
A93A1.0	A93	1	TPH MOTOR	1100000		UG/KG	S
A93A3.5	A93	3.5	TPH MOTOR	1600000		UG/KG	S
A93A5.5	A93	5.5	TPH MOTOR	2000000		UG/KG	S
A941.5	A94	1.5	TPH MOTOR	2000000		UG/KG	S
S223.0	S22	3	TPH MOTOR	800000		UG/KG	S
S296.0	S29	6	TPH DIESEL	130000		UG/KG	S
S291.5	S29	1.5	TPH MOTOR	1500000		UG/KG	S
S294.0	S29	4	TPH MOTOR	810000		UG/KG	S
S296.0	S29	6	TPH MOTOR	170000		UG/KG	S
S300.5	S30	.5	TPH MOTOR	2800000		UG/KG	S
S302.5	S30	2.5	TPH MOTOR	300000		UG/KG	S
S312.5	S31	2.5	TPH DIESEL	5000000	Y	UG/KG	S
S312.5	S31	2.5	TPH GASOLI	320	J	UG/KG	S
S310.5	S31	.5	TPH MOTOR	1200000		UG/KG	S
S312.5	S31	2.5	TPH MOTOR	6500000		UG/KG	S
GW2S22	S22		TOTAL DISS	705		MG/L	W
GW2S22D	S22		TOTAL DISS	722		MG/L	W
GW2S22	S22		TPH DIESEL	1100		UG/L	W
GW2S22D	S22		TPH DIESEL	1300		UG/L	W
EBS22	S22	0	TPH GASOLI	32	J	UG/L	W
GW2S22	S22		TPH GASOLI	260		UG/L	W
GW2S22D	S22		TPH GASOLI	240		UG/L	W
GW2S22	S22		TPH MOTOR	540		UG/L	W
GW2S22D	S22		TPH MOTOR	630		UG/L	W
GW2S27	S27		TOTAL DISS	3420		MG/L	W
GW2S27	S27		TPH DIESEL	3200		UG/L	W
GW2S27	S27		TPH GASOLI	740		UG/L	W

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
GW2S27	S27		TPH MOTOR	470	J	UG/L	W
GW2S29	S29		TOTAL DISS	1210		MG/L	W
GW2S29D	S29		TOTAL DISS	1380		MG/L	W
GW2S29	S29		TPH DIESEL	160		UG/L	W
GW2S29D	S29		TPH DIESEL	170		UG/L	W
GW2S29	S29		TPH GASOLI	31	J	UG/L	W
GW2S29EB	S29		TPH GASOLI	25	J	UG/L	W
GW2S29	S29		TPH MOTOR	130		UG/L	W
GW2S29D	S29		TPH MOTOR	130		UG/L	W
GW2S30	S30		TOTAL DISS	1210		MG/L	W
GW2S30	S30		TPH DIESEL	170		UG/L	W
GW2S30	S30		TPH GASOLI	28	J	UG/L	W
GW2S30	S30		TPH MOTOR	120		UG/L	W
GW2S31	S31		TOTAL DISS	2210		MG/L	W
GW2S31	S31		TPH DIESEL	200		UG/L	W
GW2S31	S31		TPH GASOLI	30	J	UG/L	W
GW2S31	S31		TPH MOTOR	160		UG/L	W

73 rows selected.

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old   4: WHERE C.SUB_AREA LIKE '%&&SUBAREA%'
new   4: WHERE C.SUB_AREA LIKE '%SWMU 4%'
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Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A3720	A37	2	ALUMINUM	25400		MG/KG	S
A3755	A37	5.5	ALUMINUM	3170		MG/KG	S
A3720	A37	2	ARSENIC	2.1	J	MG/KG	S
A3755	A37	5.5	ARSENIC	.58	J	MG/KG	S
A3720	A37	2	BARIUM	230		MG/KG	S
A3755	A37	5.5	BARIUM	21.5	J	MG/KG	S
A3720	A37	2	BERYLLIUM	.33	J	MG/KG	S
A3755	A37	5.5	BERYLLIUM	.08	J	MG/KG	S
A3720	A37	2	CADMIUM	.51		MG/KG	S
A3720	A37	2	CALCIUM	12300		MG/KG	S
A3755	A37	5.5	CALCIUM	1580		MG/KG	S
A3720	A37	2	CHROMIUM	.9	J	MG/KG	S
A3755	A37	5.5	CHROMIUM	23.6	J	MG/KG	S
A3720	A37	2	COBALT	15.6	J	MG/KG	S
A3755	A37	5.5	COBALT	3.5	J	MG/KG	S
A3720	A37	2	COPPER	32.1		MG/KG	S
A3755	A37	5.5	COPPER	4.1		MG/KG	S
A3720	A37	2	IRON	36700		MG/KG	S
A3755	A37	5.5	IRON	5570		MG/KG	S
A3720	A37	2	LEAD	4.2	J	MG/KG	S
A3755	A37	5.5	LEAD	6.4	J	MG/KG	S
A3720	A37	2	MAGNESIUM	5790		MG/KG	S
A3755	A37	5.5	MAGNESIUM	1410		MG/KG	S
A3720	A37	2	MANGANESE	915		MG/KG	S
A3755	A37	5.5	MANGANESE	55.4		MG/KG	S
A3720	A37	2	NICKEL	3.6		MG/KG	S
A3755	A37	5.5	NICKEL	17.8		MG/KG	S
A3720	A37	2	POTASSIUM	382	J	MG/KG	S
A3755	A37	5.5	POTASSIUM	408	J	MG/KG	S
A3720	A37	2	SODIUM	996	J	MG/KG	S
A3755	A37	5.5	SODIUM	72.6	J	MG/KG	S
A3755	A37	5.5	THALLIUM	.34	J	MG/KG	S
A3720	A37	2	VANADIUM	36.7		MG/KG	S
A3755	A37	5.5	VANADIUM	14		MG/KG	S
A3720	A37	2	ZINC	75.7	J	MG/KG	S
A3755	A37	5.5	ZINC	15.3	J	MG/KG	S
A3815	A38	1.5	ALUMINUM	7180		MG/KG	S
A3840	A38	4	ALUMINUM	9670		MG/KG	S
A3850	A38	5	ALUMINUM	2920		MG/KG	S
A3815	A38	1.5	ANTIMONY	.66	J	MG/KG	S
A3840	A38	4	ANTIMONY	.56	J	MG/KG	S
A3815	A38	1.5	ARSENIC	1.8	J	MG/KG	S
A3840	A38	4	ARSENIC	2.4		MG/KG	S
A3850	A38	5	ARSENIC	.59	J	MG/KG	S
A3815	A38	1.5	BARIUM	51.1		MG/KG	S
A3840	A38	4	BARIUM	90.6		MG/KG	S
A3850	A38	5	BARIUM	49.4		MG/KG	S
A3815	A38	1.5	BERYLLIUM	.15	J	MG/KG	S
A3840	A38	4	BERYLLIUM	.31	J	MG/KG	S
A3850	A38	5	BERYLLIUM	.05	J	MG/KG	S
A3815	A38	1.5	CADMIUM	.19	J	MG/KG	S
A3840	A38	4	CADMIUM	.46		MG/KG	S
A3850	A38	5	CADMIUM	.08	J	MG/KG	S
A3815	A38	1.5	CALCIUM	3540		MG/KG	S
A3840	A38	4	CALCIUM	7570		MG/KG	S
A3850	A38	5	CALCIUM	2340		MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A3815	A38	1.5	CHROMIUM	35.1	J	MG/KG	S
A3840	A38	4	CHROMIUM	18.1	J	MG/KG	S
A3850	A38	5	CHROMIUM	23.4	J	MG/KG	S
A3815	A38	1.5	COBALT	7.1	J	MG/KG	S
A3840	A38	4	COBALT	9.6	J	MG/KG	S
A3850	A38	5	COBALT	3.6	J	MG/KG	S
A3815	A38	1.5	COPPER	12.8		MG/KG	S
A3840	A38	4	COPPER	23		MG/KG	S
A3850	A38	5	COPPER	4		MG/KG	S
A3815	A38	1.5	IRON	12100		MG/KG	S
A3840	A38	4	IRON	23100		MG/KG	S
A3850	A38	5	IRON	5170		MG/KG	S
A3815	A38	1.5	LEAD	10.4	J	MG/KG	S
A3840	A38	4	LEAD	28.3	J	MG/KG	S
A3850	A38	5	LEAD	4.2	J	MG/KG	S
A3815	A38	1.5	MAGNESIUM	2680		MG/KG	S
A3840	A38	4	MAGNESIUM	4330		MG/KG	S
A3850	A38	5	MAGNESIUM	1130	J	MG/KG	S
A3815	A38	1.5	MANGANESE	194		MG/KG	S
A3840	A38	4	MANGANESE	633		MG/KG	S
A3850	A38	5	MANGANESE	58.1		MG/KG	S
A3815	A38	1.5	NICKEL	26.4		MG/KG	S
A3840	A38	4	NICKEL	19.4		MG/KG	S
A3850	A38	5	NICKEL	16.2		MG/KG	S
A3815	A38	1.5	POTASSIUM	700	J	MG/KG	S
A3840	A38	4	POTASSIUM	1260		MG/KG	S
A3850	A38	5	POTASSIUM	166	J	MG/KG	S
A3815	A38	1.5	SODIUM	178	J	MG/KG	S
A3840	A38	4	SODIUM	260	J	MG/KG	S
A3850	A38	5	SODIUM	55.2	J	MG/KG	S
A3815	A38	1.5	VANADIUM	23.2		MG/KG	S
A3840	A38	4	VANADIUM	30		MG/KG	S
A3850	A38	5	VANADIUM	14.4		MG/KG	S
A3815	A38	1.5	ZINC	35.8	J	MG/KG	S
A3840	A38	4	ZINC	94.5	J	MG/KG	S
A3850	A38	5	ZINC	13.6	J	MG/KG	S
A3920	A39	2	ALUMINUM	8430		MG/KG	S
A3940	A39	4	ALUMINUM	8110		MG/KG	S
A3920	A39	2	ANTIMONY	.91	J	MG/KG	S
A3940	A39	4	ANTIMONY	.64	J	MG/KG	S
A3920	A39	2	ARSENIC	2.7		MG/KG	S
A3940	A39	4	ARSENIC	.84	J	MG/KG	S
A3920	A39	2	BARIUM	74		MG/KG	S
A3940	A39	4	BARIUM	63.5		MG/KG	S
A3920	A39	2	BERYLLIUM	.2	J	MG/KG	S
A3940	A39	4	BERYLLIUM	.26	J	MG/KG	S
A3920	A39	2	CADMIUM	.3		MG/KG	S
A3940	A39	4	CADMIUM	.2	J	MG/KG	S
A3920	A39	2	CALCIUM	6570		MG/KG	S
A3940	A39	4	CALCIUM	5800		MG/KG	S
A3920	A39	2	CHROMIUM	45.5	J	MG/KG	S
A3940	A39	4	CHROMIUM	38.6	J	MG/KG	S
A3920	A39	2	COBALT	7.6	J	MG/KG	S
A3940	A39	4	COBALT	6.2	J	MG/KG	S
A3920	A39	2	COPPER	12.9		MG/KG	S
A3940	A39	4	COPPER	16.4		MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A3920	A39	2	IRON	13200		MG/KG	S
A3940	A39	4	IRON	12000		MG/KG	S
A3920	A39	2	LEAD	34.6	J	MG/KG	S
A3940	A39	4	LEAD	4.9	J	MG/KG	S
A3920	A39	2	MAGNESIUM	2830		MG/KG	S
A3940	A39	4	MAGNESIUM	2790		MG/KG	S
A3920	A39	2	MANGANESE	150		MG/KG	S
A3940	A39	4	MANGANESE	149		MG/KG	S
A3920	A39	2	NICKEL	36.4		MG/KG	S
A3940	A39	4	NICKEL	30.1		MG/KG	S
A3920	A39	2	POTASSIUM	952	J	MG/KG	S
A3940	A39	4	POTASSIUM	1280		MG/KG	S
A3920	A39	2	SODIUM	222	J	MG/KG	S
A3940	A39	4	SODIUM	238	J	MG/KG	S
A3920	A39	2	VANADIUM	27.3		MG/KG	S
A3940	A39	4	VANADIUM	26.4		MG/KG	S
A3920	A39	2	ZINC	59.3	J	MG/KG	S
A3940	A39	4	ZINC	29.2	J	MG/KG	S
A4030	A40	3	ALUMINUM	8390		MG/KG	S
A40EB	A40	0	ALUMINUM	592		MG/KG	S
A4030	A40	3	ANTIMONY	.68	J	MG/KG	S
A4030	A40	3	ARSENIC	1.5	J	MG/KG	S
A40EB	A40	0	ARSENIC	1.2	J	MG/KG	S
A4030	A40	3	BARIUM	56.1		MG/KG	S
A40EB	A40	0	BARIUM	3.6	J	MG/KG	S
A4030	A40	3	BERYLLIUM	.23	J	MG/KG	S
A4030	A40	3	CADMIUM	.22	J	MG/KG	S
A4030	A40	3	CALCIUM	2080		MG/KG	S
A40EB	A40	0	CALCIUM	224	J	MG/KG	S
A4030	A40	3	CHROMIUM	48.3	J	MG/KG	S
A40EB	A40	0	CHROMIUM	1.7	J	MG/KG	S
A4030	A40	3	COBALT	9.8	J	MG/KG	S
A4030	A40	3	COPPER	8.8		MG/KG	S
A40EB	A40	0	COPPER	.35	J	MG/KG	S
A4030	A40	3	IRON	12900		MG/KG	S
A40EB	A40	0	IRON	1530		MG/KG	S
A4030	A40	3	LEAD	5.7	J	MG/KG	S
A40EB	A40	0	LEAD	.91	J	MG/KG	S
A4030	A40	3	MAGNESIUM	2940		MG/KG	S
A40EB	A40	0	MAGNESIUM	287	J	MG/KG	S
A4030	A40	3	MANGANESE	115		MG/KG	S
A40EB	A40	0	MANGANESE	13.2		MG/KG	S
A4030	A40	3	NICKEL	40.9		MG/KG	S
A40EB	A40	0	NICKEL	1.9		MG/KG	S
A4030	A40	3	POTASSIUM	788	J	MG/KG	S
A40EB	A40	0	POTASSIUM	117	J	MG/KG	S
A4030	A40	3	SODIUM	320	J	MG/KG	S
A40EB	A40	0	SODIUM	105	J	MG/KG	S
A4030	A40	3	VANADIUM	25.2		MG/KG	S
A40EB	A40	0	VANADIUM	2.3	J	MG/KG	S
A4030	A40	3	ZINC	30.2	J	MG/KG	S
A40EB	A40	0	ZINC	3.5	J	MG/KG	S
A4120	A41	2	ALUMINUM	6700		MG/KG	S
A4125D	A41	2.5	ALUMINUM	7580		MG/KG	S
A4145	A41	4.5	ALUMINUM	3210		MG/KG	S
A4120	A41	2	ANTIMONY	.59	J	MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A4125D	A41	2.5	ANTIMONY	2.2	J	MG/KG	S
A4120	A41	2	ARSENIC	1.8	J	MG/KG	S
A4125D	A41	2.5	ARSENIC	30.4		MG/KG	S
A4145	A41	4.5	ARSENIC	1.2	J	MG/KG	S
A4120	A41	2	BARIUM	46		MG/KG	S
A4125D	A41	2.5	BARIUM	112		MG/KG	S
A4145	A41	4.5	BARIUM	21.8	J	MG/KG	S
A4120	A41	2	BERYLLIUM	.13	J	MG/KG	S
A4125D	A41	2.5	BERYLLIUM	.23	J	MG/KG	S
A4145	A41	4.5	BERYLLIUM	.07	J	MG/KG	S
A4120	A41	2	CADMIUM	.2	J	MG/KG	S
A4125D	A41	2.5	CADMIUM	.55		MG/KG	S
A4145	A41	4.5	CADMIUM	.12	J	MG/KG	S
A4120	A41	2	CALCIUM	3290		MG/KG	S
A4125D	A41	2.5	CALCIUM	1890		MG/KG	S
A4145	A41	4.5	CALCIUM	1400		MG/KG	S
A4120	A41	2	CHROMIUM	35.9	J	MG/KG	S
A4125D	A41	2.5	CHROMIUM	47.8	J	MG/KG	S
A4145	A41	4.5	CHROMIUM	22.9	J	MG/KG	S
A4120	A41	2	COBALT	6.9	J	MG/KG	S
A4125D	A41	2.5	COBALT	9.6	J	MG/KG	S
A4145	A41	4.5	COBALT	4.1	J	MG/KG	S
A4120	A41	2	COPPER	18.5		MG/KG	S
A4125D	A41	2.5	COPPER	259		MG/KG	S
A4145	A41	4.5	COPPER	4.6		MG/KG	S
A4120	A41	2	IRON	11900		MG/KG	S
A4125D	A41	2.5	IRON	28400		MG/KG	S
A4145	A41	4.5	IRON	6290		MG/KG	S
A4120	A41	2	LEAD	10.8	J	MG/KG	S
A4125D	A41	2.5	LEAD	108	J	MG/KG	S
A4145	A41	4.5	LEAD	11	J	MG/KG	S
A4120	A41	2	MAGNESIUM	2980		MG/KG	S
A4125D	A41	2.5	MAGNESIUM	3720		MG/KG	S
A4145	A41	4.5	MAGNESIUM	1370		MG/KG	S
A4120	A41	2	MANGANESE	153		MG/KG	S
A4125D	A41	2.5	MANGANESE	263		MG/KG	S
A4145	A41	4.5	MANGANESE	66.9		MG/KG	S
A4120	A41	2	NICKEL	25.7		MG/KG	S
A4125D	A41	2.5	NICKEL	33.4		MG/KG	S
A4145	A41	4.5	NICKEL	18.8		MG/KG	S
A4120	A41	2	POTASSIUM	636	J	MG/KG	S
A4125D	A41	2.5	POTASSIUM	964	J	MG/KG	S
A4145	A41	4.5	POTASSIUM	327	J	MG/KG	S
A4120	A41	2	SODIUM	159	J	MG/KG	S
A4125D	A41	2.5	SODIUM	230	J	MG/KG	S
A4145	A41	4.5	SODIUM	43.5	J	MG/KG	S
A4120	A41	2	VANADIUM	23.8		MG/KG	S
A4125D	A41	2.5	VANADIUM	31.7		MG/KG	S
A4145	A41	4.5	VANADIUM	13.9		MG/KG	S
A4120	A41	2	ZINC	35.3	J	MG/KG	S
A4125D	A41	2.5	ZINC	74.7	J	MG/KG	S
A4145	A41	4.5	ZINC	21.4	J	MG/KG	S
A4215	A42	1.5	ALUMINUM	6970	*	MG/KG	S
A4245	A42	4.5	ALUMINUM	3640	*	MG/KG	S
A4215	A42	1.5	ANTIMONY	.56	J	MG/KG	S
A4245	A42	4.5	ANTIMONY	.52	J	MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A4215	A42	1.5	ARSENIC	2.8		MG/KG	S
A4245	A42	4.5	ARSENIC	1.2	J	MG/KG	S
A4215	A42	1.5	BARIUM	41.6	J	MG/KG	S
A4245	A42	4.5	BARIUM	48.8	J	MG/KG	S
A4215	A42	1.5	BERYLLIUM	.18	J	MG/KG	S
A4245	A42	4.5	BERYLLIUM	.12	J	MG/KG	S
A4215	A42	1.5	CALCIUM	3790		MG/KG	S
A4245	A42	4.5	CALCIUM	2800		MG/KG	S
A4215	A42	1.5	CHROMIUM	35.9		MG/KG	S
A4245	A42	4.5	CHROMIUM	31.6		MG/KG	S
A4215	A42	1.5	COBALT	7.6		MG/KG	S
A4245	A42	4.5	COBALT	3.8	J	MG/KG	S
A4215	A42	1.5	COPPER	13		MG/KG	S
A4245	A42	4.5	COPPER	11		MG/KG	S
A4215	A42	1.5	IRON	10600	*	MG/KG	S
A4245	A42	4.5	IRON	7300	*	MG/KG	S
A4215	A42	1.5	LEAD	17.9		MG/KG	S
A4245	A42	4.5	LEAD	5.7		MG/KG	S
A4215	A42	1.5	MAGNESIUM	2750		MG/KG	S
A4245	A42	4.5	MAGNESIUM	1390		MG/KG	S
A4215	A42	1.5	MANGANESE	186	J	MG/KG	S
A4245	A42	4.5	MANGANESE	76.2	J	MG/KG	S
A4215	A42	1.5	MERCURY	.055		MG/KG	S
A4245	A42	4.5	MERCURY	.015	J	MG/KG	S
A4215	A42	1.5	NICKEL	30.3		MG/KG	S
A4245	A42	4.5	NICKEL	20.6		MG/KG	S
A4215	A42	1.5	POTASSIUM	620	J	MG/KG	S
A4245	A42	4.5	POTASSIUM	354	J	MG/KG	S
A4215	A42	1.5	SODIUM	166	J	MG/KG	S
A4215	A42	1.5	VANADIUM	21.6		MG/KG	S
A4245	A42	4.5	VANADIUM	17.5		MG/KG	S
A4215	A42	1.5	ZINC	38.2	J	MG/KG	S
A4245	A42	4.5	ZINC	18.7	J	MG/KG	S
A771.5	A77	1.5	ALUMINUM	7580		MG/KG	S
A775.0	A77	5	ALUMINUM	5920		MG/KG	S
A771.5	A77	1.5	ARSENIC	1	B	MG/KG	S
A775.0	A77	5	ARSENIC	1.5	B	MG/KG	S
A771.5	A77	1.5	BARIUM	27.8	B	MG/KG	S
A775.0	A77	5	BARIUM	51.2		MG/KG	S
A771.5	A77	1.5	BERYLLIUM	.16	B	MG/KG	S
A775.0	A77	5	BERYLLIUM	.16	B	MG/KG	S
A771.5	A77	1.5	CADMIUM	.6		MG/KG	S
A775.0	A77	5	CADMIUM	.17	B	MG/KG	S
A771.5	A77	1.5	CALCIUM	2500	*	MG/KG	S
A775.0	A77	5	CALCIUM	6050	*	MG/KG	S
A771.5	A77	1.5	CHROMIUM	5.9		MG/KG	S
A775.0	A77	5	CHROMIUM	37.5		MG/KG	S
A771.5	A77	1.5	COBALT	3.4	B	MG/KG	S
A775.0	A77	5	COBALT	5.8	B	MG/KG	S
A771.5	A77	1.5	COPPER	1.8		MG/KG	S
A775.0	A77	5	COPPER	7.1		MG/KG	S
A771.5	A77	1.5	IRON	28100		MG/KG	S
A775.0	A77	5	IRON	9070		MG/KG	S
A771.5	A77	1.5	LEAD	3.7		MG/KG	S
A775.0	A77	5	LEAD	3.3		MG/KG	S
A771.5	A77	1.5	MAGNESIUM	2470		MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A775.0	A77	5	MAGNESIUM	2330		MG/KG	S
A771.5	A77	1.5	MANGANESE	518	N	MG/KG	S
A775.0	A77	5	MANGANESE	110	N	MG/KG	S
A771.5	A77	1.5	MERCURY	.18		MG/KG	S
A775.0	A77	5	MERCURY	.01	B	MG/KG	S
A771.5	A77	1.5	NICKEL	7.4		MG/KG	S
A775.0	A77	5	NICKEL	32.2		MG/KG	S
A771.5	A77	1.5	POTASSIUM	473	B	MG/KG	S
A775.0	A77	5	POTASSIUM	646	B	MG/KG	S
A771.5	A77	1.5	SODIUM	242	B	MG/KG	S
A775.0	A77	5	SODIUM	117	B	MG/KG	S
A771.5	A77	1.5	VANADIUM	7.1	B	MG/KG	S
A775.0	A77	5	VANADIUM	25.2		MG/KG	S
A771.5	A77	1.5	ZINC	84.4		MG/KG	S
A775.0	A77	5	ZINC	27		MG/KG	S
A881.0	A88	1	ALUMINUM	4650		MG/KG	S
A884.5	A88	4.5	ALUMINUM	9980		MG/KG	S
A881.0	A88	1	ANTIMONY	.37	NB	MG/KG	S
A884.5	A88	4.5	ANTIMONY	.89	NB	MG/KG	S
A881.0	A88	1	ARSENIC	3.7		MG/KG	S
A884.5	A88	4.5	ARSENIC	2.8		MG/KG	S
A881.0	A88	1	BARIUM	16.9	B	MG/KG	S
A884.5	A88	4.5	BARIUM	55.4		MG/KG	S
A881.0	A88	1	BERYLLIUM	.15	B	MG/KG	S
A884.5	A88	4.5	BERYLLIUM	.28	B	MG/KG	S
A881.0	A88	1	CADMIUM	.31		MG/KG	S
A884.5	A88	4.5	CADMIUM	.14	B	MG/KG	S
A881.0	A88	1	CALCIUM	1280		MG/KG	S
A884.5	A88	4.5	CALCIUM	2290		MG/KG	S
A881.0	A88	1	CHROMIUM	7.9	N*	MG/KG	S
A884.5	A88	4.5	CHROMIUM	52	N*	MG/KG	S
A881.0	A88	1	COBALT	3	B	MG/KG	S
A884.5	A88	4.5	COBALT	5.8	B	MG/KG	S
A881.0	A88	1	COPPER	6.8		MG/KG	S
A884.5	A88	4.5	COPPER	15.6		MG/KG	S
A881.0	A88	1	IRON	17300		MG/KG	S
A884.5	A88	4.5	IRON	13900		MG/KG	S
A881.0	A88	1	LEAD	10.3		MG/KG	S
A884.5	A88	4.5	LEAD	5.9		MG/KG	S
A881.0	A88	1	MAGNESIUM	1680		MG/KG	S
A884.5	A88	4.5	MAGNESIUM	3140		MG/KG	S
A881.0	A88	1	MANGANESE	319		MG/KG	S
A884.5	A88	4.5	MANGANESE	109		MG/KG	S
A881.0	A88	1	MERCURY	.2		MG/KG	S
A884.5	A88	4.5	MERCURY	.04		MG/KG	S
A881.0	A88	1	MOLYBDENUM	.56	B	MG/KG	S
A881.0	A88	1	NICKEL	8.5		MG/KG	S
A884.5	A88	4.5	NICKEL	41		MG/KG	S
A881.0	A88	1	POTASSIUM	410	EB	MG/KG	S
A884.5	A88	4.5	POTASSIUM	941	EB	MG/KG	S
A881.0	A88	1	SODIUM	135	B	MG/KG	S
A881.0	A88	1	VANADIUM	8.3	B	MG/KG	S
A884.5	A88	4.5	VANADIUM	32.3		MG/KG	S
A881.0	A88	1	ZINC	68.3		MG/KG	S
A884.5	A88	4.5	ZINC	30		MG/KG	S
A89C0.5	A89	.5	ALUMINUM	5800		MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A89C3.5	A89	3.5	ALUMINUM	10600		MG/KG	S
A89C5.0	A89	5	ALUMINUM	2500		MG/KG	S
A89C0.5	A89	.5	ANTIMONY	.36	N	MG/KG	S
A89C3.5	A89	3.5	ANTIMONY	.89	NB	MG/KG	S
A89C5.0	A89	5	ANTIMONY	.45	NB	MG/KG	S
A89C0.5	A89	.5	ARSENIC	1.2	B	MG/KG	S
A89C3.5	A89	3.5	ARSENIC	2.5		MG/KG	S
A89C5.0	A89	5	ARSENIC	1.1	B	MG/KG	S
A89C0.5	A89	.5	BARIUM	44.8		MG/KG	S
A89C3.5	A89	3.5	BARIUM	64.6		MG/KG	S
A89C5.0	A89	5	BARIUM	31.9	B	MG/KG	S
A89C0.5	A89	.5	BERYLLIUM	.17	B	MG/KG	S
A89C3.5	A89	3.5	BERYLLIUM	.31	B	MG/KG	S
A89C5.0	A89	5	BERYLLIUM	.11	B	MG/KG	S
A89C0.5	A89	.5	CADMIUM	.28		MG/KG	S
A89C3.5	A89	3.5	CADMIUM	.08	B	MG/KG	S
A89C5.0	A89	5	CADMIUM	.07	B	MG/KG	S
A89C0.5	A89	.5	CALCIUM	8310		MG/KG	S
A89C3.5	A89	3.5	CALCIUM	2480		MG/KG	S
A89C5.0	A89	5	CALCIUM	1610		MG/KG	S
A89C0.5	A89	.5	CHROMIUM	8.6		MG/KG	S
A89C3.5	A89	3.5	CHROMIUM	81.7		MG/KG	S
A89C5.0	A89	5	CHROMIUM	20.5	N	MG/KG	S
A89C0.5	A89	.5	COBALT	3.2	B	MG/KG	S
A89C3.5	A89	3.5	COBALT	7.6		MG/KG	S
A89C5.0	A89	5	COBALT	2.9	B	MG/KG	S
A89C0.5	A89	.5	COPPER	3.7	*	MG/KG	S
A89C3.5	A89	3.5	COPPER	4.8	*	MG/KG	S
A89C5.0	A89	5	COPPER	4.3		MG/KG	S
A89C0.5	A89	.5	IRON	23300		MG/KG	S
A89C3.5	A89	3.5	IRON	15400		MG/KG	S
A89C5.0	A89	5	IRON	4750		MG/KG	S
A89C0.5	A89	.5	LEAD	4.7		MG/KG	S
A89C3.5	A89	3.5	LEAD	3.3		MG/KG	S
A89C5.0	A89	5	LEAD	4.7	N	MG/KG	S
A89C0.5	A89	.5	MAGNESIUM	2800		MG/KG	S
A89C3.5	A89	3.5	MAGNESIUM	3220		MG/KG	S
A89C5.0	A89	5	MAGNESIUM	1340		MG/KG	S
A89C0.5	A89	.5	MANGANESE	359		MG/KG	S
A89C3.5	A89	3.5	MANGANESE	142		MG/KG	S
A89C5.0	A89	5	MANGANESE	63.7	N	MG/KG	S
A89C0.5	A89	.5	MERCURY	.203		MG/KG	S
A89C3.5	A89	3.5	MERCURY	.02		MG/KG	S
A89C5.0	A89	5	MERCURY	.038		MG/KG	S
A89C5.0	A89	5	MOLYBDENUM	.35	B	MG/KG	S
A89C0.5	A89	.5	NICKEL	13.9		MG/KG	S
A89C3.5	A89	3.5	NICKEL	61.8		MG/KG	S
A89C5.0	A89	5	NICKEL	17.2		MG/KG	S
A89C0.5	A89	.5	POTASSIUM	606	B	MG/KG	S
A89C3.5	A89	3.5	POTASSIUM	942	B	MG/KG	S
A89C5.0	A89	5	POTASSIUM	280	B	MG/KG	S
A89C0.5	A89	.5	SODIUM	221	B	MG/KG	S
A89C3.5	A89	3.5	SODIUM	342	B	MG/KG	S
A89C5.0	A89	5	SODIUM	61	B	MG/KG	S
A89C0.5	A89	.5	VANADIUM	9.7	B	MG/KG	S
A89C3.5	A89	3.5	VANADIUM	33.3		MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A89C5.0	A89	5	VANADIUM	13.4		MG/KG	S
A89C0.5	A89	.5	ZINC	52.7		MG/KG	S
A89C3.5	A89	3.5	ZINC	24.5		MG/KG	S
A89C5.0	A89	5	ZINC	14.5		MG/KG	S
A90A1.0	A90	1	ALUMINUM	11500	*	MG/KG	S
A90A4.0	A90	4	ALUMINUM	7870	*	MG/KG	S
A90A6.5	A90	6.5	ALUMINUM	2750	*	MG/KG	S
A90A1.0	A90	1	ANTIMONY	.58	NB	MG/KG	S
A90A4.0	A90	4	ANTIMONY	1.2	N	MG/KG	S
A90A6.5	A90	6.5	ANTIMONY	.44	NB	MG/KG	S
A90A1.0	A90	1	ARSENIC	3.4		MG/KG	S
A90A4.0	A90	4	ARSENIC	5.9		MG/KG	S
A90A6.5	A90	6.5	ARSENIC	.53	B	MG/KG	S
A90A1.0	A90	1	BARIUM	139		MG/KG	S
A90A4.0	A90	4	BARIUM	99.6		MG/KG	S
A90A6.5	A90	6.5	BARIUM	28.2	B	MG/KG	S
A90A1.0	A90	1	BERYLLIUM	.25	B	MG/KG	S
A90A4.0	A90	4	BERYLLIUM	.19	B	MG/KG	S
A90A6.5	A90	6.5	BERYLLIUM	.05	B	MG/KG	S
A90A1.0	A90	1	CADMIUM	.25		MG/KG	S
A90A4.0	A90	4	CADMIUM	.35		MG/KG	S
A90A1.0	A90	1	CALCIUM	11300	*	MG/KG	S
A90A4.0	A90	4	CALCIUM	3280	*	MG/KG	S
A90A6.5	A90	6.5	CALCIUM	1450	*	MG/KG	S
A90A1.0	A90	1	CHROMIUM	31.1	*	MG/KG	S
A90A4.0	A90	4	CHROMIUM	35	*	MG/KG	S
A90A6.5	A90	6.5	CHROMIUM	27.2	*	MG/KG	S
A90A1.0	A90	1	COBALT	8.7		MG/KG	S
A90A4.0	A90	4	COBALT	8.6		MG/KG	S
A90A6.5	A90	6.5	COBALT	2.9	B	MG/KG	S
A90A1.0	A90	1	COPPER	21.6	*	MG/KG	S
A90A4.0	A90	4	COPPER	65.6	*	MG/KG	S
A90A6.5	A90	6.5	COPPER	5.9	*	MG/KG	S
A90A1.0	A90	1	IRON	22200	*	MG/KG	S
A90A4.0	A90	4	IRON	20100	*	MG/KG	S
A90A6.5	A90	6.5	IRON	5260	*	MG/KG	S
A90A1.0	A90	1	LEAD	6.3	*	MG/KG	S
A90A4.0	A90	4	LEAD	49.2	*	MG/KG	S
A90A6.5	A90	6.5	LEAD	2	*	MG/KG	S
A90A1.0	A90	1	MAGNESIUM	7150		MG/KG	S
A90A4.0	A90	4	MAGNESIUM	6580		MG/KG	S
A90A6.5	A90	6.5	MAGNESIUM	1370		MG/KG	S
A90A1.0	A90	1	MANGANESE	601	N*	MG/KG	S
A90A4.0	A90	4	MANGANESE	403	N*	MG/KG	S
A90A6.5	A90	6.5	MANGANESE	49.1	N*	MG/KG	S
A90A1.0	A90	1	MERCURY	.09	*	MG/KG	S
A90A4.0	A90	4	MERCURY	.1	*	MG/KG	S
A90A6.5	A90	6.5	MERCURY	.01	*B	MG/KG	S
A90A1.0	A90	1	MOLYBDENUM	.2	B	MG/KG	S
A90A4.0	A90	4	MOLYBDENUM	.57	B	MG/KG	S
A90A1.0	A90	1	NICKEL	40.4		MG/KG	S
A90A4.0	A90	4	NICKEL	45.8		MG/KG	S
A90A6.5	A90	6.5	NICKEL	18.4		MG/KG	S
A90A1.0	A90	1	POTASSIUM	1550		MG/KG	S
A90A4.0	A90	4	POTASSIUM	1110		MG/KG	S
A90A6.5	A90	6.5	POTASSIUM	291	B	MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A90A1.0	A90	1	SODIUM	144	B	MG/KG	S
A90A4.0	A90	4	SODIUM	97.5	B	MG/KG	S
A90A1.0	A90	1	VANADIUM	27.2		MG/KG	S
A90A4.0	A90	4	VANADIUM	23.6		MG/KG	S
A90A6.5	A90	6.5	VANADIUM	13.8		MG/KG	S
A90A1.0	A90	1	ZINC	58.9	*	MG/KG	S
A90A4.0	A90	4	ZINC	99.5	*	MG/KG	S
A90A6.5	A90	6.5	ZINC	16.7	*	MG/KG	S
A911.0	A91	1	ALUMINUM	8580		MG/KG	S
A914.0	A91	4	ALUMINUM	5690		MG/KG	S
A915.5	A91	5.5	ALUMINUM	2570		MG/KG	S
A911.0	A91	1	ANTIMONY	.4	NB	MG/KG	S
A914.0	A91	4	ANTIMONY	2.7	N	MG/KG	S
A915.5	A91	5.5	ANTIMONY	.4	NB	MG/KG	S
A911.0	A91	1	ARSENIC	2.3		MG/KG	S
A914.0	A91	4	ARSENIC	3.8		MG/KG	S
A915.5	A91	5.5	ARSENIC	2.3	B	MG/KG	S
A911.0	A91	1	BARIUM	70.1		MG/KG	S
A914.0	A91	4	BARIUM	40.8	B	MG/KG	S
A915.5	A91	5.5	BARIUM	32.3	B	MG/KG	S
A911.0	A91	1	BERYLLIUM	.24	B	MG/KG	S
A914.0	A91	4	BERYLLIUM	.16	B	MG/KG	S
A915.5	A91	5.5	BERYLLIUM	.11	B	MG/KG	S
A911.0	A91	1	CADMIUM	.36		MG/KG	S
A914.0	A91	4	CADMIUM	.37		MG/KG	S
A915.5	A91	5.5	CADMIUM	.14	B	MG/KG	S
A911.0	A91	1	CALCIUM	8290		MG/KG	S
A914.0	A91	4	CALCIUM	1790		MG/KG	S
A915.5	A91	5.5	CALCIUM	4330		MG/KG	S
A911.0	A91	1	CHROMIUM	16.2	N*	MG/KG	S
A914.0	A91	4	CHROMIUM	25.4	N*	MG/KG	S
A915.5	A91	5.5	CHROMIUM	21.1	N*	MG/KG	S
A911.0	A91	1	COBALT	5.8		MG/KG	S
A914.0	A91	4	COBALT	6.7		MG/KG	S
A915.5	A91	5.5	COBALT	2.7	B	MG/KG	S
A911.0	A91	1	COPPER	12.4		MG/KG	S
A914.0	A91	4	COPPER	267		MG/KG	S
A915.5	A91	5.5	COPPER	23.9		MG/KG	S
A911.0	A91	1	IRON	19500		MG/KG	S
A914.0	A91	4	IRON	11100		MG/KG	S
A915.5	A91	5.5	IRON	6350		MG/KG	S
A911.0	A91	1	LEAD	6.1		MG/KG	S
A914.0	A91	4	LEAD	29.2		MG/KG	S
A915.5	A91	5.5	LEAD	35.1		MG/KG	S
A911.0	A91	1	MAGNESIUM	5010		MG/KG	S
A914.0	A91	4	MAGNESIUM	5070		MG/KG	S
A915.5	A91	5.5	MAGNESIUM	1310		MG/KG	S
A911.0	A91	1	MANGANESE	591		MG/KG	S
A914.0	A91	4	MANGANESE	248		MG/KG	S
A915.5	A91	5.5	MANGANESE	60.7		MG/KG	S
A911.0	A91	1	MERCURY	.16		MG/KG	S
A914.0	A91	4	MERCURY	.05		MG/KG	S
A915.5	A91	5.5	MERCURY	.03		MG/KG	S
A911.0	A91	1	NICKEL	26.4		MG/KG	S
A914.0	A91	4	NICKEL	37.4		MG/KG	S
A915.5	A91	5.5	NICKEL	16.7		MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A911.0	A91	1	POTASSIUM	1060	E	MG/KG	S
A914.0	A91	4	POTASSIUM	675	EB	MG/KG	S
A915.5	A91	5.5	POTASSIUM	307	EB	MG/KG	S
A911.0	A91	1	SODIUM	145	B	MG/KG	S
A915.5	A91	5.5	SODIUM	46	B	MG/KG	S
A911.0	A91	1	VANADIUM	16.1		MG/KG	S
A914.0	A91	4	VANADIUM	14.9		MG/KG	S
A915.5	A91	5.5	VANADIUM	13.7		MG/KG	S
A911.0	A91	1	ZINC	56.5		MG/KG	S
A914.0	A91	4	ZINC	82.4		MG/KG	S
A915.5	A91	5.5	ZINC	53		MG/KG	S
A921.0	A92	1	ALUMINUM	8280	*	MG/KG	S
A923.0	A92	3	ALUMINUM	5870	*	MG/KG	S
A925.0	A92	5	ALUMINUM	2800	*	MG/KG	S
A925.5D	A92	5.5	ALUMINUM	3710	*	MG/KG	S
A921.0	A92	1	ANTIMONY	.64	NB	MG/KG	S
A923.0	A92	3	ANTIMONY	.95	NB	MG/KG	S
A921.0	A92	1	ARSENIC	2.5		MG/KG	S
A923.0	A92	3	ARSENIC	29.5		MG/KG	S
A925.0	A92	5	ARSENIC	.93	B	MG/KG	S
A925.5D	A92	5.5	ARSENIC	1	B	MG/KG	S
A921.0	A92	1	BARIUM	118		MG/KG	S
A923.0	A92	3	BARIUM	106		MG/KG	S
A925.0	A92	5	BARIUM	22.7	B	MG/KG	S
A925.5D	A92	5.5	BARIUM	28.9	B	MG/KG	S
A921.0	A92	1	BERYLLIUM	.16	B	MG/KG	S
A923.0	A92	3	BERYLLIUM	.14	B	MG/KG	S
A925.0	A92	5	BERYLLIUM	.05	B	MG/KG	S
A925.5D	A92	5.5	BERYLLIUM	.08	B	MG/KG	S
A921.0	A92	1	CADMIUM	.25		MG/KG	S
A923.0	A92	3	CADMIUM	.85		MG/KG	S
A925.0	A92	5	CADMIUM	.09	B	MG/KG	S
A925.5D	A92	5.5	CADMIUM	.07	B	MG/KG	S
A921.0	A92	1	CALCIUM	12600	*	MG/KG	S
A923.0	A92	3	CALCIUM	6770	*	MG/KG	S
A925.0	A92	5	CALCIUM	2010	*	MG/KG	S
A925.5D	A92	5.5	CALCIUM	2270	*	MG/KG	S
A921.0	A92	1	CHROMIUM	22.8	*	MG/KG	S
A923.0	A92	3	CHROMIUM	18.7	*	MG/KG	S
A925.0	A92	5	CHROMIUM	23.9	*	MG/KG	S
A925.5D	A92	5.5	CHROMIUM	26.1	*	MG/KG	S
A921.0	A92	1	COBALT	6.8		MG/KG	S
A923.0	A92	3	COBALT	9.4		MG/KG	S
A925.0	A92	5	COBALT	3.1	B	MG/KG	S
A925.5D	A92	5.5	COBALT	3.6	B	MG/KG	S
A921.0	A92	1	COPPER	18.3	*	MG/KG	S
A923.0	A92	3	COPPER	529	*	MG/KG	S
A925.0	A92	5	COPPER	9.3	*	MG/KG	S
A925.5D	A92	5.5	COPPER	11.7	*	MG/KG	S
A921.0	A92	1	IRON	17300	*	MG/KG	S
A923.0	A92	3	IRON	17600	*	MG/KG	S
A925.0	A92	5	IRON	5340	*	MG/KG	S
A925.5D	A92	5.5	IRON	7110	*	MG/KG	S
A921.0	A92	1	LEAD	6.6	*	MG/KG	S
A923.0	A92	3	LEAD	88.7	*	MG/KG	S
A925.0	A92	5	LEAD	5.9	*	MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A925.5D	A92	5.5	LEAD	96	*	MG/KG	S
A921.0	A92	1	MAGNESIUM	6020		MG/KG	S
A923.0	A92	3	MAGNESIUM	4120		MG/KG	S
A925.0	A92	5	MAGNESIUM	1430		MG/KG	S
A925.5D	A92	5.5	MAGNESIUM	1760		MG/KG	S
A921.0	A92	1	MANGANESE	692	N*	MG/KG	S
A923.0	A92	3	MANGANESE	672	N*	MG/KG	S
A925.0	A92	5	MANGANESE	78	N*	MG/KG	S
A925.5D	A92	5.5	MANGANESE	122	N*	MG/KG	S
A921.0	A92	1	MERCURY	.08	*	MG/KG	S
A923.0	A92	3	MERCURY	.22	*	MG/KG	S
A925.0	A92	5	MERCURY	.02	*	MG/KG	S
A925.5D	A92	5.5	MERCURY	.03	*	MG/KG	S
A923.0	A92	3	MOLYBDENUM	.23	B	MG/KG	S
A925.0	A92	5	MOLYBDENUM	.16	B	MG/KG	S
A921.0	A92	1	NICKEL	36.4		MG/KG	S
A923.0	A92	3	NICKEL	31.1		MG/KG	S
A925.0	A92	5	NICKEL	18.3		MG/KG	S
A925.5D	A92	5.5	NICKEL	20.3		MG/KG	S
A921.0	A92	1	POTASSIUM	1150		MG/KG	S
A923.0	A92	3	POTASSIUM	566	B	MG/KG	S
A925.0	A92	5	POTASSIUM	301	B	MG/KG	S
A925.5D	A92	5.5	POTASSIUM	430	B	MG/KG	S
A923.0	A92	3	SELENIUM	.96	B	MG/KG	S
A921.0	A92	1	SODIUM	91.9	B	MG/KG	S
A923.0	A92	3	SODIUM	170	B	MG/KG	S
A921.0	A92	1	VANADIUM	21.3		MG/KG	S
A923.0	A92	3	VANADIUM	22.1		MG/KG	S
A925.0	A92	5	VANADIUM	14		MG/KG	S
A925.5D	A92	5.5	VANADIUM	17.3		MG/KG	S
A921.0	A92	1	ZINC	46.9	*	MG/KG	S
A923.0	A92	3	ZINC	176	*	MG/KG	S
A925.0	A92	5	ZINC	16.4	*	MG/KG	S
A925.5D	A92	5.5	ZINC	30.3	*	MG/KG	S
A93A1.0	A93	1	ALUMINUM	7990		MG/KG	S
A93A3.5	A93	3.5	ALUMINUM	10100		MG/KG	S
A93A5.5	A93	5.5	ALUMINUM	4590		MG/KG	S
A93A1.0	A93	1	ANTIMONY	.39	NB	MG/KG	S
A93A3.5	A93	3.5	ANTIMONY	1.7	N	MG/KG	S
A93A5.5	A93	5.5	ANTIMONY	.46	NB	MG/KG	S
A93A1.0	A93	1	ARSENIC	2.8		MG/KG	S
A93A3.5	A93	3.5	ARSENIC	8.9		MG/KG	S
A93A5.5	A93	5.5	ARSENIC	1.9	B	MG/KG	S
A93A1.0	A93	1	BARIUM	104		MG/KG	S
A93A3.5	A93	3.5	BARIUM	91.7		MG/KG	S
A93A5.5	A93	5.5	BARIUM	31.9	B	MG/KG	S
A93A1.0	A93	1	BERYLLIUM	.21	B	MG/KG	S
A93A3.5	A93	3.5	BERYLLIUM	.32	B	MG/KG	S
A93A5.5	A93	5.5	BERYLLIUM	.17	B	MG/KG	S
A93A1.0	A93	1	CADMIUM	.1	B	MG/KG	S
A93A3.5	A93	3.5	CADMIUM	.49		MG/KG	S
A93A1.0	A93	1	CALCIUM	11000		MG/KG	S
A93A3.5	A93	3.5	CALCIUM	6340		MG/KG	S
A93A5.5	A93	5.5	CALCIUM	79900		MG/KG	S
A93A1.0	A93	1	CHROMIUM	20.9	N	MG/KG	S
A93A3.5	A93	3.5	CHROMIUM	34.9	N	MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
A93A5.5	A93	5.5	CHROMIUM	26.8	N	MG/KG	S
A93A1.0	A93	1	COBALT	6.1		MG/KG	S
A93A3.5	A93	3.5	COBALT	10.9		MG/KG	S
A93A5.5	A93	5.5	COBALT	3.5	B	MG/KG	S
A93A1.0	A93	1	COPPER	15.6		MG/KG	S
A93A3.5	A93	3.5	COPPER	92.2		MG/KG	S
A93A5.5	A93	5.5	COPPER	5.9		MG/KG	S
A93A1.0	A93	1	IRON	13800		MG/KG	S
A93A3.5	A93	3.5	IRON	32200		MG/KG	S
A93A5.5	A93	5.5	IRON	6330		MG/KG	S
A93A1.0	A93	1	LEAD	8.8	N	MG/KG	S
A93A3.5	A93	3.5	LEAD	48.5	N	MG/KG	S
A93A5.5	A93	5.5	LEAD	8.2	N	MG/KG	S
A93A1.0	A93	1	MAGNESIUM	5400		MG/KG	S
A93A3.5	A93	3.5	MAGNESIUM	7840		MG/KG	S
A93A5.5	A93	5.5	MAGNESIUM	1880		MG/KG	S
A93A1.0	A93	1	MANGANESE	466	N	MG/KG	S
A93A3.5	A93	3.5	MANGANESE	650	N	MG/KG	S
A93A5.5	A93	5.5	MANGANESE	169	N	MG/KG	S
A93A1.0	A93	1	MERCURY	.059		MG/KG	S
A93A3.5	A93	3.5	MERCURY	.14		MG/KG	S
A93A1.0	A93	1	NICKEL	30.7		MG/KG	S
A93A3.5	A93	3.5	NICKEL	43.9		MG/KG	S
A93A5.5	A93	5.5	NICKEL	19.1		MG/KG	S
A93A1.0	A93	1	POTASSIUM	1180		MG/KG	S
A93A3.5	A93	3.5	POTASSIUM	1460		MG/KG	S
A93A5.5	A93	5.5	POTASSIUM	728	B	MG/KG	S
A93A1.0	A93	1	SODIUM	111	B	MG/KG	S
A93A3.5	A93	3.5	SODIUM	150	B	MG/KG	S
A93A5.5	A93	5.5	SODIUM	567	B	MG/KG	S
A93A1.0	A93	1	VANADIUM	17.2		MG/KG	S
A93A3.5	A93	3.5	VANADIUM	33.9		MG/KG	S
A93A5.5	A93	5.5	VANADIUM	18.2		MG/KG	S
A93A1.0	A93	1	ZINC	37.8		MG/KG	S
A93A3.5	A93	3.5	ZINC	94.9		MG/KG	S
A93A5.5	A93	5.5	ZINC	21.4		MG/KG	S
A941.5	A94	1.5	ALUMINUM	7510	*	MG/KG	S
A941.5	A94	1.5	ANTIMONY	.42	NB	MG/KG	S
A941.5	A94	1.5	ARSENIC	2.1		MG/KG	S
A941.5	A94	1.5	BARIUM	88.8		MG/KG	S
A941.5	A94	1.5	BERYLLIUM	.14	B	MG/KG	S
A941.5	A94	1.5	CADMIUM	.35		MG/KG	S
A941.5	A94	1.5	CALCIUM	18500	*	MG/KG	S
A941.5	A94	1.5	CHROMIUM	19.1	*	MG/KG	S
A941.5	A94	1.5	COBALT	6.5		MG/KG	S
A941.5	A94	1.5	COPPER	25	*	MG/KG	S
A941.5	A94	1.5	IRON	17700	*	MG/KG	S
A941.5	A94	1.5	LEAD	8.1	*	MG/KG	S
A941.5	A94	1.5	MAGNESIUM	5040		MG/KG	S
A941.5	A94	1.5	MANGANESE	589	N*	MG/KG	S
A941.5	A94	1.5	MERCURY	.09	*	MG/KG	S
A941.5	A94	1.5	NICKEL	28.8		MG/KG	S
A941.5	A94	1.5	POTASSIUM	896	B	MG/KG	S
A941.5	A94	1.5	SODIUM	85.5	B	MG/KG	S
A941.5	A94	1.5	VANADIUM	16.2		MG/KG	S
A941.5	A94	1.5	ZINC	58.7	*	MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
S223.0	S22	3	ALUMINUM	5240		MG/KG	S
S22EB	S22	0	ALUMINUM	826		MG/KG	S
S223.0	S22	3	ANTIMONY	.51	NB	MG/KG	S
S223.0	S22	3	ARSENIC	1.4	B	MG/KG	S
S22EB	S22	0	ARSENIC	1.3	J	MG/KG	S
S223.0	S22	3	BARIUM	45.9		MG/KG	S
S22EB	S22	0	BARIUM	2.8	J	MG/KG	S
S223.0	S22	3	BERYLLIUM	.15	B	MG/KG	S
S223.0	S22	3	CADMIUM	.15	B	MG/KG	S
S22EB	S22	0	CADMIUM	.08	J	MG/KG	S
S223.0	S22	3	CALCIUM	3620	*	MG/KG	S
S22EB	S22	0	CALCIUM	500	JB	MG/KG	S
S223.0	S22	3	CHROMIUM	34.3		MG/KG	S
S22EB	S22	0	CHROMIUM	2.1	J	MG/KG	S
S223.0	S22	3	COBALT	5.3	B	MG/KG	S
S22EB	S22	0	COBALT	.54	J	MG/KG	S
S223.0	S22	3	COPPER	8.2		MG/KG	S
S22EB	S22	0	COPPER	1.3		MG/KG	S
S223.0	S22	3	IRON	8740		MG/KG	S
S22EB	S22	0	IRON	1670		MG/KG	S
S223.0	S22	3	LEAD	14.5		MG/KG	S
S223.0	S22	3	MAGNESIUM	2420		MG/KG	S
S22EB	S22	0	MAGNESIUM	359	J	MG/KG	S
S223.0	S22	3	MANGANESE	105	N	MG/KG	S
S22EB	S22	0	MANGANESE	17.4	J	MG/KG	S
S223.0	S22	3	MERCURY	.03		MG/KG	S
S223.0	S22	3	NICKEL	29.1		MG/KG	S
S22EB	S22	0	NICKEL	2.5		MG/KG	S
S223.0	S22	3	POTASSIUM	609	B	MG/KG	S
S22EB	S22	0	POTASSIUM	110	J	MG/KG	S
S223.0	S22	3	SODIUM	58.4	B	MG/KG	S
S22EB	S22	0	SODIUM	90.5	J	MG/KG	S
S223.0	S22	3	VANADIUM	21.6		MG/KG	S
S22EB	S22	0	VANADIUM	2.9	J	MG/KG	S
S223.0	S22	3	ZINC	29.7		MG/KG	S
S22EB	S22	0	ZINC	3.4	J	MG/KG	S
S291.5	S29	1.5	ALUMINUM	6740		MG/KG	S
S294.0	S29	4	ALUMINUM	4120		MG/KG	S
S296.0	S29	6	ALUMINUM	4340		MG/KG	S
S291.5	S29	1.5	ANTIMONY	.51	NB	MG/KG	S
S294.0	S29	4	ANTIMONY	.79	NB	MG/KG	S
S296.0	S29	6	ANTIMONY	.47	NB	MG/KG	S
S291.5	S29	1.5	ARSENIC	2.1		MG/KG	S
S294.0	S29	4	ARSENIC	11.6		MG/KG	S
S296.0	S29	6	ARSENIC	1.8	B	MG/KG	S
S291.5	S29	1.5	BARIUM	82.1		MG/KG	S
S294.0	S29	4	BARIUM	41.1	B	MG/KG	S
S296.0	S29	6	BARIUM	33.7	B	MG/KG	S
S291.5	S29	1.5	BERYLLIUM	.18	B	MG/KG	S
S294.0	S29	4	BERYLLIUM	.16	B	MG/KG	S
S296.0	S29	6	BERYLLIUM	.17	B	MG/KG	S
S291.5	S29	1.5	CADMIUM	.18	B	MG/KG	S
S294.0	S29	4	CADMIUM	.16	B	MG/KG	S
S291.5	S29	1.5	CALCIUM	8840		MG/KG	S
S294.0	S29	4	CALCIUM	1830		MG/KG	S
S296.0	S29	6	CALCIUM	2080		MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
S291.5	S29	1.5	CHROMIUM	19.8		MG/KG	S
S294.0	S29	4	CHROMIUM	28		MG/KG	S
S296.0	S29	6	CHROMIUM	32.8		MG/KG	S
S291.5	S29	1.5	COBALT	6.4		MG/KG	S
S294.0	S29	4	COBALT	4.3	B	MG/KG	S
S296.0	S29	6	COBALT	4.5	B	MG/KG	S
S291.5	S29	1.5	COPPER	17.8		MG/KG	S
S294.0	S29	4	COPPER	30.4		MG/KG	S
S296.0	S29	6	COPPER	12.8		MG/KG	S
S291.5	S29	1.5	IRON	14100		MG/KG	S
S294.0	S29	4	IRON	8690		MG/KG	S
S296.0	S29	6	IRON	8260		MG/KG	S
S291.5	S29	1.5	LEAD	10.8	*	MG/KG	S
S294.0	S29	4	LEAD	32.3	*	MG/KG	S
S296.0	S29	6	LEAD	12.4	*	MG/KG	S
S291.5	S29	1.5	MAGNESIUM	5480		MG/KG	S
S294.0	S29	4	MAGNESIUM	2160		MG/KG	S
S296.0	S29	6	MAGNESIUM	2250		MG/KG	S
S291.5	S29	1.5	MANGANESE	350		MG/KG	S
S294.0	S29	4	MANGANESE	93.7		MG/KG	S
S296.0	S29	6	MANGANESE	91.3		MG/KG	S
S291.5	S29	1.5	MERCURY	.08	*	MG/KG	S
S294.0	S29	4	MERCURY	.157	*	MG/KG	S
S296.0	S29	6	MERCURY	.035	*	MG/KG	S
S291.5	S29	1.5	NICKEL	31		MG/KG	S
S294.0	S29	4	NICKEL	24.7		MG/KG	S
S296.0	S29	6	NICKEL	26.4		MG/KG	S
S291.5	S29	1.5	POTASSIUM	908	B	MG/KG	S
S294.0	S29	4	POTASSIUM	533	B	MG/KG	S
S296.0	S29	6	POTASSIUM	575	B	MG/KG	S
S294.0	S29	4	SILVER	.27	B	MG/KG	S
S291.5	S29	1.5	VANADIUM	17.9		MG/KG	S
S294.0	S29	4	VANADIUM	18.3		MG/KG	S
S296.0	S29	6	VANADIUM	20.4		MG/KG	S
S291.5	S29	1.5	ZINC	42.3		MG/KG	S
S294.0	S29	4	ZINC	44.3		MG/KG	S
S296.0	S29	6	ZINC	31.7		MG/KG	S
S300.5	S30	.5	ALUMINUM	5580		MG/KG	S
S302.5	S30	2.5	ALUMINUM	5540		MG/KG	S
S305.5	S30	5.5	ALUMINUM	2270		MG/KG	S
S302.5	S30	2.5	ANTIMONY	.57	NB	MG/KG	S
S305.5	S30	5.5	ANTIMONY	.44	NB	MG/KG	S
S300.5	S30	.5	ARSENIC	2.1		MG/KG	S
S302.5	S30	2.5	ARSENIC	2.4		MG/KG	S
S305.5	S30	5.5	ARSENIC	1.2	B	MG/KG	S
S300.5	S30	.5	BARIUM	102		MG/KG	S
S302.5	S30	2.5	BARIUM	53.2		MG/KG	S
S305.5	S30	5.5	BARIUM	20.4	B	MG/KG	S
S300.5	S30	.5	BERYLLIUM	.19	B	MG/KG	S
S302.5	S30	2.5	BERYLLIUM	.19	B	MG/KG	S
S305.5	S30	5.5	BERYLLIUM	.12	B	MG/KG	S
S300.5	S30	.5	CADMIUM	2.1		MG/KG	S
S302.5	S30	2.5	CADMIUM	.43		MG/KG	S
S300.5	S30	.5	CALCIUM	125000		MG/KG	S
S302.5	S30	2.5	CALCIUM	5080		MG/KG	S
S305.5	S30	5.5	CALCIUM	1440		MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
S300.5	S30	.5	CHROMIUM	19.7		MG/KG	S
S302.5	S30	2.5	CHROMIUM	27.9		MG/KG	S
S305.5	S30	5.5	CHROMIUM	20.9		MG/KG	S
S300.5	S30	.5	COBALT	5.2		MG/KG	S
S302.5	S30	2.5	COBALT	5.1	B	MG/KG	S
S305.5	S30	5.5	COBALT	3.1	B	MG/KG	S
S300.5	S30	.5	COPPER	20	*	MG/KG	S
S302.5	S30	2.5	COPPER	19.7	*	MG/KG	S
S305.5	S30	5.5	COPPER	5.3	*	MG/KG	S
S300.5	S30	.5	IRON	10700		MG/KG	S
S302.5	S30	2.5	IRON	10200		MG/KG	S
S305.5	S30	5.5	IRON	4500		MG/KG	S
S300.5	S30	.5	LEAD	4.3		MG/KG	S
S302.5	S30	2.5	LEAD	86.4		MG/KG	S
S305.5	S30	5.5	LEAD	2.4		MG/KG	S
S300.5	S30	.5	MAGNESIUM	4340		MG/KG	S
S302.5	S30	2.5	MAGNESIUM	3010		MG/KG	S
S305.5	S30	5.5	MAGNESIUM	1130	B	MG/KG	S
S300.5	S30	.5	MANGANESE	414		MG/KG	S
S302.5	S30	2.5	MANGANESE	254		MG/KG	S
S305.5	S30	5.5	MANGANESE	57.4		MG/KG	S
S300.5	S30	.5	MERCURY	.069		MG/KG	S
S302.5	S30	2.5	MERCURY	.076		MG/KG	S
S305.5	S30	5.5	MERCURY	.018		MG/KG	S
S300.5	S30	.5	MOLYBDENUM	.23	B	MG/KG	S
S300.5	S30	.5	NICKEL	28.5		MG/KG	S
S302.5	S30	2.5	NICKEL	29.6		MG/KG	S
S305.5	S30	5.5	NICKEL	16		MG/KG	S
S300.5	S30	.5	POTASSIUM	1100		MG/KG	S
S302.5	S30	2.5	POTASSIUM	646	B	MG/KG	S
S305.5	S30	5.5	POTASSIUM	263	B	MG/KG	S
S300.5	S30	.5	SODIUM	62.5	B	MG/KG	S
S300.5	S30	.5	VANADIUM	54.2		MG/KG	S
S302.5	S30	2.5	VANADIUM	18.6		MG/KG	S
S305.5	S30	5.5	VANADIUM	12.6		MG/KG	S
S300.5	S30	.5	ZINC	43.6		MG/KG	S
S302.5	S30	2.5	ZINC	46		MG/KG	S
S305.5	S30	5.5	ZINC	12.7		MG/KG	S
S310.5	S31	.5	ALUMINUM	7330		MG/KG	S
S312.5	S31	2.5	ALUMINUM	4800		MG/KG	S
S314.5	S31	4.5	ALUMINUM	3680		MG/KG	S
S310.5	S31	.5	ANTIMONY	.44	NB	MG/KG	S
S312.5	S31	2.5	ANTIMONY	1.2	NB	MG/KG	S
S314.5	S31	4.5	ANTIMONY	.61	NB	MG/KG	S
S310.5	S31	.5	ARSENIC	1.6	B	MG/KG	S
S312.5	S31	2.5	ARSENIC	5.8		MG/KG	S
S314.5	S31	4.5	ARSENIC	.93	B	MG/KG	S
S310.5	S31	.5	BARIUM	66.6		MG/KG	S
S312.5	S31	2.5	BARIUM	198		MG/KG	S
S314.5	S31	4.5	BARIUM	37.2	B	MG/KG	S
S310.5	S31	.5	BERYLLIUM	.21	B	MG/KG	S
S312.5	S31	2.5	BERYLLIUM	.22	B	MG/KG	S
S314.5	S31	4.5	BERYLLIUM	.15	B	MG/KG	S
S310.5	S31	.5	CADMIUM	.42		MG/KG	S
S312.5	S31	2.5	CADMIUM	2.2		MG/KG	S
S314.5	S31	4.5	CADMIUM	.15	B	MG/KG	S

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
S310.5	S31	.5	CALCIUM	10600		MG/KG	S
S312.5	S31	2.5	CALCIUM	3780		MG/KG	S
S314.5	S31	4.5	CALCIUM	2250		MG/KG	S
S310.5	S31	.5	CHROMIUM	11.7		MG/KG	S
S312.5	S31	2.5	CHROMIUM	30		MG/KG	S
S314.5	S31	4.5	CHROMIUM	31.4		MG/KG	S
S310.5	S31	.5	COBALT	6		MG/KG	S
S312.5	S31	2.5	COBALT	5.1	B	MG/KG	S
S314.5	S31	4.5	COBALT	3.9	B	MG/KG	S
S310.5	S31	.5	COPPER	7.7	*	MG/KG	S
S312.5	S31	2.5	COPPER	158	*	MG/KG	S
S314.5	S31	4.5	COPPER	12.4	*	MG/KG	S
S310.5	S31	.5	IRON	22100		MG/KG	S
S312.5	S31	2.5	IRON	9390		MG/KG	S
S314.5	S31	4.5	IRON	6810		MG/KG	S
S310.5	S31	.5	LEAD	7.1		MG/KG	S
S312.5	S31	2.5	LEAD	498		MG/KG	S
S314.5	S31	4.5	LEAD	13.4		MG/KG	S
S310.5	S31	.5	MAGNESIUM	3740		MG/KG	S
S312.5	S31	2.5	MAGNESIUM	2510		MG/KG	S
S314.5	S31	4.5	MAGNESIUM	2010		MG/KG	S
S310.5	S31	.5	MANGANESE	652		MG/KG	S
S312.5	S31	2.5	MANGANESE	125		MG/KG	S
S314.5	S31	4.5	MANGANESE	77.2		MG/KG	S
S310.5	S31	.5	MERCURY	.271		MG/KG	S
S312.5	S31	2.5	MERCURY	.133		MG/KG	S
S314.5	S31	4.5	MERCURY	.02	B	MG/KG	S
S310.5	S31	.5	NICKEL	18.5		MG/KG	S
S312.5	S31	2.5	NICKEL	33.4		MG/KG	S
S314.5	S31	4.5	NICKEL	23.2		MG/KG	S
S310.5	S31	.5	POTASSIUM	699	B	MG/KG	S
S312.5	S31	2.5	POTASSIUM	758	B	MG/KG	S
S314.5	S31	4.5	POTASSIUM	487	B	MG/KG	S
S310.5	S31	.5	SODIUM	136	B	MG/KG	S
S312.5	S31	2.5	SODIUM	253	B	MG/KG	S
S314.5	S31	4.5	SODIUM	141	B	MG/KG	S
S310.5	S31	.5	VANADIUM	12.2		MG/KG	S
S312.5	S31	2.5	VANADIUM	27.2		MG/KG	S
S314.5	S31	4.5	VANADIUM	18.5		MG/KG	S
S310.5	S31	.5	ZINC	68.1		MG/KG	S
S312.5	S31	2.5	ZINC	393		MG/KG	S
S314.5	S31	4.5	ZINC	26.2		MG/KG	S
GW2S22	S22		ANTIMONY	8		UG/L	W
GW2S22D	S22		ANTIMONY	1.8	B	UG/L	W
GW2S22	S22		ARSENIC	9.1	B	UG/L	W
GW2S22D	S22		ARSENIC	8.2	B	UG/L	W
GW2S22	S22		BARIUM	390		UG/L	W
GW2S22D	S22		BARIUM	382		UG/L	W
EBS22	S22	0	BERYLLIUM	.11	B	UG/L	W
GW2S22	S22		CALCIUM	127000		UG/L	W
GW2S22D	S22		CALCIUM	126000		UG/L	W
GW2S22	S22		COBALT	1.7	NB	UG/L	W
GW2S22D	S22		COBALT	1.5	NB	UG/L	W
GW2S22	S22		COPPER	3.2		UG/L	W
EBS22	S22	0	IRON	23	B	UG/L	W
GW2S22	S22		IRON	1820		UG/L	W

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
GW2S22D	S22		IRON	2000		UG/L	W
EBS22	S22	0	LEAD	1.3	B	UG/L	W
GW2S22	S22		MAGNESIUM	23900		UG/L	W
GW2S22D	S22		MAGNESIUM	24100		UG/L	W
EBS22	S22	0	MANGANESE	.45	B	UG/L	W
GW2S22	S22		MANGANESE	1580		UG/L	W
GW2S22D	S22		MANGANESE	1590		UG/L	W
GW2S22	S22		MERCURY	.03	B	UG/L	W
EBS22	S22	0	MOLYBDENUM	1.4	B	UG/L	W
GW2S22	S22		MOLYBDENUM	.65	B	UG/L	W
GW2S22D	S22		MOLYBDENUM	.5	B	UG/L	W
GW2S22	S22		POTASSIUM	27800		UG/L	W
GW2S22D	S22		POTASSIUM	28200		UG/L	W
EBS22	S22	0	SODIUM	327	B	UG/L	W
GW2S22	S22		SODIUM	72700		UG/L	W
GW2S22D	S22		SODIUM	235000		UG/L	W
GW2S22D	S22		THALLIUM	2.3		UG/L	W
GW2S22	S22		VANADIUM	2.7	B	UG/L	W
GW2S22D	S22		VANADIUM	2.8	B	UG/L	W
EBS22	S22	0	ZINC	5.1	B	UG/L	W
GW2S22	S22		ZINC	5.1	B	UG/L	W
GW2S22D	S22		ZINC	6.1	B	UG/L	W
GW2S27	S27		ALUMINUM	43.8	B	UG/L	W
GW2S27	S27		ANTIMONY	2.8	B	UG/L	W
GW2S27	S27		ARSENIC	1.7	B	UG/L	W
GW2S27	S27		BARIUM	128	EB	UG/L	W
GW2S27	S27		BERYLLIUM	.16	B	UG/L	W
GW2S27	S27		CALCIUM	116000	E	UG/L	W
GW2S27	S27		CHROMIUM	2.3	B	UG/L	W
GW2S27	S27		COBALT	1.7	B	UG/L	W
GW2S27	S27		IRON	3690		UG/L	W
GW2S27	S27		MAGNESIUM	85300		UG/L	W
GW2S27	S27		MANGANESE	1340		UG/L	W
GW2S27	S27		MERCURY	.05	B	UG/L	W
GW2S27	S27		NICKEL	3.1	B	UG/L	W
GW2S27	S27		POTASSIUM	87400	E	UG/L	W
GW2S27	S27		SELENIUM	2.6	B	UG/L	W
GW2S27	S27		SODIUM	777000		UG/L	W
GW2S27	S27		VANADIUM	3.3	B	UG/L	W
GW2S27	S27		ZINC	7.2	B	UG/L	W
GW2S29	S29		ANTIMONY	4.2	B	UG/L	W
GW2S29D	S29		ANTIMONY	4.8	B	UG/L	W
GW2S29EB	S29		ANTIMONY	14.6		UG/L	W
GW2S29	S29		BARIUM	134	B	UG/L	W
GW2S29D	S29		BARIUM	130	B	UG/L	W
GW2S29	S29		CALCIUM	89800		UG/L	W
GW2S29D	S29		CALCIUM	85000		UG/L	W
GW2S29	S29		COBALT	.71	B	UG/L	W
GW2S29	S29		IRON	1840		UG/L	W
GW2S29D	S29		IRON	2050		UG/L	W
GW2S29	S29		LEAD	1	B	UG/L	W
GW2S29D	S29		LEAD	1.4	B	UG/L	W
GW2S29	S29		MAGNESIUM	41100		UG/L	W
GW2S29D	S29		MAGNESIUM	42500		UG/L	W
GW2S29	S29		MANGANESE	1520		UG/L	W
GW2S29D	S29		MANGANESE	1450		UG/L	W

Sample No.	LOCATION_CODE	DEPTH	Constituent	Conc.	DQ	UOM	M
GW2S29EB	S29		MANGANESE	2	B	UG/L	W
GW2S29D	S29		MERCURY	.041	B	UG/L	W
GW2S29	S29		MOLYBDENUM	.6	B	UG/L	W
GW2S29D	S29		MOLYBDENUM	.4	B	UG/L	W
GW2S29EB	S29		MOLYBDENUM	3.2	B	UG/L	W
GW2S29	S29		POTASSIUM	46500		UG/L	W
GW2S29D	S29		POTASSIUM	50100		UG/L	W
GW2S29	S29		SELENIUM	3.5	B	UG/L	W
GW2S29D	S29		SELENIUM	3.3	B	UG/L	W
GW2S29	S29		SODIUM	326000		UG/L	W
GW2S29D	S29		SODIUM	394000		UG/L	W
GW2S29EB	S29		SODIUM	302	B	UG/L	W
GW2S29	S29		VANADIUM	1.6	B	UG/L	W
GW2S29D	S29		VANADIUM	1.2	B	UG/L	W
GW2S29D	S29		ZINC	4.2	B	UG/L	W
GW2S29EB	S29		ZINC	4.9	B	UG/L	W
GW2S30	S30		ALUMINUM	35.6	B	UG/L	W
GW2S30	S30		ANTIMONY	4.7	B	UG/L	W
GW2S30	S30		ARSENIC	2.5	B	UG/L	W
GW2S30	S30		BARIUM	162	EB	UG/L	W
GW2S30	S30		BERYLLIUM	.15	B	UG/L	W
GW2S30	S30		CALCIUM	82300	E	UG/L	W
GW2S30	S30		COBALT	.91	B	UG/L	W
GW2S30	S30		IRON	6600		UG/L	W
GW2S30	S30		MAGNESIUM	43200		UG/L	W
GW2S30	S30		MANGANESE	1530		UG/L	W
GW2S30	S30		MERCURY	.044	B	UG/L	W
GW2S30	S30		POTASSIUM	55800	E	UG/L	W
GW2S30	S30		SELENIUM	3.2	B	UG/L	W
GW2S30	S30		SODIUM	333000		UG/L	W
GW2S30	S30		VANADIUM	1.1	B	UG/L	W
GW2S30	S30		ZINC	4.8	B	UG/L	W
GW2S31	S31		ALUMINUM	40	B	UG/L	W
GW2S31	S31		ANTIMONY	6.6		UG/L	W
GW2S31	S31		ARSENIC	2.3	B	UG/L	W
GW2S31	S31		BARIUM	325	E	UG/L	W
GW2S31	S31		BERYLLIUM	.16	B	UG/L	W
GW2S31	S31		CALCIUM	108000	E	UG/L	W
GW2S31	S31		COBALT	1.3	B	UG/L	W
GW2S31	S31		IRON	5690		UG/L	W
GW2S31	S31		MAGNESIUM	115000		UG/L	W
GW2S31	S31		MANGANESE	2270		UG/L	W
GW2S31	S31		MERCURY	.043	B	UG/L	W
GW2S31	S31		MOLYBDENUM	.65	B	UG/L	W
GW2S31	S31		NICKEL	2.7	B	UG/L	W
GW2S31	S31		POTASSIUM	75600	E	UG/L	W
GW2S31	S31		SELENIUM	3.6	B	UG/L	W
GW2S31	S31		SODIUM	596000		UG/L	W
GW2S31	S31		VANADIUM	2.4	B	UG/L	W
GW2S31	S31		ZINC	6.1	B	UG/L	W

1002 rows selected.

%SWMU 4% POSITIVE HITS VOLATILES

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A1145.0	A114	06-SEP-94	5.0	2-BUTANONE	44		UG/KG
S302.5	S30	24-MAY-94	2.5		23	J	UG/KG
A1142.5	A114	06-SEP-94	2.5		21		UG/KG
S312.5	S31	24-MAY-94	2.5		15		UG/KG
A1143.5	A114	06-SEP-94	3.5		13		UG/KG
A3720	A37	01-MAR-94	2.0		11	J	UG/KG
A3755	A37	01-MAR-94	5.5		11	J	UG/KG
A3940	A39	01-MAR-94	4.0		8	J	UG/KG
S294.0	S29	23-MAY-94	4.0		8	J	UG/KG
A114EB	A114	06-SEP-94	.0		6	J	UG/KG
A3815	A38	01-MAR-94	1.5		6	J	UG/KG
A3840	A38	01-MAR-94	4.0		6	J	UG/KG
S300.5	S30	24-MAY-94	.5	4-METHYL-2-PENTANONE	6	J	UG/KG
S302.5	S30	24-MAY-94	2.5	ACETONE	150	J	UG/KG
A911.0	A91	19-MAY-94	1.0		140		UG/KG
A1142.5	A114	06-SEP-94	2.5		98		UG/KG
A1145.0	A114	06-SEP-94	5.0		74		UG/KG
A1143.5	A114	06-SEP-94	3.5		62		UG/KG
A114EB	A114	06-SEP-94	.0		19		UG/KG
S296.0	S29	23-MAY-94	6.0	CARBON DISULFIDE	8	J	UG/KG
S312.5	S31	24-MAY-94	2.5		6	J	UG/KG
A884.5	A88	19-MAY-94	4.5		5	J	UG/KG
A1145.0	A114	06-SEP-94	5.0		4	J	UG/KG
A1142.5	A114	06-SEP-94	2.5		3	J	UG/KG
A4125D	A41	01-MAR-94	2.5	CHLOROFORM	20		UG/KG
A90A4.0	A90	20-MAY-94	4.0		5	J	UG/KG
A881.0	A88	19-MAY-94	1.0	ETHYLBENZENE	4	J	UG/KG
A1142.5	A114	06-SEP-94	2.5	METHYLENE CHLORIDE	7	BJ	UG/KG
A1143.5	A114	06-SEP-94	3.5		6	BJ	UG/KG
A1145.0	A114	06-SEP-94	5.0		4	BJ	UG/KG
A114EB	A114	06-SEP-94	.0		4	BJ	UG/KG
A4125D	A41	01-MAR-94	2.5	TOLUENE	5	J	UG/KG
A1142.5	A114	06-SEP-94	2.5		3	J	UG/KG
A881.0	A88	19-MAY-94	1.0	XYLENE (TOTAL)	24		UG/KG
S300.5	S30	24-MAY-94	.5		13		UG/KG
A1142.5	A114	06-SEP-94	2.5		4	J	UG/KG
A3755	A37	01-MAR-94	5.5		3	J	UG/KG

37 rows selected.

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old    4: WHERE C.SUB_AREA LIKE '%&&SUBAREA'
new    4: WHERE C.SUB_AREA LIKE '%%SWMU 4%'
old    6:      AND A.MATRIX LIKE '&&MATR'
new    6:      AND A.MATRIX LIKE 'S'
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Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A93A5.5	A93	25-MAY-94	5.5	2-METHYLNAPHTHALENE	1100	J	UG/KG
S302.5 DL	S30	24-MAY-94	2.5		470	J	UG/KG
S294.0	S29	23-MAY-94	4.0		110	J	UG/KG
A911.0	A91	19-MAY-94	1.0		98	J	UG/KG
A914.0	A91	19-MAY-94	4.0		93	J	UG/KG
A923.0	A92	20-MAY-94	3.0		53	J	UG/KG
A4125D	A41	01-MAR-94	2.5		51	J	UG/KG
A3920	A39	01-MAR-94	2.0		36	J	UG/KG
A90A4.0	A90	20-MAY-94	4.0		34	J	UG/KG
A93A3.5	A93	25-MAY-94	3.5		29	J	UG/KG
S302.5 DL	S30	24-MAY-94	2.5	ACENAPHTHENE	270	J	UG/KG
A914.0	A91	19-MAY-94	4.0		140	J	UG/KG
A3940	A39	01-MAR-94	4.0		76	J	UG/KG
S305.5	S30	24-MAY-94	5.5		40	J	UG/KG
A93A3.5	A93	25-MAY-94	3.5		37	J	UG/KG
S296.0 DL	S29	23-MAY-94	6.0	ACENAPHTHYLENE	320	J	UG/KG
A3940	A39	01-MAR-94	4.0		270	J	UG/KG
A915.5	A91	19-MAY-94	5.5		97	J	UG/KG
A3920	A39	01-MAR-94	2.0		44	J	UG/KG
S294.0	S29	23-MAY-94	4.0		21	J	UG/KG
A914.0	A91	19-MAY-94	4.0		9	J	UG/KG
A3940	A39	01-MAR-94	4.0	ANTHRACENE	860		UG/KG
S296.0 DL	S29	23-MAY-94	6.0		340	J	UG/KG
A915.5	A91	19-MAY-94	5.5		230	J	UG/KG
S302.5 DL	S30	24-MAY-94	2.5		150	J	UG/KG
A914.0	A91	19-MAY-94	4.0		120	J	UG/KG
A4245	A42	02-MAR-94	4.5		83	J	UG/KG
A884.5	A88	19-MAY-94	4.5		56	J	UG/KG
S294.0	S29	23-MAY-94	4.0		48	J	UG/KG
A3920	A39	01-MAR-94	2.0		46	J	UG/KG
A4125D	A41	01-MAR-94	2.5		36	J	UG/KG
A1142.5	A114	06-SEP-94	2.5		32	J	UG/KG
A1143.5	A114	06-SEP-94	3.5		22	J	UG/KG
A3815	A38	01-MAR-94	1.5		19	J	UG/KG
A923.0	A92	20-MAY-94	3.0		15	J	UG/KG
A90A4.0	A90	20-MAY-94	4.0		13	J	UG/KG
A4030	A40	01-MAR-94	3.0		10	J	UG/KG
S296.0 DL	S29	23-MAY-94	6.0	BENZO(A)ANTHRACENE	2000		UG/KG
A3940	A39	01-MAR-94	4.0		1500		UG/KG
A915.5	A91	19-MAY-94	5.5		620		UG/KG
A3920	A39	01-MAR-94	2.0		420		UG/KG
S302.5 DL	S30	24-MAY-94	2.5		320	J	UG/KG
A4245	A42	02-MAR-94	4.5		230	J	UG/KG
A884.5	A88	19-MAY-94	4.5		220	J	UG/KG
A1142.5	A114	06-SEP-94	2.5		170	J	UG/KG
S294.0	S29	23-MAY-94	4.0		150	J	UG/KG
A4215	A42	02-MAR-94	1.5		130	J	UG/KG
A923.0	A92	20-MAY-94	3.0		130	J	UG/KG
A914.0	A91	19-MAY-94	4.0		100	J	UG/KG
A1143.5	A114	06-SEP-94	3.5		74	J	UG/KG
A3815	A38	01-MAR-94	1.5		72	J	UG/KG
A90A4.0	A90	20-MAY-94	4.0		67	J	UG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A93A3.5	A93	25-MAY-94	3.5	BENZO(A)ANTHRACENE	67	J	UG/KG
S314.5	S31	24-MAY-94	4.5		64	J	UG/KG
A4030	A40	01-MAR-94	3.0		51	J	UG/KG
A4120	A41	01-MAR-94	2.0		43	J	UG/KG
A3840 RE	A38	01-MAR-94	4.0		30	J	UG/KG
S296.0 DL	S29	23-MAY-94	6.0	BENZO(A)PYRENE	3800		UG/KG
A3940	A39	01-MAR-94	4.0		2400		UG/KG
A3920	A39	01-MAR-94	2.0		1000		UG/KG
A915.5	A91	19-MAY-94	5.5		860		UG/KG
A4215	A42	02-MAR-94	1.5		310	J	UG/KG
A884.5	A88	19-MAY-94	4.5		280	J	UG/KG
A1142.5	A114	06-SEP-94	2.5		230	J	UG/KG
A4125D	A41	01-MAR-94	2.5		190	J	UG/KG
S223.0 DL	S22	16-MAY-94	3.0		190	J	UG/KG
S302.5 DL	S30	24-MAY-94	2.5		190	J	UG/KG
A4245	A42	02-MAR-94	4.5		170	J	UG/KG
S294.0	S29	23-MAY-94	4.0		160	J	UG/KG
A1143.5	A114	06-SEP-94	3.5		98	J	UG/KG
A3815	A38	01-MAR-94	1.5		96	J	UG/KG
A4030	A40	01-MAR-94	3.0		69	J	UG/KG
A4120	A41	01-MAR-94	2.0		63	J	UG/KG
A914.0	A91	19-MAY-94	4.0		61	J	UG/KG
A90A4.0	A90	20-MAY-94	4.0		54	J	UG/KG
S296.0 DL	S29	23-MAY-94	6.0	BENZO(B)FLUORANTHENE	4100		UG/KG
A3940	A39	01-MAR-94	4.0		1300		UG/KG
A915.5	A91	19-MAY-94	5.5		820		UG/KG
A3920	A39	01-MAR-94	2.0		690		UG/KG
A884.5	A88	19-MAY-94	4.5		280	J	UG/KG
A1142.5	A114	06-SEP-94	2.5		210	J	UG/KG
S223.0 DL	S22	16-MAY-94	3.0		210	J	UG/KG
A4125D	A41	01-MAR-94	2.5		190	J	UG/KG
A4245	A42	02-MAR-94	4.5		180	J	UG/KG
S294.0	S29	23-MAY-94	4.0		180	J	UG/KG
A4215	A42	02-MAR-94	1.5		170	J	UG/KG
A914.0	A91	19-MAY-94	4.0		93	J	UG/KG
A90A4.0	A90	20-MAY-94	4.0		82	J	UG/KG
A1143.5	A114	06-SEP-94	3.5		78	J	UG/KG
A3815	A38	01-MAR-94	1.5		71	J	UG/KG
A4120	A41	01-MAR-94	2.0		51	J	UG/KG
A4030	A40	01-MAR-94	3.0		42	J	UG/KG
A3920	A39	01-MAR-94	2.0	BENZO(G,H,I)PERYLENE	2000		UG/KG
A3940	A39	01-MAR-94	4.0		2000	J	UG/KG
S296.0 DL	S29	23-MAY-94	6.0		1700	J	UG/KG
A915.5	A91	19-MAY-94	5.5		770		UG/KG
S223.0 DL	S22	16-MAY-94	3.0		320	J	UG/KG
A4125D	A41	01-MAR-94	2.5		210	J	UG/KG
A4245	A42	02-MAR-94	4.5		200	J	UG/KG
S294.0	S29	23-MAY-94	4.0		200	J	UG/KG
A1142.5	A114	06-SEP-94	2.5		150	J	UG/KG
A884.5	A88	19-MAY-94	4.5		150	J	UG/KG
A3815	A38	01-MAR-94	1.5		110	J	UG/KG
A1143.5	A114	06-SEP-94	3.5		63	J	UG/KG
A90A4.0	A90	20-MAY-94	4.0		60	J	UG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A914.0	A91	19-MAY-94	4.0	BENZO(G,H,I)PERYLENE	49	J	UG/KG
A3940	A39	01-MAR-94	4.0	BENZO(K)FLUORANTHENE	1400		UG/KG
S296.0 DL	S29	23-MAY-94	6.0		1100	J	UG/KG
A3920	A39	01-MAR-94	2.0		320	J	UG/KG
A915.5	A91	19-MAY-94	5.5		180	J	UG/KG
A4245	A42	02-MAR-94	4.5		170	J	UG/KG
A1142.5	A114	06-SEP-94	2.5		120	J	UG/KG
A4125D	A41	01-MAR-94	2.5		120	J	UG/KG
A4215	A42	02-MAR-94	1.5		100	J	UG/KG
A884.5	A88	19-MAY-94	4.5		91	J	UG/KG
A90A4.0	A90	20-MAY-94	4.0		82	J	UG/KG
A1143.5	A114	06-SEP-94	3.5		54	J	UG/KG
A4030	A40	01-MAR-94	3.0		52	J	UG/KG
S223.0 DL	S22	16-MAY-94	3.0		52	J	UG/KG
S294.0	S29	23-MAY-94	4.0		50	J	UG/KG
A3815	A38	01-MAR-94	1.5		40	J	UG/KG
A4120	A41	01-MAR-94	2.0		29	J	UG/KG
A914.0	A91	19-MAY-94	4.0		27	J	UG/KG
A923.0	A92	20-MAY-94	3.0	CARBAZOLE	39	J	UG/KG
S296.0 DL	S29	23-MAY-94	6.0	CHRYSENE	2600		UG/KG
A3940	A39	01-MAR-94	4.0		1700		UG/KG
A915.5	A91	19-MAY-94	5.5		650		UG/KG
A3920	A39	01-MAR-94	2.0		640		UG/KG
S302.5 DL	S30	24-MAY-94	2.5		360	J	UG/KG
A4125D	A41	01-MAR-94	2.5		260	J	UG/KG
A4245	A42	02-MAR-94	4.5		250	J	UG/KG
A923.0	A92	20-MAY-94	3.0		250	J	UG/KG
A884.5	A88	19-MAY-94	4.5		230	J	UG/KG
A1142.5	A114	06-SEP-94	2.5		220	J	UG/KG
A4215	A42	02-MAR-94	1.5		220	J	UG/KG
S294.0	S29	23-MAY-94	4.0		210	J	UG/KG
A3815	A38	01-MAR-94	1.5		170	J	UG/KG
A90A4.0	A90	20-MAY-94	4.0		120	J	UG/KG
A914.0	A91	19-MAY-94	4.0		110	J	UG/KG
A93A3.5	A93	25-MAY-94	3.5		110	J	UG/KG
A1143.5	A114	06-SEP-94	3.5		90	J	UG/KG
A3840 RE	A38	01-MAR-94	4.0		78	J	UG/KG
S314.5	S31	24-MAY-94	4.5		74	J	UG/KG
A4030	A40	01-MAR-94	3.0		70	J	UG/KG
A4120	A41	01-MAR-94	2.0		60	J	UG/KG
A4245	A42	02-MAR-94	4.5	DIBENZ(A,H)ANTHRACENE	30	J	UG/KG
A914.0	A91	19-MAY-94	4.0	DIBENZOFURAN	100	J	UG/KG
A93A3.5	A93	25-MAY-94	3.5		46	J	UG/KG
S296.0 DL	S29	23-MAY-94	6.0	FLUORANTHENE	6200		UG/KG
A3940	A39	01-MAR-94	4.0		4600		UG/KG
A915.5	A91	19-MAY-94	5.5		1400		UG/KG
A4245	A42	02-MAR-94	4.5		690		UG/KG
A93A5.5	A93	25-MAY-94	5.5		680	J	UG/KG
S302.5 DL	S30	24-MAY-94	2.5		660	J	UG/KG
A884.5	A88	19-MAY-94	4.5		440		UG/KG

%SWMU 4% POSITIVE HITS SEMI-VOLATILES

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
S294.0	S29	23-MAY-94	4.0	FLUORANTHENE	410		UG/KG
A1142.5	A114	06-SEP-94	2.5		360	J	UG/KG
A914.0	A91	19-MAY-94	4.0		330	J	UG/KG
A3920	A39	01-MAR-94	2.0		280	J	UG/KG
A93A3.5	A93	25-MAY-94	3.5		270	J	UG/KG
A4125D	A41	01-MAR-94	2.5		240	J	UG/KG
A4215	A42	02-MAR-94	1.5		210	J	UG/KG
A1143.5	A114	06-SEP-94	3.5		170	J	UG/KG
S223.0 DL	S22	16-MAY-94	3.0		140	J	UG/KG
A4030	A40	01-MAR-94	3.0		130	J	UG/KG
A923.0	A92	20-MAY-94	3.0		110	J	UG/KG
S314.5	S31	24-MAY-94	4.5		110	J	UG/KG
A3815	A38	01-MAR-94	1.5		84	J	UG/KG
A89C5.0	A89	24-MAY-94	5.0		84	J	UG/KG
A90A4.0	A90	20-MAY-94	4.0		82	J	UG/KG
S305.5	S30	24-MAY-94	5.5		71	J	UG/KG
A3755	A37	01-MAR-94	5.5		50	J	UG/KG
A4120	A41	01-MAR-94	2.0		48	J	UG/KG
A3840 RE	A38	01-MAR-94	4.0		26	J	UG/KG
A925.5D	A92	20-MAY-94	5.5		22	J	UG/KG
A93A5.5	A93	25-MAY-94	5.5	FLUORENE	1800	J	UG/KG
A3940	A39	01-MAR-94	4.0		360	J	UG/KG
A914.0	A91	19-MAY-94	4.0		150	J	UG/KG
S302.5 DL	S30	24-MAY-94	2.5		120	J	UG/KG
A93A3.5	A93	25-MAY-94	3.5		93	J	UG/KG
A915.5	A91	19-MAY-94	5.5		81	J	UG/KG
S296.0 DL	S29	23-MAY-94	6.0	INDENO(1,2,3-CD)PYRENE	1500	J	UG/KG
A3940	A39	01-MAR-94	4.0		1400		UG/KG
A3920	A39	01-MAR-94	2.0		830		UG/KG
A915.5	A91	19-MAY-94	5.5		540		UG/KG
A4215	A42	02-MAR-94	1.5		180	J	UG/KG
A4125D	A41	01-MAR-94	2.5		150	J	UG/KG
A4245	A42	02-MAR-94	4.5		150	J	UG/KG
A1142.5	A114	06-SEP-94	2.5		130	J	UG/KG
S294.0	S29	23-MAY-94	4.0		130	J	UG/KG
A884.5	A88	19-MAY-94	4.5		120	J	UG/KG
A1143.5	A114	06-SEP-94	3.5		54	J	UG/KG
A3815	A38	01-MAR-94	1.5		48	J	UG/KG
A914.0	A91	19-MAY-94	4.0		35	J	UG/KG
S302.5 DL	S30	24-MAY-94	2.5	NAPHTHALENE	4100		UG/KG
A914.0	A91	19-MAY-94	4.0		190	J	UG/KG
A4125D	A41	01-MAR-94	2.5		81	J	UG/KG
S294.0	S29	23-MAY-94	4.0		74	J	UG/KG
A93A3.5	A93	25-MAY-94	3.5		47	J	UG/KG
A923.0	A92	20-MAY-94	3.0		35	J	UG/KG
A3920	A39	01-MAR-94	2.0		29	J	UG/KG
A90A4.0	A90	20-MAY-94	4.0		27	J	UG/KG
A911.0	A91	19-MAY-94	1.0		20	J	UG/KG
A3940	A39	01-MAR-94	4.0	PHENANTHRENE	4700		UG/KG
S296.0 DL	S29	23-MAY-94	6.0		2100		UG/KG
A93A5.5	A93	25-MAY-94	5.5		1400	J	UG/KG
A915.5	A91	19-MAY-94	5.5		1100		UG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
S302.5 DL	S30	24-MAY-94	2.5	PHENANTHRENE	720	J	UG/KG
A914.0	A91	19-MAY-94	4.0		690		UG/KG
A4245	A42	02-MAR-94	4.5		510		UG/KG
S294.0	S29	23-MAY-94	4.0		370		UG/KG
A3920	A39	01-MAR-94	2.0		350	J	UG/KG
A4125D	A41	01-MAR-94	2.5		310	J	UG/KG
A93A3.5	A93	25-MAY-94	3.5		230	J	UG/KG
A1142.5	A114	06-SEP-94	2.5		220	J	UG/KG
A923.0	A92	20-MAY-94	3.0		220	J	UG/KG
A1143.5	A114	06-SEP-94	3.5		150	J	UG/KG
A884.5	A88	19-MAY-94	4.5		140	J	UG/KG
A4215	A42	02-MAR-94	1.5		130	J	UG/KG
A90A4.0	A90	20-MAY-94	4.0		130	J	UG/KG
A3815	A38	01-MAR-94	1.5		120	J	UG/KG
A3840 RE	A38	01-MAR-94	4.0		61	J	UG/KG
A4120	A41	01-MAR-94	2.0		54	J	UG/KG
A4030	A40	01-MAR-94	3.0		53	J	UG/KG
A89C5.0	A89	24-MAY-94	5.0		53	J	UG/KG
S314.5	S31	24-MAY-94	4.5		51	J	UG/KG
A911.0	A91	19-MAY-94	1.0		49	J	UG/KG
S305.5	S30	24-MAY-94	5.5		35	J	UG/KG
S296.0 DL	S29	23-MAY-94	6.0	PYRENE	8100		UG/KG
A3940	A39	01-MAR-94	4.0		5400		UG/KG
A915.5	A91	19-MAY-94	5.5		1700		UG/KG
A3920	A39	01-MAR-94	2.0		1300		UG/KG
S312.5	S31	24-MAY-94	2.5		1100	J	UG/KG
A93A5.5	A93	25-MAY-94	5.5		1000	J	UG/KG
A4245	A42	02-MAR-94	4.5		720		UG/KG
A4215	A42	02-MAR-94	1.5		640	J	UG/KG
S302.5 DL	S30	24-MAY-94	2.5		640	J	UG/KG
A884.5	A88	19-MAY-94	4.5		620		UG/KG
S294.0	S29	23-MAY-94	4.0		580		UG/KG
A1142.5	A114	06-SEP-94	2.5		470		UG/KG
A914.0	A91	19-MAY-94	4.0		440		UG/KG
A4125D	A41	01-MAR-94	2.5		400		UG/KG
A923.0	A92	20-MAY-94	3.0		290	J	UG/KG
A3815	A38	01-MAR-94	1.5		210	J	UG/KG
A1143.5	A114	06-SEP-94	3.5		200	J	UG/KG
A93A3.5	A93	25-MAY-94	3.5		200	J	UG/KG
S314.5	S31	24-MAY-94	4.5		180	J	UG/KG
A4030	A40	01-MAR-94	3.0		170	J	UG/KG
A90A4.0	A90	20-MAY-94	4.0		160	J	UG/KG
A89C5.0	A89	24-MAY-94	5.0		140	J	UG/KG
A4120	A41	01-MAR-94	2.0		91	J	UG/KG
S305.5	S30	24-MAY-94	5.5		85	J	UG/KG
A3840 RE	A38	01-MAR-94	4.0		79	J	UG/KG
A3755	A37	01-MAR-94	5.5		68	J	UG/KG
A925.5D	A92	20-MAY-94	5.5		47	J	UG/KG
A775.0	A77	16-MAY-94	5.0	UNKNOWN	1000	BJ	UG/KG

256 rows selected.

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old    4: WHERE C.SUB_AREA LIKE '%&&SUBAREA'
new    4: WHERE C.SUB_AREA LIKE '%%SWMU 4%'
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%SWMU 4% POSITIVE HITS PESTICIDES

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A90A6.5	A90	20-MAY-94	6.5	4,4'-DDT	2.2	J	UG/KG
A925.0	A92	20-MAY-94	5.0		1.8	J	UG/KG

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old    4: WHERE C.SUB_AREA LIKE '%&&SUBAREA'
new    4: WHERE C.SUB_AREA LIKE '%%SWMU 4%'
old    6:     AND A.MATRIX LIKE '&&MATR'
new    6:     AND A.MATRIX LIKE 'S'
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%SWMU 4% POSITIVE HITS TPH PAGE: 1

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A93A5.5	A93	25-MAY-94	5.5	TPH DIESEL	1.1E+07		UG/KG
S312.5	S31	24-MAY-94	2.5		5000000	J	UG/KG
S296.0	S29	23-MAY-94	6.0		130000		UG/
A93A1.0	A93	25-MAY-94	1.0		120000	J	UG/
A93A5.5	A93	25-MAY-94	5.5	TPH GASOLI	1300000		UG/KG
A93A3.5	A93	25-MAY-94	3.5		72000	J	UG/KG
A93A1.0	A93	25-MAY-94	1.0		970		UG/KG
A4245	A42	02-MAR-94	4.5		590	J	UG/KG
S312.5	S31	24-MAY-94	2.5		320	J	UG/KG
A90A1.0	A90	20-MAY-94	1.0		270	J	UG/KG
S312.5	S31	24-MAY-94	2.5	TPH MOTOR	6500000		UG/KG
A881.0	A88	19-MAY-94	1.0		2800000		UG/KG
S300.5	S30	24-MAY-94	.5		2800000		UG/KG
A89C0.5	A89	24-MAY-94	.5		2100000		UG/KG
A93A5.5	A93	25-MAY-94	5.5		2000000		UG/KG
A941.5	A94	20-MAY-94	1.5		2000000		UG/KG
A90A1.0	A90	20-MAY-94	1.0		1900000		UG/KG
A921.0	A92	20-MAY-94	1.0		1700000		UG/KG
A911.0	A91	19-MAY-94	1.0		1600000		UG/KG
A93A3.5	A93	25-MAY-94	3.5		1600000		UG/KG
S291.5	S29	23-MAY-94	1.5		1500000		UG/KG
A3840	A38	01-MAR-94	4.0		1300000		UG/KG
S310.5	S31	24-MAY-94	.5		1200000		UG/KG
A93A1.0	A93	25-MAY-94	1.0		1100000		UG/KG
A3920	A39	01-MAR-94	2.0		1000000		UG/KG
S294.0	S29	23-MAY-94	4.0		810000		UG/KG
S223.0	S22	16-MAY-94	3.0		800000		UG/KG
A89C5.0	A89	24-MAY-94	5.0		600000		UG/KG
A923.0	A92	20-MAY-94	3.0		470000		UG/KG
A3815	A38	01-MAR-94	1.5		380000		UG/
A90A4.0	A90	20-MAY-94	4.0		330000		UG/
S302.5	S30	24-MAY-94	2.5		300000		UG/KG
A4215	A42	02-MAR-94	1.5		260000		UG/KG
A1145.0	A114	06-SEP-94	5.0		220000		UG/KG
A771.5	A77	16-MAY-94	1.5		170000		UG/KG
S296.0	S29	23-MAY-94	6.0		170000		UG/KG
A4120	A41	01-MAR-94	2.0		160000		UG/KG
A89C3.5	A89	24-MAY-94	3.5		76000		UG/KG
A914.0	A91	19-MAY-94	4.0		70000		UG/KG
A1142.5	A114	06-SEP-94	2.5		63000		UG/KG
A915.5	A91	19-MAY-94	5.5		31000		UG/KG
A4030	A40	01-MAR-94	3.0		30000		UG/KG
A4245	A42	02-MAR-94	4.5		29000		UG/KG
A3720	A37	01-MAR-94	2.0		14000		UG/KG
A884.5	A88	19-MAY-94	4.5		11000	J	UG/KG
A1143.5	A114	06-SEP-94	3.5		6800	J	UG/KG

46 rows selected.

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old    4: WHERE C.SUB_AREA LIKE '%&&SUBAREA'
new    4: WHERE C.SUB_AREA LIKE '%%SWMU 4%'
old    6:      AND A.MATRIX LIKE '&&MATR'
new    6:      AND A.MATRIX LIKE 'S'
```

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A3720	A37	01-MAR-94	2.0	ALUMINUM	25400		MG/KG
A90A1.0	A90	20-MAY-94	1.0		11500	J	MG/KG
A89C3.5	A89	24-MAY-94	3.5		10600		MG/KG
A93A3.5	A93	25-MAY-94	3.5		10100		MG/KG
A884.5	A88	19-MAY-94	4.5		9980		MG/KG
A3840	A38	01-MAR-94	4.0		9670		MG/KG
A911.0	A91	19-MAY-94	1.0		8580		MG/KG
A3920	A39	01-MAR-94	2.0		8430		MG/KG
A4030	A40	01-MAR-94	3.0		8390		MG/KG
A921.0	A92	20-MAY-94	1.0		8280	J	MG/KG
A3940	A39	01-MAR-94	4.0		8110		MG/KG
A93A1.0	A93	25-MAY-94	1.0		7990		MG/KG
A90A4.0	A90	20-MAY-94	4.0		7870	J	MG/KG
A4125D	A41	01-MAR-94	2.5		7580		MG/KG
A771.5	A77	16-MAY-94	1.5		7580		MG/KG
A941.5	A94	20-MAY-94	1.5		7510	J	MG/KG
S310.5	S31	24-MAY-94	.5		7330		MG/KG
A3815	A38	01-MAR-94	1.5		7180		MG/KG
A4215	A42	02-MAR-94	1.5		6970	*	MG/KG
S291.5	S29	23-MAY-94	1.5		6740		MG/KG
A4120	A41	01-MAR-94	2.0		6700		MG/KG
A775.0	A77	16-MAY-94	5.0		5920		MG/KG
A923.0	A92	20-MAY-94	3.0		5870	J	MG/KG
A89C0.5	A89	24-MAY-94	.5		5800		MG/KG
A914.0	A91	19-MAY-94	4.0		5690		MG/KG
S300.5	S30	24-MAY-94	.5		5580		MG/KG
S302.5	S30	24-MAY-94	2.5		5540		MG/KG
A1143.5	A114	06-SEP-94	3.5		5520		MG/KG
S223.0	S22	16-MAY-94	3.0		5240		MG/KG
S312.5	S31	24-MAY-94	2.5		4800		MG/KG
A1142.5	A114	06-SEP-94	2.5		4770		MG/KG
A881.0	A88	19-MAY-94	1.0		4650		MG/KG
A93A5.5	A93	25-MAY-94	5.5		4590		MG/KG
S296.0	S29	23-MAY-94	6.0		4340		MG/KG
S294.0	S29	23-MAY-94	4.0		4120		MG/KG
A925.5D	A92	20-MAY-94	5.5		3710	J	MG/KG
S314.5	S31	24-MAY-94	4.5		3680		MG/KG
A4245	A42	02-MAR-94	4.5		3640	*	MG/KG
A4145	A41	01-MAR-94	4.5		3210		MG/KG
A3755	A37	01-MAR-94	5.5		3170		MG/KG
A1145.0	A114	06-SEP-94	5.0		2920		MG/KG
A3850	A38	01-MAR-94	5.0		2920		MG/KG
A925.0	A92	20-MAY-94	5.0		2800	J	MG/KG
A90A6.5	A90	20-MAY-94	6.5		2750	J	MG/KG
A915.5	A91	19-MAY-94	5.5		2570		MG/KG
A89C5.0	A89	24-MAY-94	5.0		2500		MG/KG
S305.5	S30	24-MAY-94	5.5		2270		MG/KG
A114EB	A114	06-SEP-94	.0		860		MG/KG
S22EB	S22	16-MAY-94	.0		826		MG/KG
A40EB	A40	01-MAR-94	.0		592		MG/KG
A4125D	A41	01-MAR-94	2.5	ANTIMONY	2.2	J	MG/KG
A93A3.5	A93	25-MAY-94	3.5		1.7	J	MG/KG
A90A4.0	A90	20-MAY-94	4.0		1.2	J	MG/KG
S312.5	S31	24-MAY-94	2.5		1.2	J	MG/KG
A923.0	A92	20-MAY-94	3.0		.95	J	MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A3920	A39	01-MAR-94	2.0	ANTIMONY	.91	J	MG/KG
A89C3.5	A89	24-MAY-94	3.5		.89	J	MG/KG
S294.0	S29	23-MAY-94	4.0		.79	J	MG/KG
A4030	A40	01-MAR-94	3.0		.68	J	MG/KG
A3815	A38	01-MAR-94	1.5		.66	J	MG/KG
A3940	A39	01-MAR-94	4.0		.64	J	MG/KG
A921.0	A92	20-MAY-94	1.0		.64	J	MG/KG
S314.5	S31	24-MAY-94	4.5		.61	J	MG/KG
A4120	A41	01-MAR-94	2.0		.59	J	MG/KG
A90A1.0	A90	20-MAY-94	1.0		.58	J	MG/KG
S302.5	S30	24-MAY-94	2.5		.57	J	MG/KG
A3840	A38	01-MAR-94	4.0		.56	J	MG/KG
A4215	A42	02-MAR-94	1.5		.56	J	MG/KG
A1145.0	A114	06-SEP-94	5.0		.52	NB	MG/KG
A4245	A42	02-MAR-94	4.5		.52	J	MG/KG
A1142.5	A114	06-SEP-94	2.5		.51	NB	MG/KG
S223.0	S22	16-MAY-94	3.0		.51	J	MG/KG
S291.5	S29	23-MAY-94	1.5		.51	J	MG/KG
S296.0	S29	23-MAY-94	6.0		.47	J	MG/KG
A1143.5	A114	06-SEP-94	3.5		.46	NB	MG/KG
A93A5.5	A93	25-MAY-94	5.5		.46	J	MG/KG
A89C5.0	A89	24-MAY-94	5.0		.45	J	MG/KG
A90A6.5	A90	20-MAY-94	6.5		.44	J	MG/KG
S305.5	S30	24-MAY-94	5.5		.44	J	MG/KG
S310.5	S31	24-MAY-94	.5		.44	J	MG/KG
A941.5	A94	20-MAY-94	1.5		.42	J	MG/KG
A93A1.0	A93	25-MAY-94	1.0		.39	J	MG/KG
A925.0	A92	20-MAY-94	5.0		.38	J	MG/KG
A89C0.5	A89	24-MAY-94	.5		.36	J	MG/KG
A4125D	A41	01-MAR-94	2.5	ARSENIC	30.4		MG/KG
A923.0	A92	20-MAY-94	3.0		29.5		MG/KG
S294.0	S29	23-MAY-94	4.0		11.6		MG/KG
A93A3.5	A93	25-MAY-94	3.5		8.9		MG/KG
A90A4.0	A90	20-MAY-94	4.0		5.9		MG/KG
S312.5	S31	24-MAY-94	2.5		5.8		MG/KG
A914.0	A91	19-MAY-94	4.0		3.8		MG/KG
A881.0	A88	19-MAY-94	1.0		3.7		MG/KG
A90A1.0	A90	20-MAY-94	1.0		3.4		MG/KG
A1145.0	A114	06-SEP-94	5.0		3.3		MG/KG
A4215	A42	02-MAR-94	1.5		2.8		MG/KG
A884.5	A88	19-MAY-94	4.5		2.8		MG/KG
A93A1.0	A93	25-MAY-94	1.0		2.8		MG/KG
A3920	A39	01-MAR-94	2.0		2.7		MG/KG
A921.0	A92	20-MAY-94	1.0		2.5		MG/KG
A3840	A38	01-MAR-94	4.0		2.4		MG/KG
S302.5	S30	24-MAY-94	2.5		2.4		MG/KG
A1142.5	A114	06-SEP-94	2.5		2.3		MG/KG
A911.0	A91	19-MAY-94	1.0		2.3		MG/KG
A915.5	A91	19-MAY-94	5.5		2.3		MG/KG
A3720	A37	01-MAR-94	2.0		2.1	J	MG/KG
S291.5	S29	23-MAY-94	1.5		2.1		MG/KG
S300.5	S30	24-MAY-94	.5		2.1		MG/KG
A1143.5	A114	06-SEP-94	3.5		2	B	MG/KG
A93A5.5	A93	25-MAY-94	5.5		1.9	J	MG/KG
A3815	A38	01-MAR-94	1.5		1.8	J	MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A4120	A41	01-MAR-94	2.0	ARSENIC	1.8	J	MG/KG
S296.0	S29	23-MAY-94	6.0		1.8	J	MG/KG
S310.5	S31	24-MAY-94	.5		1.6	J	MG/KG
A4030	A40	01-MAR-94	3.0		1.5	J	MG/KG
A775.0	A77	16-MAY-94	5.0		1.5	J	MG/KG
S223.0	S22	16-MAY-94	3.0		1.4	J	MG/KG
S22EB	S22	16-MAY-94	.0		1.3	J	MG/KG
A40EB	A40	01-MAR-94	.0		1.2	J	MG/KG
A4145	A41	01-MAR-94	4.5		1.2	J	MG/KG
A4245	A42	02-MAR-94	4.5		1.2	J	MG/KG
A89C0.5	A89	24-MAY-94	.5		1.2	J	MG/KG
S305.5	S30	24-MAY-94	5.5		1.2	J	MG/KG
A114EB	A114	06-SEP-94	.0		1.1	B	MG/KG
A89C5.0	A89	24-MAY-94	5.0		1.1	J	MG/KG
A771.5	A77	16-MAY-94	1.5		1	J	MG/KG
S314.5	S31	24-MAY-94	4.5		.93	J	MG/KG
A3940	A39	01-MAR-94	4.0		.84	J	MG/KG
A3850	A38	01-MAR-94	5.0		.59	J	MG/KG
A3755	A37	01-MAR-94	5.5		.58	J	MG/KG
A3720	A37	01-MAR-94	2.0	BARIUM	230		MG/KG
S312.5	S31	24-MAY-94	2.5		198		MG/KG
A90A1.0	A90	20-MAY-94	1.0		139		MG/KG
A921.0	A92	20-MAY-94	1.0		118		MG/KG
A4125D	A41	01-MAR-94	2.5		112		MG/KG
A923.0	A92	20-MAY-94	3.0		106		MG/KG
A93A1.0	A93	25-MAY-94	1.0		104		MG/KG
S300.5	S30	24-MAY-94	.5		102		MG/KG
A1143.5	A114	06-SEP-94	3.5		99.9		MG/KG
A90A4.0	A90	20-MAY-94	4.0		99.6		MG/KG
A93A3.5	A93	25-MAY-94	3.5		91.7		MG/KG
A3840	A38	01-MAR-94	4.0		90.6		MG/KG
A941.5	A94	20-MAY-94	1.5		88.8		MG/KG
S291.5	S29	23-MAY-94	1.5		82.1		MG/KG
A3920	A39	01-MAR-94	2.0		74		MG/KG
A911.0	A91	19-MAY-94	1.0		70.1		MG/KG
S310.5	S31	24-MAY-94	.5		66.6		MG/KG
A89C3.5	A89	24-MAY-94	3.5		64.6		MG/KG
A3940	A39	01-MAR-94	4.0		63.5		MG/KG
A1142.5	A114	06-SEP-94	2.5		62.2		MG/KG
A4030	A40	01-MAR-94	3.0		56.1		MG/KG
A884.5	A88	19-MAY-94	4.5		55.4		MG/KG
S302.5	S30	24-MAY-94	2.5		53.2		MG/KG
A775.0	A77	16-MAY-94	5.0		51.2		MG/KG
A3815	A38	01-MAR-94	1.5		51.1		MG/KG
A3850	A38	01-MAR-94	5.0		49.4		MG/KG
A4245	A42	02-MAR-94	4.5		48.8	J	MG/KG
A4120	A41	01-MAR-94	2.0		46		MG/KG
S223.0	S22	16-MAY-94	3.0		45.9		MG/KG
A89C0.5	A89	24-MAY-94	.5		44.8		MG/KG
A4215	A42	02-MAR-94	1.5		41.6	J	MG/KG
S294.0	S29	23-MAY-94	4.0		41.1	J	MG/KG
A914.0	A91	19-MAY-94	4.0		40.8		MG/KG
S314.5	S31	24-MAY-94	4.5		37.2	J	MG/KG
S296.0	S29	23-MAY-94	6.0		33.7	J	MG/KG
A915.5	A91	19-MAY-94	5.5		32.3		MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A89C5.0	A89	24-MAY-94	5.0	BARIUM	31.9	J	MG/KG
A93A5.5	A93	25-MAY-94	5.5		31.9	J	MG/KG
A925.5D	A92	20-MAY-94	5.5		28.9	J	MG/KG
A90A6.5	A90	20-MAY-94	6.5		28.2	J	MG/KG
A771.5	A77	16-MAY-94	1.5		27.8	J	MG/KG
A1145.0	A114	06-SEP-94	5.0		25.6	B	MG/KG
A925.0	A92	20-MAY-94	5.0		22.7	J	MG/KG
A4145	A41	01-MAR-94	4.5		21.8	J	MG/KG
A3755	A37	01-MAR-94	5.5		21.5	J	MG/KG
S305.5	S30	24-MAY-94	5.5		20.4	J	MG/KG
A881.0	A88	19-MAY-94	1.0		16.9		MG/KG
A114EB	A114	06-SEP-94	.0		8.2	B	MG/KG
A40EB	A40	01-MAR-94	.0		3.6	J	MG/KG
S22EB	S22	16-MAY-94	.0		2.8	J	MG/KG
A3720	A37	01-MAR-94	2.0	BERYLLIUM	.33	J	MG/KG
A3840	A38	01-MAR-94	4.0		.31	J	MG/KG
A89C3.5	A89	24-MAY-94	3.5		.31	J	MG/KG
A884.5	A88	19-MAY-94	4.5		.28		MG/KG
A3940	A39	01-MAR-94	4.0		.26	J	MG/KG
A90A1.0	A90	20-MAY-94	1.0		.25	J	MG/KG
A911.0	A91	19-MAY-94	1.0		.24		MG/KG
A4030	A40	01-MAR-94	3.0		.23	J	MG/KG
A4125D	A41	01-MAR-94	2.5		.23	J	MG/KG
A3920	A39	01-MAR-94	2.0		.2	J	MG/KG
A90A4.0	A90	20-MAY-94	4.0		.19	J	MG/KG
A4215	A42	02-MAR-94	1.5		.18	J	MG/KG
A771.5	A77	16-MAY-94	1.5		.16		MG/KG
A775.0	A77	16-MAY-94	5.0		.16		MG/KG
A921.0	A92	20-MAY-94	1.0		.16	J	MG/KG
A3815	A38	01-MAR-94	1.5		.15	J	MG/KG
S223.0	S22	16-MAY-94	3.0		.15		MG/KG
A1143.5	A114	06-SEP-94	3.5		.14	B	MG/KG
A923.0	A92	20-MAY-94	3.0		.14	J	MG/KG
A941.5	A94	20-MAY-94	1.5		.14	J	MG/KG
A4120	A41	01-MAR-94	2.0		.13	J	MG/KG
A1142.5	A114	06-SEP-94	2.5		.12	B	MG/KG
A4245	A42	02-MAR-94	4.5		.12	J	MG/KG
A3755	A37	01-MAR-94	5.5		.08	J	MG/KG
A4145	A41	01-MAR-94	4.5		.07	J	MG/KG
A1145.0	A114	06-SEP-94	5.0		.05	B	MG/KG
A3850	A38	01-MAR-94	5.0		.05	J	MG/KG
A90A6.5	A90	20-MAY-94	6.5		.05	J	MG/KG
S312.5	S31	24-MAY-94	2.5	CADMIUM	2.2		MG/KG
S300.5	S30	24-MAY-94	.5		2.1		MG/KG
A923.0	A92	20-MAY-94	3.0		.85		MG/KG
A771.5	A77	16-MAY-94	1.5		.6		MG/KG
A4125D	A41	01-MAR-94	2.5		.55		MG/KG
A3720	A37	01-MAR-94	2.0		.51		MG/KG
A93A3.5	A93	25-MAY-94	3.5		.49		MG/KG
A3840	A38	01-MAR-94	4.0		.46		MG/KG
S302.5	S30	24-MAY-94	2.5		.43		MG/KG
S310.5	S31	24-MAY-94	.5		.42		MG/KG
A1143.5	A114	06-SEP-94	3.5		.41		MG/KG
A1142.5	A114	06-SEP-94	2.5		.4		MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A914.0	A91	19-MAY-94	4.0	CADMIUM	.37		MG/KG
A911.0	A91	19-MAY-94	1.0		.36		MG/KG
A90A4.0	A90	20-MAY-94	4.0		.35		MG/[illegible]
A941.5	A94	20-MAY-94	1.5		.35		MG/[illegible]
A881.0	A88	19-MAY-94	1.0		.31		MG/KG
A3920	A39	01-MAR-94	2.0		.3		MG/KG
A90A1.0	A90	20-MAY-94	1.0		.25		MG/KG
A921.0	A92	20-MAY-94	1.0		.25		MG/KG
A4030	A40	01-MAR-94	3.0		.22	J	MG/KG
A1145.0	A114	06-SEP-94	5.0		.21	B	MG/KG
A3940	A39	01-MAR-94	4.0		.2	J	MG/KG
A4120	A41	01-MAR-94	2.0		.2	J	MG/KG
A3815	A38	01-MAR-94	1.5		.19	J	MG/KG
A775.0	A77	16-MAY-94	5.0		.17	J	MG/KG
S223.0	S22	16-MAY-94	3.0		.15	J	MG/KG
A884.5	A88	19-MAY-94	4.5		.14		MG/KG
A915.5	A91	19-MAY-94	5.5		.14		MG/KG
A114EB	A114	06-SEP-94	.0		.12	B	MG/KG
A4145	A41	01-MAR-94	4.5		.12	J	MG/KG
A925.0	A92	20-MAY-94	5.0		.09	J	MG/KG
A3850	A38	01-MAR-94	5.0		.08	J	MG/KG
S22EB	S22	16-MAY-94	.0		.08	J	MG/KG
A925.5D	A92	20-MAY-94	5.5		.07	J	MG/KG
S300.5	S30	24-MAY-94	.5	CALCIUM	125000		MG/KG
A93A5.5	A93	25-MAY-94	5.5		79900		MG/KG
A941.5	A94	20-MAY-94	1.5		18500		MG/KG
A921.0	A92	20-MAY-94	1.0		12600		MG/KG
A3720	A37	01-MAR-94	2.0		12300		MG/KG
A90A1.0	A90	20-MAY-94	1.0		11300		MG/KG
A93A1.0	A93	25-MAY-94	1.0		11000		MG/K[illegible]
S310.5	S31	24-MAY-94	.5		10600		MG/[illegible]
S291.5	S29	23-MAY-94	1.5		8840		MG/KG
A89C0.5	A89	24-MAY-94	.5		8310		MG/KG
A911.0	A91	19-MAY-94	1.0		8290		MG/KG
A1143.5	A114	06-SEP-94	3.5		8180	*	MG/KG
A3840	A38	01-MAR-94	4.0		7570		MG/KG
A923.0	A92	20-MAY-94	3.0		6770		MG/KG
A3920	A39	01-MAR-94	2.0		6570		MG/KG
A93A3.5	A93	25-MAY-94	3.5		6340		MG/KG
A775.0	A77	16-MAY-94	5.0		6050	J	MG/KG
A3940	A39	01-MAR-94	4.0		5800		MG/KG
S302.5	S30	24-MAY-94	2.5		5080		MG/KG
A915.5	A91	19-MAY-94	5.5		4330		MG/KG
A4215	A42	02-MAR-94	1.5		3790		MG/KG
S312.5	S31	24-MAY-94	2.5		3780		MG/KG
S223.0	S22	16-MAY-94	3.0		3620	J	MG/KG
A3815	A38	01-MAR-94	1.5		3540		MG/KG
A1142.5	A114	06-SEP-94	2.5		3360	*	MG/KG
A4120	A41	01-MAR-94	2.0		3290		MG/KG
A90A4.0	A90	20-MAY-94	4.0		3280		MG/KG
A4245	A42	02-MAR-94	4.5		2800		MG/KG
A771.5	A77	16-MAY-94	1.5		2500	J	MG/KG
A89C3.5	A89	24-MAY-94	3.5		2480		MG/KG
A3850	A38	01-MAR-94	5.0		2340		MG/KG
A884.5	A88	19-MAY-94	4.5		2290		MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A925.5D	A92	20-MAY-94	5.5	CALCIUM	2270		MG/KG
S314.5	S31	24-MAY-94	4.5		2250		MG/KG
A4030	A40	01-MAR-94	3.0		2080		MG/KG
S296.0	S29	23-MAY-94	6.0		2080		MG/KG
A925.0	A92	20-MAY-94	5.0		2010		MG/KG
A4125D	A41	01-MAR-94	2.5		1890		MG/KG
S294.0	S29	23-MAY-94	4.0		1830		MG/KG
A914.0	A91	19-MAY-94	4.0		1790		MG/KG
A89C5.0	A89	24-MAY-94	5.0		1610		MG/KG
A3755	A37	01-MAR-94	5.5		1580		MG/KG
A1145.0	A114	06-SEP-94	5.0		1520	*	MG/KG
A90A6.5	A90	20-MAY-94	6.5		1450		MG/KG
S305.5	S30	24-MAY-94	5.5		1440		MG/KG
A4145	A41	01-MAR-94	4.5		1400		MG/KG
A881.0	A88	19-MAY-94	1.0		1280		MG/KG
S22EB	S22	16-MAY-94	.0		500	J	MG/KG
A114EB	A114	06-SEP-94	.0		343	*B	MG/KG
A40EB	A40	01-MAR-94	.0		224	J	MG/KG
A89C3.5	A89	24-MAY-94	3.5	CHROMIUM	81.7		MG/KG
A884.5	A88	19-MAY-94	4.5		52	J	MG/KG
A4030	A40	01-MAR-94	3.0		48.3	J	MG/KG
A4125D	A41	01-MAR-94	2.5		47.8	J	MG/KG
A3920	A39	01-MAR-94	2.0		45.5	J	MG/KG
A1143.5	A114	06-SEP-94	3.5		40.6		MG/KG
A3940	A39	01-MAR-94	4.0		38.6	J	MG/KG
A775.0	A77	16-MAY-94	5.0		37.5		MG/KG
A4120	A41	01-MAR-94	2.0		35.9	J	MG/KG
A4215	A42	02-MAR-94	1.5		35.9		MG/KG
A1142.5	A114	06-SEP-94	2.5		35.6		MG/KG
A3815	A38	01-MAR-94	1.5		35.1	J	MG/KG
A90A4.0	A90	20-MAY-94	4.0		35		MG/KG
A93A3.5	A93	25-MAY-94	3.5		34.9	J	MG/KG
S223.0	S22	16-MAY-94	3.0		34.3		MG/KG
S296.0	S29	23-MAY-94	6.0		32.8		MG/KG
A4245	A42	02-MAR-94	4.5		31.6		MG/KG
S314.5	S31	24-MAY-94	4.5		31.4		MG/KG
A90A1.0	A90	20-MAY-94	1.0		31.1		MG/KG
S312.5	S31	24-MAY-94	2.5		30		MG/KG
S294.0	S29	23-MAY-94	4.0		28		MG/KG
S302.5	S30	24-MAY-94	2.5		27.9		MG/KG
A90A6.5	A90	20-MAY-94	6.5		27.2		MG/KG
A93A5.5	A93	25-MAY-94	5.5		26.8	J	MG/KG
A925.5D	A92	20-MAY-94	5.5		26.1		MG/KG
A914.0	A91	19-MAY-94	4.0		25.4	J	MG/KG
A1145.0	A114	06-SEP-94	5.0		25		MG/KG
A925.0	A92	20-MAY-94	5.0		23.9		MG/KG
A3755	A37	01-MAR-94	5.5		23.6	J	MG/KG
A3850	A38	01-MAR-94	5.0		23.4	J	MG/KG
A4145	A41	01-MAR-94	4.5		22.9	J	MG/KG
A921.0	A92	20-MAY-94	1.0		22.8		MG/KG
A915.5	A91	19-MAY-94	5.5		21.1	J	MG/KG
A93A1.0	A93	25-MAY-94	1.0		20.9	J	MG/KG
S305.5	S30	24-MAY-94	5.5		20.9		MG/KG
A89C5.0	A89	24-MAY-94	5.0		20.5	J	MG/KG
S291.5	S29	23-MAY-94	1.5		19.8		MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
S300.5	S30	24-MAY-94	.5	CHROMIUM	19.7		MG/KG
A941.5	A94	20-MAY-94	1.5		19.1		MG/KG
A923.0	A92	20-MAY-94	3.0		18.7		MG/KG
A3840	A38	01-MAR-94	4.0		18.1	J	MG/KG
A911.0	A91	19-MAY-94	1.0		16.2	J	MG/KG
S310.5	S31	24-MAY-94	.5		11.7		MG/KG
A89C0.5	A89	24-MAY-94	.5		8.6		MG/KG
A881.0	A88	19-MAY-94	1.0		7.9	J	MG/KG
A771.5	A77	16-MAY-94	1.5		5.9		MG/KG
A114EB	A114	06-SEP-94	.0		2.3		MG/KG
S22EB	S22	16-MAY-94	.0		2.1	J	MG/KG
A40EB	A40	01-MAR-94	.0		1.7	J	MG/KG
A3720	A37	01-MAR-94	2.0		.9	J	MG/KG
A3720	A37	01-MAR-94	2.0	COBALT	15.6	J	MG/KG
A93A3.5	A93	25-MAY-94	3.5		10.9		MG/KG
A4030	A40	01-MAR-94	3.0		9.8	J	MG/KG
A3840	A38	01-MAR-94	4.0		9.6	J	MG/KG
A4125D	A41	01-MAR-94	2.5		9.6	J	MG/KG
A923.0	A92	20-MAY-94	3.0		9.4		MG/KG
A90A1.0	A90	20-MAY-94	1.0		8.7		MG/KG
A90A4.0	A90	20-MAY-94	4.0		8.6		MG/KG
A3920	A39	01-MAR-94	2.0		7.6	J	MG/KG
A4215	A42	02-MAR-94	1.5		7.6		MG/KG
A89C3.5	A89	24-MAY-94	3.5		7.6		MG/KG
A3815	A38	01-MAR-94	1.5		7.1	J	MG/KG
A4120	A41	01-MAR-94	2.0		6.9	J	MG/KG
A921.0	A92	20-MAY-94	1.0		6.8		MG/KG
A914.0	A91	19-MAY-94	4.0		6.7		MG/KG
A941.5	A94	20-MAY-94	1.5		6.5		MG/KG
S291.5	S29	23-MAY-94	1.5		6.4		MG/KG
A3940	A39	01-MAR-94	4.0		6.2	J	MG/KG
A93A1.0	A93	25-MAY-94	1.0		6.1		MG/KG
S310.5	S31	24-MAY-94	.5		6		MG/KG
A775.0	A77	16-MAY-94	5.0		5.8	J	MG/KG
A884.5	A88	19-MAY-94	4.5		5.8		MG/KG
A911.0	A91	19-MAY-94	1.0		5.8		MG/KG
A1143.5	A114	06-SEP-94	3.5		5.4	B	MG/KG
S223.0	S22	16-MAY-94	3.0		5.3	J	MG/KG
A1142.5	A114	06-SEP-94	2.5		5.2	B	MG/KG
S300.5	S30	24-MAY-94	.5		5.2		MG/KG
S302.5	S30	24-MAY-94	2.5		5.1	J	MG/KG
S312.5	S31	24-MAY-94	2.5		5.1	J	MG/KG
S296.0	S29	23-MAY-94	6.0		4.5	J	MG/KG
S294.0	S29	23-MAY-94	4.0		4.3	J	MG/KG
A4145	A41	01-MAR-94	4.5		4.1	J	MG/KG
S314.5	S31	24-MAY-94	4.5		3.9	J	MG/KG
A4245	A42	02-MAR-94	4.5		3.8	J	MG/KG
A3850	A38	01-MAR-94	5.0		3.6	J	MG/KG
A925.5D	A92	20-MAY-94	5.5		3.6	J	MG/KG
A3755	A37	01-MAR-94	5.5		3.5	J	MG/KG
A93A5.5	A93	25-MAY-94	5.5		3.5	J	MG/KG
A771.5	A77	16-MAY-94	1.5		3.4	J	MG/KG
A89C0.5	A89	24-MAY-94	.5		3.2	J	MG/KG
A925.0	A92	20-MAY-94	5.0		3.1	J	MG/KG
S305.5	S30	24-MAY-94	5.5		3.1	J	MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A881.0	A88	19-MAY-94	1.0	COBALT	3		MG/KG
A89C5.0	A89	24-MAY-94	5.0		2.9	J	MG/KG
A90A6.5	A90	20-MAY-94	6.5		2.9	J	MG/KG
A915.5	A91	19-MAY-94	5.5		2.7		MG/KG
A1145.0	A114	06-SEP-94	5.0		2.5	B	MG/KG
A114EB	A114	06-SEP-94	.0		1.1	B	MG/KG
S22EB	S22	16-MAY-94	.0		.54	J	MG/KG
A923.0	A92	20-MAY-94	3.0	COPPER	529	J	MG/KG
A914.0	A91	19-MAY-94	4.0		267		MG/KG
A4125D	A41	01-MAR-94	2.5		259		MG/KG
S312.5	S31	24-MAY-94	2.5		158		MG/KG
A93A3.5	A93	25-MAY-94	3.5		92.2		MG/KG
A90A4.0	A90	20-MAY-94	4.0		65.6	J	MG/KG
A3720	A37	01-MAR-94	2.0		32.1		MG/KG
S294.0	S29	23-MAY-94	4.0		30.4		MG/KG
A941.5	A94	20-MAY-94	1.5		25	J	MG/KG
A915.5	A91	19-MAY-94	5.5		23.9		MG/KG
A3840	A38	01-MAR-94	4.0		23		MG/KG
A90A1.0	A90	20-MAY-94	1.0		21.6	J	MG/KG
S300.5	S30	24-MAY-94	.5		20		MG/KG
S302.5	S30	24-MAY-94	2.5		19.7		MG/KG
A4120	A41	01-MAR-94	2.0		18.5		MG/KG
A921.0	A92	20-MAY-94	1.0		18.3	J	MG/KG
S291.5	S29	23-MAY-94	1.5		17.8		MG/KG
A3940	A39	01-MAR-94	4.0		16.4		MG/KG
A884.5	A88	19-MAY-94	4.5		15.6		MG/KG
A93A1.0	A93	25-MAY-94	1.0		15.6		MG/KG
A4215	A42	02-MAR-94	1.5		13		MG/KG
A3920	A39	01-MAR-94	2.0		12.9		MG/KG
A3815	A38	01-MAR-94	1.5		12.8		MG/KG
S296.0	S29	23-MAY-94	6.0		12.8		MG/KG
A911.0	A91	19-MAY-94	1.0		12.4		MG/KG
S314.5	S31	24-MAY-94	4.5		12.4		MG/KG
A1142.5	A114	06-SEP-94	2.5		12		MG/KG
A925.5D	A92	20-MAY-94	5.5		11.7	J	MG/KG
A4245	A42	02-MAR-94	4.5		11		MG/KG
A925.0	A92	20-MAY-94	5.0		9.3	J	MG/KG
A4030	A40	01-MAR-94	3.0		8.8		MG/KG
S223.0	S22	16-MAY-94	3.0		8.2		MG/KG
S310.5	S31	24-MAY-94	.5		7.7		MG/KG
A1143.5	A114	06-SEP-94	3.5		7.6		MG/KG
A775.0	A77	16-MAY-94	5.0		7.1		MG/KG
A881.0	A88	19-MAY-94	1.0		6.8		MG/KG
A90A6.5	A90	20-MAY-94	6.5		5.9	J	MG/KG
A93A5.5	A93	25-MAY-94	5.5		5.9		MG/KG
S305.5	S30	24-MAY-94	5.5		5.3		MG/KG
A89C3.5	A89	24-MAY-94	3.5		4.8		MG/KG
A4145	A41	01-MAR-94	4.5		4.6		MG/KG
A89C5.0	A89	24-MAY-94	5.0		4.3		MG/KG
A3755	A37	01-MAR-94	5.5		4.1		MG/KG
A3850	A38	01-MAR-94	5.0		4		MG/KG
A89C0.5	A89	24-MAY-94	.5		3.7		MG/KG
A1145.0	A114	06-SEP-94	5.0		3.2		MG/KG
A771.5	A77	16-MAY-94	1.5		1.8		MG/KG
A114EB	A114	06-SEP-94	.0		1.4		MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
S22EB	S22	16-MAY-94	.0	COPPER	1.3		MG/KG
A40EB	A40	01-MAR-94	.0		.35	J	MG/KG
A3720	A37	01-MAR-94	2.0	IRON	36700		MG/KG
A93A3.5	A93	25-MAY-94	3.5		32200		MG/KG
A4125D	A41	01-MAR-94	2.5		28400		MG/KG
A771.5	A77	16-MAY-94	1.5		28100		MG/KG
A89C0.5	A89	24-MAY-94	.5		23300		MG/KG
A3840	A38	01-MAR-94	4.0		23100		MG/KG
A90A1.0	A90	20-MAY-94	1.0		22200		MG/KG
S310.5	S31	24-MAY-94	.5		22100		MG/KG
A90A4.0	A90	20-MAY-94	4.0		20100		MG/KG
A911.0	A91	19-MAY-94	1.0		19500		MG/KG
A941.5	A94	20-MAY-94	1.5		17700		MG/KG
A923.0	A92	20-MAY-94	3.0		17600		MG/KG
A881.0	A88	19-MAY-94	1.0		17300		MG/KG
A921.0	A92	20-MAY-94	1.0		17300		MG/KG
A89C3.5	A89	24-MAY-94	3.5		15400		MG/KG
S291.5	S29	23-MAY-94	1.5		14100		MG/KG
A884.5	A88	19-MAY-94	4.5		13900		MG/KG
A93A1.0	A93	25-MAY-94	1.0		13800		MG/KG
A3920	A39	01-MAR-94	2.0		13200		MG/KG
A4030	A40	01-MAR-94	3.0		12900		MG/KG
A3815	A38	01-MAR-94	1.5		12100		MG/KG
A3940	A39	01-MAR-94	4.0		12000		MG/KG
A4120	A41	01-MAR-94	2.0		11900		MG/KG
A914.0	A91	19-MAY-94	4.0		11100		MG/KG
S300.5	S30	24-MAY-94	.5		10700		MG/KG
A4215	A42	02-MAR-94	1.5		10600	*	MG/KG
S302.5	S30	24-MAY-94	2.5		10200		MG/KG
A1143.5	A114	06-SEP-94	3.5		9920		MG/KG
S312.5	S31	24-MAY-94	2.5		9390		MG/KG
A1142.5	A114	06-SEP-94	2.5		9370		MG/KG
A775.0	A77	16-MAY-94	5.0		9070		MG/KG
S223.0	S22	16-MAY-94	3.0		8740		MG/KG
S294.0	S29	23-MAY-94	4.0		8690		MG/KG
S296.0	S29	23-MAY-94	6.0		8260		MG/KG
A4245	A42	02-MAR-94	4.5		7300	*	MG/KG
A925.5D	A92	20-MAY-94	5.5		7110		MG/KG
S314.5	S31	24-MAY-94	4.5		6810		MG/KG
A915.5	A91	19-MAY-94	5.5		6350		MG/KG
A93A5.5	A93	25-MAY-94	5.5		6330		MG/KG
A4145	A41	01-MAR-94	4.5		6290		MG/KG
A1145.0	A114	06-SEP-94	5.0		6190		MG/KG
A3755	A37	01-MAR-94	5.5		5570		MG/KG
A925.0	A92	20-MAY-94	5.0		5340		MG/KG
A90A6.5	A90	20-MAY-94	6.5		5260		MG/KG
A3850	A38	01-MAR-94	5.0		5170		MG/KG
A89C5.0	A89	24-MAY-94	5.0		4750		MG/KG
S305.5	S30	24-MAY-94	5.5		4500		MG/KG
A114EB	A114	06-SEP-94	.0		2370		MG/KG
S22EB	S22	16-MAY-94	.0		1670		MG/KG
A40EB	A40	01-MAR-94	.0		1530		MG/KG
S312.5	S31	24-MAY-94	2.5	LEAD	498		MG/KG
A4125D	A41	01-MAR-94	2.5		108	J	MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A925.5D	A92	20-MAY-94	5.5	LEAD	96	J	MG/KG
A923.0	A92	20-MAY-94	3.0		88.7	J	MG/KG
S302.5	S30	24-MAY-94	2.5		86.4		MG/KG
A90A4.0	A90	20-MAY-94	4.0		49.2	J	MG/KG
A93A3.5	A93	25-MAY-94	3.5		48.5	J	MG/KG
A915.5	A91	19-MAY-94	5.5		35.1		MG/KG
A3920	A39	01-MAR-94	2.0		34.6	J	MG/KG
S294.0	S29	23-MAY-94	4.0		32.3		MG/KG
A914.0	A91	19-MAY-94	4.0		29.2		MG/KG
A3840	A38	01-MAR-94	4.0		28.3	J	MG/KG
A1142.5	A114	06-SEP-94	2.5		25.1		MG/KG
A4215	A42	02-MAR-94	1.5		17.9		MG/KG
S223.0	S22	16-MAY-94	3.0		14.5		MG/KG
S314.5	S31	24-MAY-94	4.5		13.4		MG/KG
S296.0	S29	23-MAY-94	6.0		12.4		MG/KG
A4145	A41	01-MAR-94	4.5		11	J	MG/KG
A4120	A41	01-MAR-94	2.0		10.8	J	MG/KG
S291.5	S29	23-MAY-94	1.5		10.8		MG/KG
A3815	A38	01-MAR-94	1.5		10.4	J	MG/KG
A881.0	A88	19-MAY-94	1.0		10.3		MG/KG
A93A1.0	A93	25-MAY-94	1.0		8.8	J	MG/KG
A1143.5	A114	06-SEP-94	3.5		8.2		MG/KG
A93A5.5	A93	25-MAY-94	5.5		8.2	J	MG/KG
A941.5	A94	20-MAY-94	1.5		8.1	J	MG/KG
S310.5	S31	24-MAY-94	.5		7.1		MG/KG
A921.0	A92	20-MAY-94	1.0		6.6	J	MG/KG
A3755	A37	01-MAR-94	5.5		6.4	J	MG/KG
A90A1.0	A90	20-MAY-94	1.0		6.3	J	MG/KG
A911.0	A91	19-MAY-94	1.0		6.1		MG/KG
A884.5	A88	19-MAY-94	4.5		5.9		MG/KG
A925.0	A92	20-MAY-94	5.0		5.9	J	MG/KG
A4030	A40	01-MAR-94	3.0		5.7	J	MG/KG
A4245	A42	02-MAR-94	4.5		5.7		MG/KG
A3940	A39	01-MAR-94	4.0		4.9	J	MG/KG
A89C0.5	A89	24-MAY-94	.5		4.7		MG/KG
A89C5.0	A89	24-MAY-94	5.0		4.7	J	MG/KG
S300.5	S30	24-MAY-94	.5		4.3		MG/KG
A3720	A37	01-MAR-94	2.0		4.2	J	MG/KG
A3850	A38	01-MAR-94	5.0		4.2	J	MG/KG
A771.5	A77	16-MAY-94	1.5		3.7		MG/KG
A1145.0	A114	06-SEP-94	5.0		3.4		MG/KG
A775.0	A77	16-MAY-94	5.0		3.3		MG/KG
A89C3.5	A89	24-MAY-94	3.5		3.3		MG/KG
S305.5	S30	24-MAY-94	5.5		2.4		MG/KG
A90A6.5	A90	20-MAY-94	6.5		2	J	MG/KG
A114EB	A114	06-SEP-94	.0		.98		MG/KG
A40EB	A40	01-MAR-94	.0		.91	J	MG/KG
A93A3.5	A93	25-MAY-94	3.5	MAGNESIUM	7840		MG/KG
A90A1.0	A90	20-MAY-94	1.0		7150		MG/KG
A90A4.0	A90	20-MAY-94	4.0		6580		MG/KG
A921.0	A92	20-MAY-94	1.0		6020		MG/KG
A3720	A37	01-MAR-94	2.0		5790		MG/KG
S291.5	S29	23-MAY-94	1.5		5480		MG/KG
A93A1.0	A93	25-MAY-94	1.0		5400		MG/KG
A914.0	A91	19-MAY-94	4.0		5070		MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A941.5	A94	20-MAY-94	1.5	MAGNESIUM	5040		MG/KG
A911.0	A91	19-MAY-94	1.0		5010		MG/KG
S300.5	S30	24-MAY-94	.5		4340		MG/KG
A3840	A38	01-MAR-94	4.0		4330		MG/KG
A923.0	A92	20-MAY-94	3.0		4120		MG/KG
S310.5	S31	24-MAY-94	.5		3740		MG/KG
A4125D	A41	01-MAR-94	2.5		3720		MG/KG
A89C3.5	A89	24-MAY-94	3.5		3220		MG/KG
A884.5	A88	19-MAY-94	4.5		3140		MG/KG
S302.5	S30	24-MAY-94	2.5		3010		MG/KG
A4120	A41	01-MAR-94	2.0		2980		MG/KG
A4030	A40	01-MAR-94	3.0		2940		MG/KG
A3920	A39	01-MAR-94	2.0		2830		MG/KG
A89C0.5	A89	24-MAY-94	.5		2800		MG/KG
A3940	A39	01-MAR-94	4.0		2790		MG/KG
A4215	A42	02-MAR-94	1.5		2750		MG/KG
A3815	A38	01-MAR-94	1.5		2680		MG/KG
A1143.5	A114	06-SEP-94	3.5		2550		MG/KG
S312.5	S31	24-MAY-94	2.5		2510		MG/KG
A771.5	A77	16-MAY-94	1.5		2470		MG/KG
S223.0	S22	16-MAY-94	3.0		2420		MG/KG
A775.0	A77	16-MAY-94	5.0		2330		MG/KG
A1142.5	A114	06-SEP-94	2.5		2290		MG/KG
S296.0	S29	23-MAY-94	6.0		2250		MG/KG
S294.0	S29	23-MAY-94	4.0		2160		MG/KG
S314.5	S31	24-MAY-94	4.5		2010		MG/KG
A93A5.5	A93	25-MAY-94	5.5		1880		MG/KG
A925.5D	A92	20-MAY-94	5.5		1760		MG/KG
A881.0	A88	19-MAY-94	1.0		1680		MG/KG
A1145.0	A114	06-SEP-94	5.0		1510		MG/KG
A925.0	A92	20-MAY-94	5.0		1430		MG/KG
A3755	A37	01-MAR-94	5.5		1410		MG/KG
A4245	A42	02-MAR-94	4.5		1390		MG/KG
A4145	A41	01-MAR-94	4.5		1370		MG/KG
A90A6.5	A90	20-MAY-94	6.5		1370		MG/KG
A89C5.0	A89	24-MAY-94	5.0		1340		MG/KG
A915.5	A91	19-MAY-94	5.5		1310		MG/KG
A3850	A38	01-MAR-94	5.0		1130	J	MG/KG
S305.5	S30	24-MAY-94	5.5		1130	J	MG/KG
A114EB	A114	06-SEP-94	.0		618	B	MG/KG
S22EB	S22	16-MAY-94	.0		359	J	MG/KG
A40EB	A40	01-MAR-94	.0		287	J	MG/KG
A3720	A37	01-MAR-94	2.0	MANGANESE	915		MG/KG
A921.0	A92	20-MAY-94	1.0		692	J	MG/KG
A923.0	A92	20-MAY-94	3.0		672	J	MG/KG
S310.5	S31	24-MAY-94	.5		652		MG/KG
A93A3.5	A93	25-MAY-94	3.5		650	J	MG/KG
A3840	A38	01-MAR-94	4.0		633		MG/KG
A90A1.0	A90	20-MAY-94	1.0		601	J	MG/KG
A911.0	A91	19-MAY-94	1.0		591		MG/KG
A941.5	A94	20-MAY-94	1.5		589	J	MG/KG
A771.5	A77	16-MAY-94	1.5		518	J	MG/KG
A93A1.0	A93	25-MAY-94	1.0		466	J	MG/KG
S300.5	S30	24-MAY-94	.5		414		MG/KG
A90A4.0	A90	20-MAY-94	4.0		403	J	MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A89C0.5	A89	24-MAY-94	.5	MANGANESE	359		MG/KG
S291.5	S29	23-MAY-94	1.5		350		MG/KG
A881.0	A88	19-MAY-94	1.0		319		MG/KG
A4125D	A41	01-MAR-94	2.5		263		MG/KG
S302.5	S30	24-MAY-94	2.5		254		MG/KG
A914.0	A91	19-MAY-94	4.0		248		MG/KG
A3815	A38	01-MAR-94	1.5		194		MG/KG
A4215	A42	02-MAR-94	1.5		186	J	MG/KG
A93A5.5	A93	25-MAY-94	5.5		169	J	MG/KG
A1142.5	A114	06-SEP-94	2.5		159	N	MG/KG
A4120	A41	01-MAR-94	2.0		153		MG/KG
A3920	A39	01-MAR-94	2.0		150		MG/KG
A3940	A39	01-MAR-94	4.0		149		MG/KG
A89C3.5	A89	24-MAY-94	3.5		142		MG/KG
S312.5	S31	24-MAY-94	2.5		125		MG/KG
A1143.5	A114	06-SEP-94	3.5		124	N	MG/KG
A925.5D	A92	20-MAY-94	5.5		122	J	MG/KG
A4030	A40	01-MAR-94	3.0		115		MG/KG
A775.0	A77	16-MAY-94	5.0		110	J	MG/KG
A884.5	A88	19-MAY-94	4.5		109		MG/KG
S223.0	S22	16-MAY-94	3.0		105	J	MG/KG
S294.0	S29	23-MAY-94	4.0		93.7		MG/KG
S296.0	S29	23-MAY-94	6.0		91.3		MG/KG
A925.0	A92	20-MAY-94	5.0		78	J	MG/KG
S314.5	S31	24-MAY-94	4.5		77.2		MG/KG
A4245	A42	02-MAR-94	4.5		76.2	J	MG/KG
A4145	A41	01-MAR-94	4.5		66.9		MG/KG
A89C5.0	A89	24-MAY-94	5.0		63.7	J	MG/KG
A915.5	A91	19-MAY-94	5.5		60.7		MG/KG
A1145.0	A114	06-SEP-94	5.0		60.2	N	MG/KG
A3850	A38	01-MAR-94	5.0		58.1		MG/KG
S305.5	S30	24-MAY-94	5.5		57.4		MG/KG
A3755	A37	01-MAR-94	5.5		55.4		MG/KG
A90A6.5	A90	20-MAY-94	6.5		49.1	J	MG/KG
A114EB	A114	06-SEP-94	.0		27	N	MG/KG
S22EB	S22	16-MAY-94	.0		17.4	J	MG/KG
A40EB	A40	01-MAR-94	.0		13.2		MG/KG
S310.5	S31	24-MAY-94	.5	MERCURY	.271		MG/KG
A923.0	A92	20-MAY-94	3.0		.224	J	MG/KG
A881.0	A88	19-MAY-94	1.0		.2		MG/KG
A89C0.5	A89	24-MAY-94	.5		.2		MG/KG
A771.5	A77	16-MAY-94	1.5		.18		MG/KG
A911.0	A91	19-MAY-94	1.0		.16		MG/KG
S294.0	S29	23-MAY-94	4.0		.157		MG/KG
A93A3.5	A93	25-MAY-94	3.5		.14		MG/KG
S312.5	S31	24-MAY-94	2.5		.133		MG/KG
A90A4.0	A90	20-MAY-94	4.0		.095	J	MG/KG
A90A1.0	A90	20-MAY-94	1.0		.09	J	MG/KG
A941.5	A94	20-MAY-94	1.5		.089	J	MG/KG
A921.0	A92	20-MAY-94	1.0		.08	J	MG/KG
S291.5	S29	23-MAY-94	1.5		.08		MG/KG
S302.5	S30	24-MAY-94	2.5		.076		MG/KG
S300.5	S30	24-MAY-94	.5		.069		MG/KG
A1142.5	A114	06-SEP-94	2.5		.063		MG/KG
A93A1.0	A93	25-MAY-94	1.0		.059		MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A4215	A42	02-MAR-94	1.5	MERCURY	.055		MG/KG
A914.0	A91	19-MAY-94	4.0		.05		MG/KG
A884.5	A88	19-MAY-94	4.5		.04		MG/KG
A89C5.0	A89	24-MAY-94	5.0		.038		MG/KG
S296.0	S29	23-MAY-94	6.0		.035		MG/KG
A915.5	A91	19-MAY-94	5.5		.03		MG/KG
S223.0	S22	16-MAY-94	3.0		.03		MG/KG
A925.5D	A92	20-MAY-94	5.5		.028	J	MG/KG
A89C3.5	A89	24-MAY-94	3.5		.02		MG/KG
S314.5	S31	24-MAY-94	4.5		.02	J	MG/KG
A1143.5	A114	06-SEP-94	3.5		.018		MG/KG
S305.5	S30	24-MAY-94	5.5		.018		MG/KG
A4245	A42	02-MAR-94	4.5		.015	J	MG/KG
A925.0	A92	20-MAY-94	5.0		.015	J	MG/KG
A90A6.5	A90	20-MAY-94	6.5		.012	J	MG/KG
A775.0	A77	16-MAY-94	5.0		.01		MG/KG
A1145.0	A114	06-SEP-94	5.0		.008	B	MG/KG
A1145.0	A114	06-SEP-94	5.0	MOLYBDENUM	.27	B	MG/KG
A90A1.0	A90	20-MAY-94	1.0		.2	J	MG/KG
A114EB	A114	06-SEP-94	.0		.08	B	MG/KG
A89C3.5	A89	24-MAY-94	3.5	NICKEL	61.8		MG/KG
A90A4.0	A90	20-MAY-94	4.0		45.8		MG/KG
A93A3.5	A93	25-MAY-94	3.5		43.9		MG/KG
A884.5	A88	19-MAY-94	4.5		41		MG/KG
A4030	A40	01-MAR-94	3.0		40.9		MG/KG
A90A1.0	A90	20-MAY-94	1.0		40.4		MG/KG
A914.0	A91	19-MAY-94	4.0		37.4		MG/KG
A3920	A39	01-MAR-94	2.0		36.4		MG/KG
A921.0	A92	20-MAY-94	1.0		36.4		MG/KG
A4125D	A41	01-MAR-94	2.5		33.4		MG/KG
S312.5	S31	24-MAY-94	2.5		33.4		MG/KG
A1142.5	A114	06-SEP-94	2.5		32.5		MG/KG
A775.0	A77	16-MAY-94	5.0		32.2		MG/KG
A923.0	A92	20-MAY-94	3.0		31.1		MG/KG
S291.5	S29	23-MAY-94	1.5		31		MG/KG
A1143.5	A114	06-SEP-94	3.5		30.8		MG/KG
A93A1.0	A93	25-MAY-94	1.0		30.7		MG/KG
A4215	A42	02-MAR-94	1.5		30.3		MG/KG
A3940	A39	01-MAR-94	4.0		30.1		MG/KG
S302.5	S30	24-MAY-94	2.5		29.6		MG/KG
S223.0	S22	16-MAY-94	3.0		29.1		MG/KG
A941.5	A94	20-MAY-94	1.5		28.8		MG/KG
S300.5	S30	24-MAY-94	.5		28.5		MG/KG
A3815	A38	01-MAR-94	1.5		26.4		MG/KG
A911.0	A91	19-MAY-94	1.0		26.4		MG/KG
S296.0	S29	23-MAY-94	6.0		26.4		MG/KG
A4120	A41	01-MAR-94	2.0		25.7		MG/KG
S294.0	S29	23-MAY-94	4.0		24.7		MG/KG
S314.5	S31	24-MAY-94	4.5		23.2		MG/KG
A4245	A42	02-MAR-94	4.5		20.6		MG/KG
A925.5D	A92	20-MAY-94	5.5		20.3		MG/KG
A3840	A38	01-MAR-94	4.0		19.4		MG/KG
A93A5.5	A93	25-MAY-94	5.5		19.1		MG/KG
A4145	A41	01-MAR-94	4.5		18.8		MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
S310.5	S31	24-MAY-94	.5	NICKEL	18.5		MG/KG
A90A6.5	A90	20-MAY-94	6.5		18.4		MG/KG
A925.0	A92	20-MAY-94	5.0		18.3		MG/KG
A1145.0	A114	06-SEP-94	5.0		17.9		MG/KG
A3755	A37	01-MAR-94	5.5		17.8		MG/KG
A89C5.0	A89	24-MAY-94	5.0		17.2		MG/KG
A915.5	A91	19-MAY-94	5.5		16.7		MG/KG
A3850	A38	01-MAR-94	5.0		16.2		MG/KG
S305.5	S30	24-MAY-94	5.5		16		MG/KG
A89C0.5	A89	24-MAY-94	.5		13.9		MG/KG
A881.0	A88	19-MAY-94	1.0		8.5		MG/KG
A771.5	A77	16-MAY-94	1.5		7.4		MG/KG
A114EB	A114	06-SEP-94	.0		4.2		MG/KG
A3720	A37	01-MAR-94	2.0		3.6		MG/KG
S22EB	S22	16-MAY-94	.0		2.5		MG/KG
A40EB	A40	01-MAR-94	.0		1.9		MG/KG
A90A1.0	A90	20-MAY-94	1.0	POTASSIUM	1550		MG/KG
A93A3.5	A93	25-MAY-94	3.5		1460		MG/KG
A3940	A39	01-MAR-94	4.0		1280		MG/KG
A3840	A38	01-MAR-94	4.0		1260		MG/KG
A93A1.0	A93	25-MAY-94	1.0		1180		MG/KG
A921.0	A92	20-MAY-94	1.0		1150		MG/KG
A90A4.0	A90	20-MAY-94	4.0		1110		MG/KG
S300.5	S30	24-MAY-94	.5		1100		MG/KG
A911.0	A91	19-MAY-94	1.0		1060	J	MG/KG
A4125D	A41	01-MAR-94	2.5		964	J	MG/KG
A3920	A39	01-MAR-94	2.0		952	J	MG/KG
A89C3.5	A89	24-MAY-94	3.5		942	J	MG/KG
A884.5	A88	19-MAY-94	4.5		941	J	MG/KG
S291.5	S29	23-MAY-94	1.5		908	J	MG/KG
A941.5	A94	20-MAY-94	1.5		896	J	MG/KG
A4030	A40	01-MAR-94	3.0		788	J	MG/KG
S312.5	S31	24-MAY-94	2.5		758	J	MG/KG
A93A5.5	A93	25-MAY-94	5.5		728	J	MG/KG
A3815	A38	01-MAR-94	1.5		700	J	MG/KG
S310.5	S31	24-MAY-94	.5		699	J	MG/KG
A1142.5	A114	06-SEP-94	2.5		689	B	MG/KG
A914.0	A91	19-MAY-94	4.0		675	J	MG/KG
A775.0	A77	16-MAY-94	5.0		646	J	MG/KG
S302.5	S30	24-MAY-94	2.5		646	J	MG/KG
A4120	A41	01-MAR-94	2.0		636	J	MG/KG
A4215	A42	02-MAR-94	1.5		620	J	MG/KG
S223.0	S22	16-MAY-94	3.0		609	J	MG/KG
A89C0.5	A89	24-MAY-94	.5		606	J	MG/KG
A1143.5	A114	06-SEP-94	3.5		580	B	MG/KG
S296.0	S29	23-MAY-94	6.0		575	J	MG/KG
A923.0	A92	20-MAY-94	3.0		566	J	MG/KG
S294.0	S29	23-MAY-94	4.0		533	J	MG/KG
S314.5	S31	24-MAY-94	4.5		487	J	MG/KG
A771.5	A77	16-MAY-94	1.5		473	J	MG/KG
A925.5D	A92	20-MAY-94	5.5		430	J	MG/KG
A881.0	A88	19-MAY-94	1.0		410	J	MG/KG
A3755	A37	01-MAR-94	5.5		408	J	MG/KG
A3720	A37	01-MAR-94	2.0		382	J	MG/KG
A1145.0	A114	06-SEP-94	5.0		364	B	MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A4245	A42	02-MAR-94	4.5	POTASSIUM	354	J	MG/KG
A4145	A41	01-MAR-94	4.5		327	J	MG/KG
A915.5	A91	19-MAY-94	5.5		307	J	MG/KG
A925.0	A92	20-MAY-94	5.0		301	J	MG/KG
A90A6.5	A90	20-MAY-94	6.5		291	J	MG/KG
A89C5.0	A89	24-MAY-94	5.0		280	J	MG/KG
S305.5	S30	24-MAY-94	5.5		263	J	MG/KG
A114EB	A114	06-SEP-94	.0		209	B	MG/KG
A3850	A38	01-MAR-94	5.0		166	J	MG/KG
A40EB	A40	01-MAR-94	.0		117	J	MG/KG
S22EB	S22	16-MAY-94	.0		110	J	MG/KG
A3720	A37	01-MAR-94	2.0	SODIUM	996	J	MG/KG
A93A5.5	A93	25-MAY-94	5.5		567	J	MG/KG
A89C3.5	A89	24-MAY-94	3.5		342	J	MG/KG
A4030	A40	01-MAR-94	3.0		320	J	MG/KG
A3840	A38	01-MAR-94	4.0		260	J	MG/KG
S312.5	S31	24-MAY-94	2.5		253	J	MG/KG
A771.5	A77	16-MAY-94	1.5		242	J	MG/KG
A3940	A39	01-MAR-94	4.0		238	J	MG/KG
A4125D	A41	01-MAR-94	2.5		230	J	MG/KG
A3920	A39	01-MAR-94	2.0		222	J	MG/KG
A89C0.5	A89	24-MAY-94	.5		221	J	MG/KG
A3815	A38	01-MAR-94	1.5		178	J	MG/KG
A4215	A42	02-MAR-94	1.5		166	J	MG/KG
A4120	A41	01-MAR-94	2.0		159	J	MG/KG
A93A3.5	A93	25-MAY-94	3.5		150	J	MG/KG
A1145.0	A114	06-SEP-94	5.0		145	B	MG/KG
A911.0	A91	19-MAY-94	1.0		145		MG/KG
S314.5	S31	24-MAY-94	4.5		141	J	MG/KG
A1143.5	A114	06-SEP-94	3.5		136	B	MG/KG
S310.5	S31	24-MAY-94	.5		136	J	MG/KG
A881.0	A88	19-MAY-94	1.0		135		MG/KG
A775.0	A77	16-MAY-94	5.0		117	J	MG/KG
A93A1.0	A93	25-MAY-94	1.0		111	J	MG/KG
A40EB	A40	01-MAR-94	.0		105	J	MG/KG
S22EB	S22	16-MAY-94	.0		90.5	J	MG/KG
A114EB	A114	06-SEP-94	.0		88.7	B	MG/KG
A1142.5	A114	06-SEP-94	2.5		85	B	MG/KG
A3755	A37	01-MAR-94	5.5		72.6	J	MG/KG
S300.5	S30	24-MAY-94	.5		62.5	J	MG/KG
A89C5.0	A89	24-MAY-94	5.0		61	J	MG/KG
S223.0	S22	16-MAY-94	3.0		58.4	J	MG/KG
A3850	A38	01-MAR-94	5.0		55.2	J	MG/KG
A915.5	A91	19-MAY-94	5.5		46		MG/KG
A4145	A41	01-MAR-94	4.5		43.5	J	MG/KG
A3755	A37	01-MAR-94	5.5	THALLIUM	.34	J	MG/KG
S300.5	S30	24-MAY-94	.5	VANADIUM	54.2		MG/KG
A3720	A37	01-MAR-94	2.0		36.7		MG/KG
A93A3.5	A93	25-MAY-94	3.5		33.9		MG/KG
A89C3.5	A89	24-MAY-94	3.5		33.3		MG/KG
A884.5	A88	19-MAY-94	4.5		32.3		MG/KG
A4125D	A41	01-MAR-94	2.5		31.7		MG/KG
A3840	A38	01-MAR-94	4.0		30		MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A3920	A39	01-MAR-94	2.0	VANADIUM	27.3		MG/KG
A90A1.0	A90	20-MAY-94	1.0		27.2		MG/KG
S312.5	S31	24-MAY-94	2.5		27.2		MG/KG
A3940	A39	01-MAR-94	4.0		26.4		MG/KG
A1142.5	A114	06-SEP-94	2.5		26.2		MG/KG
A4030	A40	01-MAR-94	3.0		25.2		MG/KG
A775.0	A77	16-MAY-94	5.0		25.2		MG/KG
A1143.5	A114	06-SEP-94	3.5		25		MG/KG
A4120	A41	01-MAR-94	2.0		23.8		MG/KG
A90A4.0	A90	20-MAY-94	4.0		23.6		MG/KG
A3815	A38	01-MAR-94	1.5		23.2		MG/KG
A923.0	A92	20-MAY-94	3.0		22.1		MG/KG
A4215	A42	02-MAR-94	1.5		21.6		MG/KG
S223.0	S22	16-MAY-94	3.0		21.6		MG/KG
A921.0	A92	20-MAY-94	1.0		21.3		MG/KG
S296.0	S29	23-MAY-94	6.0		20.4		MG/KG
S302.5	S30	24-MAY-94	2.5		18.6		MG/KG
S314.5	S31	24-MAY-94	4.5		18.5		MG/KG
S294.0	S29	23-MAY-94	4.0		18.3		MG/KG
A93A5.5	A93	25-MAY-94	5.5		18.2		MG/KG
S291.5	S29	23-MAY-94	1.5		17.9		MG/KG
A4245	A42	02-MAR-94	4.5		17.5		MG/KG
A1145.0	A114	06-SEP-94	5.0		17.3		MG/KG
A925.5D	A92	20-MAY-94	5.5		17.3		MG/KG
A93A1.0	A93	25-MAY-94	1.0		17.2		MG/KG
A941.5	A94	20-MAY-94	1.5		16.2		MG/KG
A911.0	A91	19-MAY-94	1.0		16.1		MG/KG
A914.0	A91	19-MAY-94	4.0		14.9		MG/KG
A3850	A38	01-MAR-94	5.0		14.4		MG/KG
A3755	A37	01-MAR-94	5.5		14		MG/KG
A925.0	A92	20-MAY-94	5.0		14		MG/KG
A4145	A41	01-MAR-94	4.5		13.9		MG/KG
A90A6.5	A90	20-MAY-94	6.5		13.8		MG/KG
A915.5	A91	19-MAY-94	5.5		13.7		MG/KG
A89C5.0	A89	24-MAY-94	5.0		13.4		MG/KG
S305.5	S30	24-MAY-94	5.5		12.6		MG/KG
S310.5	S31	24-MAY-94	.5		12.2		MG/KG
A89C0.5	A89	24-MAY-94	.5		9.7	J	MG/KG
A881.0	A88	19-MAY-94	1.0		8.3		MG/KG
A771.5	A77	16-MAY-94	1.5		7.1	J	MG/KG
A114EB	A114	06-SEP-94	.0		4.2	B	MG/KG
S22EB	S22	16-MAY-94	.0		2.9	J	MG/KG
A40EB	A40	01-MAR-94	.0		2.3	J	MG/KG
S312.5	S31	24-MAY-94	2.5	ZINC	393		MG/KG
A923.0	A92	20-MAY-94	3.0		176		MG/KG
A90A4.0	A90	20-MAY-94	4.0		99.5		MG/KG
A93A3.5	A93	25-MAY-94	3.5		94.9		MG/KG
A3840	A38	01-MAR-94	4.0		94.5	J	MG/KG
A771.5	A77	16-MAY-94	1.5		84.4		MG/KG
A914.0	A91	19-MAY-94	4.0		82.4		MG/KG
A3720	A37	01-MAR-94	2.0		75.7	J	MG/KG
A4125D	A41	01-MAR-94	2.5		74.7	J	MG/KG
A881.0	A88	19-MAY-94	1.0		68.3		MG/KG
S310.5	S31	24-MAY-94	.5		68.1		MG/KG
A3920	A39	01-MAR-94	2.0		59.3	J	MG/KG

Sample No.	LOC.	SAMPLE_DA	BGS.	Constituent	Conc.	DQ	UOM
A90A1.0	A90	20-MAY-94	1.0	ZINC	58.9		MG/KG
A941.5	A94	20-MAY-94	1.5		58.7		MG/KG
A911.0	A91	19-MAY-94	1.0		56.5		MG/KG
A915.5	A91	19-MAY-94	5.5		53		MG/KG
A89C0.5	A89	24-MAY-94	.5		52.7		MG/KG
A921.0	A92	20-MAY-94	1.0		46.9		MG/KG
S302.5	S30	24-MAY-94	2.5		46		MG/KG
S294.0	S29	23-MAY-94	4.0		44.3		MG/KG
S300.5	S30	24-MAY-94	.5		43.6		MG/KG
S291.5	S29	23-MAY-94	1.5		42.3		MG/KG
A1142.5	A114	06-SEP-94	2.5		42.1	*	MG/KG
A4215	A42	02-MAR-94	1.5		38.2	J	MG/KG
A93A1.0	A93	25-MAY-94	1.0		37.8		MG/KG
A3815	A38	01-MAR-94	1.5		35.8	J	MG/KG
A4120	A41	01-MAR-94	2.0		35.3	J	MG/KG
S296.0	S29	23-MAY-94	6.0		31.7		MG/KG
A925.5D	A92	20-MAY-94	5.5		30.3		MG/KG
A4030	A40	01-MAR-94	3.0		30.2	J	MG/KG
A884.5	A88	19-MAY-94	4.5		30		MG/KG
S223.0	S22	16-MAY-94	3.0		29.7		MG/KG
A3940	A39	01-MAR-94	4.0		29.2	J	MG/KG
A775.0	A77	16-MAY-94	5.0		27		MG/KG
S314.5	S31	24-MAY-94	4.5		26.2		MG/KG
A89C3.5	A89	24-MAY-94	3.5		24.5		MG/KG
A1143.5	A114	06-SEP-94	3.5		23.5	*	MG/KG
A4145	A41	01-MAR-94	4.5		21.4	J	MG/KG
A93A5.5	A93	25-MAY-94	5.5		21.4		MG/KG
A4245	A42	02-MAR-94	4.5		18.7	J	MG/KG
A90A6.5	A90	20-MAY-94	6.5		16.7		MG/KG
A925.0	A92	20-MAY-94	5.0		16.4		MG/KG
A3755	A37	01-MAR-94	5.5		15.3	J	MG/KG
A89C5.0	A89	24-MAY-94	5.0		14.5		MG/KG
A3850	A38	01-MAR-94	5.0		13.6	J	MG/KG
A1145.0	A114	06-SEP-94	5.0		12.9	*	MG/KG
S305.5	S30	24-MAY-94	5.5		12.7		MG/KG
A114EB	A114	06-SEP-94	.0		5.5	*	MG/KG
A40EB	A40	01-MAR-94	.0		3.5	J	MG/KG
S22EB	S22	16-MAY-94	.0		3.4	J	MG/KG

913 rows selected.

Sample No.	Locati	BGS.	Constituent	Conc.	DQ	UOM	MTH
GW2S27	S27		2-METHYLNAPHTHALENE	.9	J	UG/L	BNA
GW2S30	S30		ACENAPHTHENE	12		UG/L	BNA
GW2S22	S22			4	J	UG/L	BNA
GW2S22D	S22			3	J	UG/L	BNA
GW2S31	S31			3	J	UG/L	BNA
GW2S29D	S29			1	J	UG/L	BNA
GW2S29	S29			1	J	UG/L	BNA
GW2S27	S27			.9	J	UG/L	BNA
GW2S30	S30		ACENAPHTHYLENE	.6	J	UG/L	BNA
GW2S29	S29		FLUORANTHENE	.9	J	UG/L	BNA
GW2S29D	S29			.8	J	UG/L	BNA
GW2S30	S30			.8	J	UG/L	BNA
GW2S27	S27		FLUORENE	1	J	UG/L	BNA
GW2S30	S30		PHENANTHRENE	.9	J	UG/L	BNA
GW2S29	S29			.6	J	UG/L	BNA
GW2S29D	S29		PYRENE	2	J	UG/L	BNA
GW2S29	S29			2	J	UG/L	BNA
GW2S30	S30			2	J	UG/L	BNA
GW2S31	S31			.6	J	UG/L	BNA
GW2S27	S27		ALUMINUM	43.8	J	UG/L	MET
GW2S31	S31			40	J	UG/L	MET
GW2S30	S30			35.6	J	UG/L	MET
GW2S29EB	S29		ANTIMONY	14.6		UG/L	MET
GW2S22	S22			8		UG/L	MET
GW2S31	S31			6.6		UG/L	MET
GW2S29D	S29			4.8	J	UG/L	MET
GW2S30	S30			4.7	J	UG/L	MET
GW2S29	S29			4.2	J	UG/L	MET
GW2S27	S27			2.8	J	UG/L	MET
GW2S22D	S22			1.8	J	UG/L	MET
GW2S22	S22		ARSENIC	9.1	J	UG/L	MET
GW2S22D	S22			8.2	J	UG/L	MET
GW2S22	S22		BARIUM	390		UG/L	MET
GW2S22D	S22			382		UG/L	MET
GW2S31	S31			325	J	UG/L	MET
GW2S30	S30			162	J	UG/L	MET
GW2S29	S29			134	J	UG/L	MET
GW2S29D	S29			130	J	UG/L	MET
GW2S27	S27			128	J	UG/L	MET
GW2S22	S22		CALCIUM	127000		UG/L	MET
GW2S22D	S22			126000		UG/L	MET
GW2S27	S27			116000	J	UG/L	MET
GW2S31	S31			108000	J	UG/L	MET
GW2S29	S29			89800		UG/L	MET
GW2S29D	S29			85000		UG/L	MET

PROJECT MEMORANDUM
REMEDIAL INVESTIGATION\FEASIBILITY STUDY
FLEET AND INDUSTRIAL SUPPLY CENTER OAKLAND-
ALAMEDA FACILITY/ALAMEDA ANNEX SITE

To: Saulius V. Germanas, McLaren Hart
1135 Atlantic Avenue
Alameda, California 94501

From: John Bird, Versar

Through: Steven Campbell, Versar
Dan Shafer, PRC

Date: November 3, 1994

Subject: Water Levels and Survey Information from September 26, 1994 Low Tide Readings, Former Phillips Petroleum Batch Plant located adjacent to the Former Paint Spray Booth (SWMU 4) and Paint Storage Area (AOC 2) at FISCO, Alameda Facility/Alameda Annex Site; CTO200

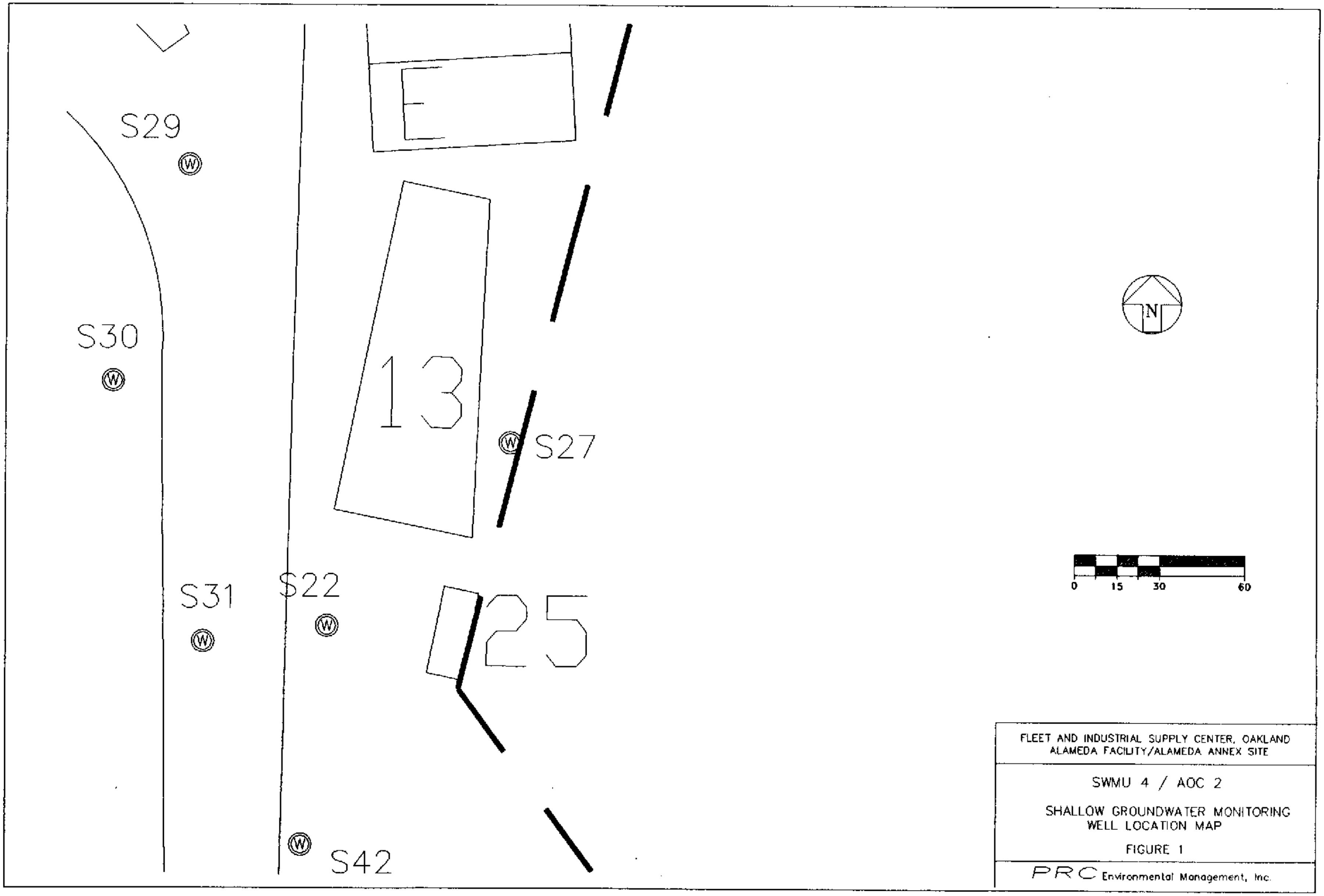
As discussed in the meeting on Friday, September 9, 1994, Versar has collected water level data from the wells at the Former Paint Spray Booth (SWMU 4) and Paint Storage Area (AOC 2) at FISCO, Alameda Facility/Alameda Annex Site during the period from 10:30 AM to 11:00 AM on Monday, September 26, 1994.

WELL NO	TOP OF CASING ELEVATION (FEET)	DEPTH TO WATER (FEET)	WATER ELEVATION (FEET)
S22	6.68	4.73	1.95
S27	7.47	5.62	1.85
S29	8.08	5.95	2.13
S30	8.05	5.92	2.13
S31	6.90	4.84	2.06
S42	6.30	4.94	1.36

As requested, we have enclosed a copy of the well location map in AutoCAD Ver. 12.

Should you have any questions or require any additional information, please do not hesitate call me at (510) 814-5929.

Attachment: Figure 1 - Well Location Map in AutoCAD Ver. 12



FLEET AND INDUSTRIAL SUPPLY CENTER, OAKLAND
ALAMEDA FACILITY/ALAMEDA ANNEX SITE

SWMU 4 / AOC 2

SHALLOW GROUNDWATER MONITORING
WELL LOCATION MAP

FIGURE 1

PRC Environmental Management, Inc.

APPENDIX VIII
LABORATORY ANALYTICAL DATA SHEETS

MBT Environmental
Laboratories

3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

Date: October 5, 1994
LP #: 10106

Saul Germanas
McLaren/Hart Environmental Engineering
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. Germanas:

Enclosed are the laboratory results for the 23 samples submitted to MBT Environmental Laboratories on September 17, 1994, for the project *Mariner Square*.

The analyses requested are:

TOC (6 - Soil)
CAM TTLC (11 - Soil)
CAM STLC (3 - Soil)
Modified 8015 (3 - Soil)
EPA 8020 (BTEX) (4 - Soil)
EPA 8240 (2 - Soil)
Archive (6)

The report consists of the following sections:

1. Cover Page
2. Copy of Chain-of-Custody
3. Quality Control Report
4. Analytical Results

As instructed on the Chain-of-Custody, samples will not be disposed of until authorized.

Thank you for choosing MBT Environmental Laboratories. We are looking forward to serving you in the future. Should you have any questions concerning this analytical report or the analytical methods employed, please do not hesitate to call.

Sincerely,

Shakoora Azimi
Laboratory Director, Principal Scientist

MBT Environmental Laboratories
Master Builders Technologies

3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

1 of 3

CHAIN OF CUSTODY RECORD 6889

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: MBT ENV LABS
Address: 3083 GOLD CANAL DR.
RANCHO CORDOVA, CA

Project Name: MARINER SQUARE
Project Number: 04.0601216.000
Project Location: (State) ALAMEDA, CA

FOR LABORATORY USE ONLY
Laboratory Project #: 10106
Storage Refrigerator ID: 4-1-C.
Storage Freezer ID:

Sampler Name: E. CHRIS WARWICK
Signature: [signature]
PPE Worn in Field: LEVEL D

Relinquished By	Date/Time	Received By or Method of Shipment/Shipment I.D.	Date/Time
[signature]	09-16-94/1800	EXPRESS IT	09-16-94/1800
Express It		[signature]	9/17/94 0945

Sample Disposal (check one)
☑ Laboratory Standard
☐ Other

Level of QC (see Side 2): ☐ 1 ☑ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6A ☐ 6B ☑ 6C ☐ 6D ☐ 6E ☐ 6F ☐ 7 ☐ 8 ☒ A

Write in Analysis Method →

ANALYSES REQUESTED

SAMPLE INFORMATION

FOR LABORATORY USE ONLY Lab ID	Sample ID Number	Date	Time	Locator	Depth	Container(s) #	Container(s) Type	Matrix Type	Pres. Type	TAT	TTLC CAM 17 / TOTAL	SOLUBLE STLC LEAD
1 10106 001	52451	9/16/94		SB-F	1.5'	1	B	Soil	Ice	4	✓	
2 002	52452			SB-F	3.0'					0		
3 003	52453			SB-G	1.5'					4	✓	✓
4 004	52454			SB-G	3.0					0		
5 005	52455			SB-H	1.5'					4	✓	✓
6 006	52456			SB-H	3.0'					0		
7 007	52457			SB-I	1.5'					4	✓	
8 008	52458			SB-I	3.0'					0		
9 009	52459			SB-J	1.5'					4	✓	
10 010	52460			SB-J	3.0'					0		

Special Instructions/Comments: Follow TPI Regional Requirements
per S. German Q.9/20

Container Types: B=Brass Tube, G=Glass Jar, O=Other, A=1 Liter Amber, C=Cassette, P=Polyethylene, V=Voa Vial

TAT (Analytical Turn Around Time): 1 = 24 hours, 2 = 48 hours, 3 = 1 week, 4 = 2 weeks, 0 = Other ARCHIVE

FOR LABORATORY USE ONLY Sample Condition Upon Receipt: Temp Good
Samples Intact

SEND DOCUMENTATION AND RESULTS TO (Check one):
☑ Project Manager/Office: SAM GERMAN/ALAMEDA
☐ Client Name:
Company:
Address:
Phone: FAX:

Common Analytical Methods
413.1
413.2 Long Method
413.2 Short Method
418.1 Long Method
418.1 Short Method
420.1
502.2
503E
503.1
524.2
601
602
604
608
610
624
625
8010
8015
8015 Mod.
8020
8021
8040
8080
8100
8150
8240
8270
8310
Acidity
Alkalinity
BTEX
Chloride
CLP (see Side 2)
COD
Color
Conductivity
Corrosivity
Cyanide
Flashpoint
Fluoride
General Mineral
Hex. Chromium
Ion Balance
Metals (write specific metal & method #)*
Metals 6010*
Metals PP*
Metals Title 22: TTLC Level, STLC Level (see Side 2)
Nitrate
Nitrite
Odor
Org. Lead
Org. Mercury
Percent Moisture
Percent Solid
Perchlorate
pH
Phosphates
Phosphorus
Sulfate
Sulfides
TCLP: VOA, Semivoa, Metals, Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
...ity
* Specify Total or Dissolved

MBT Environmental Laboratories
Master Builders Technologies
3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

2 of 3

CHAIN OF CUSTODY RECORD 6891

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: MBT ENV. LABS
Address: 3083 GOLD CANAL DR
RANCHO CORDOVA, CA

Project Name: MARINER SQUARE
Project Number: 04.0601316.000
Project Location: (State) ALAMEDA, CA

FOR LABORATORY USE ONLY
Laboratory Project #: 10106
Storage Refrigerator ID: 4-16
Storage Freezer ID:

Sampler Name: E. CHRIS WARWICK
Signature: [signature]
PPE Worn in Field: LEVEL D

Relinquished By:	Date/Time	Received By or Method of Shipment/Shipment I.D.	Date/Time
[signature]	09-16-94/1800	EXPRESS-IT	09-16-94/1800
EXPRESS-IT		[signature]	9/17/94 0945

Sample Disposal (check one)
- [x] Laboratory Standard
- [ ] Other

Level of QC (see Side 2): ~~1~~ (9/9/20) ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6A ☐ 6B ☐ 6C ☐ 6D ☐ 6E ☐ 6F ☐ 7 ☐ 8 ☒ A

Write in Analysis Method →

ANALYSES REQUESTED

SAMPLE INFORMATION

FOR LABORATORY USE ONLY Lab ID	Sample ID Number	Date	Time	Description: Locator	Description: Depth	Container(s) #	Container(s) Type	Matrix Type	Pres. Type	TAT	TTLC CAM 17 TOTAL	STLC SOLUBLE LEAD	8015M	8020 BTEX						
1 10106 011	52461	9/16/94		SB-K	1.5'	1	B	SOIL	ICE	4	✓	✓								
2 012	52462	9/16/94		SB-K	3.0'	1	B	SOIL	ICE	0										
3 013	52463			SB-D	1.5'					4	✓									
4 014	52464			SB-D	4.5					~~0~~ 4	A	A	✓	✓						
5 015	52465			SB-E	1.5'					4	✓									
6 016	52466			SB-K	4.5					~~0~~ 4	A	A	✓	✓						
7																				
8											9/9/2									
9																				
10																				

Special Instructions/Comments: * A-Archive ~~FOR SAMPLES, 52464 AND 52466, ARCHIVE FOR METALS BUT ANALYZE FOR 8015M + 8020~~
~~Follow triregional requirements per S Germano~~ 9/9/2014

Container Types:
B=Brass Tube
G=Glass Jar
O=Other
A=1 Liter Amber
C=Cassette
P=Polyethylene
V=Voa Vial

TAT (Analytical Turn Around Time)
1 = 24 hours
2 = 48 hours
3 = 1 week
4 = 2 weeks
0 = Other ARCHIVE

FOR LABORATORY USE ONLY Sample Condition Upon Receipt: Temp good
Samples Intact

SEND DOCUMENTATION AND RESULTS TO (Check one):
- [x] Project Manager/Office: SAM GERMANO/ALAMEDA
- [ ] Client Name:

Company:
Address:
Phone: FAX:

Common Analytical Methods
413.1
413.2 Long Method
413.2 Short Method
418.1 Long Method
418.1 Short Method
420.1
502.2
503E
503.1
524.2
601
602
604
608
610
624
625
8010
8015
8015 Mod.
8020
8021
8040
8080
8100
8150
8240
8270
8310
Acidity
Alkalinity
BTEX
Chloride
CLP (see Side 2)
COD
Color
Conductivity
Corrosivity
Cyanide
Flashpoint
Fluoride
General Mineral
Hex. Chromium
Ion Balance
Metals (write specific metal & method #)*
Metals 6010*
Metals PP*
Metals Title 22:
TTLC Level
STLC Level
(see Side 2)
Nitrate
Nitrite
Odor
Org. Lead
Org. Mercury
Percent Moisture
Percent Solid
Perchlorate
pH
Phosphates
Phosphorus
Sulfate
Sulfides
TCLP:
VOA
Semivoa
Metals
Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
TSS
Turbidity

* Specify Total or Dissolved

MBT Environmental Laboratories
3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

Master Builders Technologies

3 of 3

CHAIN OF CUSTODY RECORD 6890

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: MBT ENV. LABS
Address: 3083 GOLD CANAL DR
RANCHO CORDOVA, CA

Project Name: MACINNE SQUARE
Project Number: 04.06 01316.00
Project Location: (State) ALAMEDA, CA

FOR LABORATORY USE ONLY
Laboratory Project #: 10106
Storage Refrigerator ID: 4-C.
Storage Freezer ID:

Sampler Name: E. CHRIS WARLWICK
Signature: [signature]
PPE Worn in Field: LEVEL D

Relinquished By	Date/Time	Received By or Method of Shipment/Shipment I.D.	Date/Time
[signature]	09-16-94/1800	EXPRESS-IT	09-16-94/1800
EXPRESS-IT		[signature]	9/17/94 0945

Sample Disposal (check one)
- [x] Laboratory Standard
- [ ] Other

Level of QC (see Side 2): ~~3~~ [x] 1 or 8080 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6A [ ] 6B [ ] 6C [ ] 6D [ ] 6E [ ] 6F [ ] 7 [ ] 8 [x] A

Write in Analysis Method →

SAMPLE INFORMATION / ANALYSES REQUESTED

FOR LABORATORY USE ONLY Lab ID	Sample ID Number	Date	Time	Locator	Depth	Container #	Container Type	Matrix Type	Pres. Type	TAT	8015M	8240 VINYL CHLORIDE	CAM TTLC STLC	8020 BTEX	TOC
1 10106 017	52501	9/15/94		SB-A	1.5	1	B	SOIL	ICE	4			✓		✓
2 018	52502	↓		SB-A	5.5'	↓	↓	↓	↓	↓		✓	A	✓	✓
3 019	52503	9/16/94		SB-B	1.5'	↓	↓	↓	↓	↓			✓		✓
4 020	52504	↓		SB-B	4.5'	↓	↓	↓	↓	↓			A		✓
5 021	52505	↓		SB-C	1.5'	↓	↓	↓	↓	↓			✓		✓
6 022	52506	↓		SB-C	5.5'	↓	↓	↓	↓	↓			A		✓
7 023	52507	9/15/94		MW-7	4.0'	↓	↓	↓	↓	↓	✓	✓		✓	
8															
9															
10															

Special Instructions/Comments: A= ARCHIVE follow Tri-regional requirements per S. Germanian @ 7/20/94

Container Types: B=Brass Tube, G=Glass Jar, O=Other, A=1 Liter Amber, C=Cassette, P=Polyethylene, V=Voa Vial

TAT (Analytical Turn Around Time): 1 = 24 hours, 2 = 48 hours, 3 = 1 week, 4 = 2 weeks, 0 = Other

FOR LABORATORY USE ONLY Sample Condition Upon Receipt: Temp good, Samples Intact [initials]

SEND DOCUMENTATION AND RESULTS TO (Check one):
- [x] Project Manager/Office: SAUL GERMANIAN/ALAMEDA
- [ ] Client Name:

Company:
Address:
Phone: FAX:

Common Analytical Methods
413.1
413.2 Long Method
413.2 Short Method
418.1 Long Method
418.1 Short Method
420.1
502.2
503E
503.1
524.2
601
602
604
608
610
624
625
8010
8015
8015 Mod.
8020
8021
8040
8080
8100
8150
8240
8270
8310
Acidity
Alkalinity
BTEX
Chloride
CLP (see Side 2)
COD
Color
Conductivity
Corrosivity
Cyanide
Flashpoint
Fluoride
General Mineral
Hex. Chromium
Ion Balance
Metals (write specific metal & method #)*
Metals 6010*
Metals PP*
Metals Title 22: TTLC Level, STLC Level (see Side 2)
Nitrate
Nitrite
Odor
Org. Lead
Org. Mercury
Percent Moisture
Percent Solid
Perchlorate
pH
Phosphates
Phosphorus
Sulfate
Sulfides
TCLP: VOA, Semivoa, Metals, Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
...ity
* Specify Total or Dissolved

ANALYTICAL REPORT

LABORATORY PROJECT (LP) NUMBER 10106

MARINER SQUARE

This report complies with the requirements under the following certification/approval:

✓	CALIFORNIA:	Hazardous Waste, #1417 Waste Water, # 1417 Drinking Water, #1417
	CONNECTICUT:	Waste Water, #PH0799
	FLORIDA:	Environmental Water, #E87298
	KANSAS:	Hazardous Waste, #E-1167 Waste Water, #E-192 Drinking Water, #E-192
	NEW HAMPSHIRE:	Waste Water, #253193-A
	NEW JERSEY:	Waste Water, #44818
	NEW YORK:	Hazardous Waste, #11241 Waste Water, #11241 CLP, #11241
	OKLAHOMA:	Hazardous Waste, #9318 Waste Water, #9318
	TENNESSEE:	Underground Storage Tank
	UTAH:	Hazardous Waste, #E-165 Waste Water, #E-165 Drinking Water, #E-165
	WASHINGTON:	Hazardous Waste, #C048
	WISCONSIN:	Hazardous Waste, #999940920 Waste Water, #999940920
	USACOE:	Hazardous Waste Waste Water
	AFCEE	

(CN10106)

QUALITY CONTROL REPORT

METHOD BLANK

Method: EPA 9060
Units: mg/Kg (ppm)

Date Analyzed: 09/27/94

Analyte	Reporting Limit	Concentration
Total Organic Carbon, TOC	500	BRL

(CN10106)

QUALITY CONTROL REPORT

Laboratory Control Sample
Inorganics

LP: 10106

Date Of Analysis: 09/28/94

Date of Extraction: 09/27/94

Batch #: 940926-4903

Instrument #: TOC SSM 5000

Spike Sample ID: LCS

Spike ID Code: 4-1688

Matrix: Soil Units: mg/Kg

ANALYTES	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC.	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	RPD
Total Organic Carbon	0	376	376	100	NA	NA	NA	75 - 125	≤20

Spike Recovery = d = ((c-a)/b) x 100

Spike Duplicate Recovery = f = ((e-a)/b) x 100

Relative Percent Difference = g = ((|c-e|)/((c+e) x .5) x 100

MBT Environmental Laboratories

Master Builders Technologies

(CN10106)

Matrix Spike/Matrix Spike Duplicate Inorganics

LP: 10106

Date Of Analysis: 09/28/94

Date of Extraction: 09/27/94

Batch #: 940926-4903

Instrument #: TOC SSM 5000

Spike Sample ID: 10106-022 MS/MSD

Spike ID Code: 4-1688

Matrix: Soil Units: mg/Kg

ANALYTES	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC.	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
Total Organic Carbon	390	3200	3700	103	2600	2600	85	75 - 125	≤20

Spike Recovery = d = ((c-a)/b) x 100

Spike Duplicate Recovery = f = ((e-a)/b) x 100

Relative Percent Difference = g = ((|c-e|)/((c+e) x .5) x 100

QUALITY CONTROL REPORT

METHOD BLANK

Method: CAM Title 22 Metals (TTLC Limit)
Units: mg/Kg (ppm)

Date Analyzed: 09/26/94[a]
Date Digested: 09/23/94[b]
Batch Number: 940923-4302[b]

Analyte	Reporting Limit	Concentration
Antimony (Sb)/6010	2.5	BRL
Arsenic (As)/7060	0.50	BRL
Barium (Ba)/6010	1.0	BRL
Beryllium (Be)/6010	0.25	BRL
Cadmium (Cd)/6010	0.50	BRL
Chromium (Cr)/6010	1.0	BRL
Cobalt (Co)/6010	1.0	BRL
Copper (Cu)/6010	1.0	BRL
Lead (Pb)/6010	2.5	BRL
Mercury (Hg)/7471	0.10	BRL
Molybdenum (Mo)/6010	1.0	BRL
Nickel (Ni)/6010	1.0	BRL
Selenium (Se)/7740	0.25	BRL
Silver (Ag)/6010	1.0	BRL
Thallium (Tl)/7841	0.50	BRL
Vanadium (V)/6010	1.0	BRL
Zinc (Zn)/6010	1.0	BRL

[a] Applies to all metals except Mercury and Selenium, which were analyzed on 09/23/94; and Thallium, which was analyzed on 09/27/94.

[b] Applies to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.

QUALITY CONTROL REPORT

Laboratory Control Sample
Metals

LP: 10106

Date of Analysis: 09/26/94

Date of Digestion: 09/23/94

Batch #: 940923-4302

Instrument #: ICP1

Spike Sample ID: LCSS

Spike ID Code: W4-7850, 4-1694

Matrix: Soil Units: mg/Kg

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	RPD
Sb	0	25	23.6	94	NA	NA	NA	75 - 125	≤20
Ba	0	100	98.8	99	NA	NA	NA	75 - 125	≤20
Be	0	2.5	2.5	100	NA	NA	NA	75 - 125	≤20
Cd	0	2.5	2.3	92	NA	NA	NA	75 - 125	≤20
Cr	0	10	10.5	105	NA	NA	NA	75 - 125	≤20
Co	0	25	25.1	100	NA	NA	NA	75 - 125	≤20
Cu	0	12.5	12.0	96	NA	NA	NA	75 - 125	≤20
Pb	0	25	25.3	101	NA	NA	NA	75 - 125	≤20
Mo	0	25	25.5	102	NA	NA	NA	75 - 125	≤20
Ni	0	25	24.7	99	NA	NA	NA	75 - 125	≤20
Ag	0	2.5	2.5	100	NA	NA	NA	75 - 125	≤20
V	0	25	25.8	103	NA	NA	NA	75 - 125	≤20
Zn	0	25	24.2	97	NA	NA	NA	75 - 125	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

Laboratory Control Sample
Metals

LP: 10106

Date of Analysis: 09/23/94[a]

Date of Digestion: 09/23/94

Batch #: 940923-4303

Instrument #: PE5100

Spike Sample ID: LCSS

Spike ID Code: W4-7551

Matrix: Soil Units: mg/Kg

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
As	0	2.00	2.06	103	NA	NA	NA	75 - 125	≤20
Se	0	0.500	0.600	120	NA	NA	NA	75 - 125	≤20
Tl	0	2.50	2.64	106	NA	NA	NA	75 - 125	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

[a] Date of Analysis applies to Selenium only. Arsenic was analyzed on 09/26/94 and Thallium was analyzed on 09/27/94.

QUALITY CONTROL REPORT

Laboratory Control Sample
Metals

LP: 10106

Date of Analysis: 09/23/94

Date of Digestion: 09/23/94

Batch #: 940923-4501

Instrument #: PS200

Spike Sample ID: LCSS

Spike ID Code: W4-7913

Matrix: Soil Units: mg/Kg

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
Hg	0	0.175	0.133	76	NA	NA	NA	75 - 125	≤20

Spike Recovery = d = ((c-a)/b) x 100

Spike Duplicate Recovery = f = ((e-a)/b) x 100

Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

Matrix Spike/Matrix Spike Duplicate
Metals

LP: 10106

Date of Analysis: 09/26/94

Date of Digestion: 09/23/94

Batch #: 940923-4302

Instrument #: ICP1

Spike Sample ID: 10106-21 MS/MSD

Spike ID Code: W4-7850, 4-1694

Matrix: Soil Units: mg/Kg

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	RPD
Sb	0	25	8.8	35[a]	7.2	29[a]	20	75 - 125	≤20
Ba	120	100	160	40[a]	160	40[a]	0	75 - 125	≤20
Be	0	2.5	2.6	104	2.5	100	4	75 - 125	≤20
Cd	0	2.5	2.3	92	2.1	84	9	75 - 125	≤20
Cr	52	10	55	30[b]	54	20[b]	2	75 - 125	≤20
Co	8.5	25	30	86	30	86	0	75 - 125	≤20
Cu	25	12.5	33	64[a]	33	64[a]	0	75 - 125	≤20
Pb	1000	25	700	0[b]	740	0[b]	6	75 - 125	≤20
Mo	1.4	25	23	86	23	86	0	75 - 125	≤20
Ni	47	25	68	84	67	80	1	75 - 125	≤20
Ag	0	2.5	2.3	92	2.2	88	4	75 - 125	≤20
V	38	25	60	88	61	92	2	75 - 125	≤20
Zn	210	25	220	40[b]	210	0[b]	5	75 - 125	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

[a] Matrix spike and matrix spike duplicate recoveries are beyond advisory acceptance limits; however, the laboratory control sample data are acceptable.

[b] Matrix spike recovery is beyond advisory acceptance limits due to the high concentration in the sample. The LCS data are acceptable.

QUALITY CONTROL REPORT

Matrix Spike/Matrix Spike Duplicate
Metals

LP: 10106

Date of Analysis: 09/23/94[a]

Date of Digestion: 09/23/94

Batch #: 940923-4303

Instrument #: PE5100

Spike Sample ID: 10106-21 MS/MSD

Spike ID Code: W4-7551

Matrix: Soil Units: mg/Kg

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
As	3.4	2.00	7.6	210[b]	4.6	60[b]	49[c]	75 - 125	≤20
Se	0	0.500	0.31	62[b]	0.41	82	28[c]	75 - 125	≤20
Tl	0	2.50	1.0	40[b]	0.48	19[b]	70[c]	75 - 125	≤20

Spike Recovery = d = ((c-a)/b) x 100

Spike Duplicate Recovery = f = ((e-a)/b) x 100

Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

[a] Date of Analysis applies to Selenium only. Arsenic MS/MSD was analyzed on 09/26,27/94 Thallium was analyzed on 09/27/94.

[b] Matrix spike and matrix spike duplicate recoveries are beyond advisory acceptance limits; however, the laboratory control sample data are acceptable.

[c] Matrix spike duplicate RPD is beyond advisory acceptance limits; however, the laboratory control sample data are acceptable.

QUALITY CONTROL REPORT

Matrix Spike/Matrix Spike Duplicate
Metals

LP: 10106

Date of Analysis: 09/23/94

Date of Digestion: 09/23/94

Batch #: 940923-4501

Instrument #: PS200

Spike Sample ID: 10106-21 MS/MSD

Spike ID Code: W4-7913

Matrix: Soil Units: mg/Kg

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	RPD
Hg	0.26	0.175	0.39	74[a]	0.38	68[a]	3	75 - 125	≤20

Spike Recovery = d = ((c-a)/b) x 100

Spike Duplicate Recovery = f = ((e-a)/b) x 100

Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

[a] Matrix spike and matrix spike duplicate recoveries are beyond advisory acceptance limits; however, the laboratory control sample data are acceptable.

QUALITY CONTROL REPORT

METHOD BLANK

Method: CAM Title 22 Metals (STLC Limit)
Units: mg/L (ppm)

Date Analyzed: 09/27/94
Date Extracted: 09/22/94
Batch Number: 940922-4304

Analyte	Reporting Limit	Concentration
Lead (Pb)/6010	1.0	BRL

QUALITY CONTROL REPORT

Laboratory Control Sample
Metals

LP: 10106

Instrument #: ICP1

Date of Analysis: 09/27/94

Spike Sample ID: LCSX

Date of Digestion: 09/27/94

Spike ID Code: W4-7850, 4-1694

Batch #: 940927-4501

Matrix: Soil Extract Units: mg/L

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
Pb	0	5.0	4.82	96	NA	NA	NA	75 - 125	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

MBT Environmental Laboratories

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(CN10106)

QUALITY CONTROL REPORT

Matrix Spike/Matrix Spike Duplicate
Metals

LP: 10106

Date of Analysis: 09/27/94

Date of Digestion: 09/27/94

Batch #: 940927-4501

Instrument #: ICP1

Spike Sample ID: 10106-3 MS/MSD

Spike ID Code: W4-7850, 4-1694

Matrix: Soil Extract Units: mg/L

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
Pb	2.7	5.0	7.5	96	7.4	94	1	75 - 125	≤20

Spike Recovery = d = ((c-a)/b) x 100

Spike Duplicate Recovery = f = ((e-a)/b) x 100

Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

MBT Environmental Laboratories

Master Builders Technologies

(CN10106)

QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 8015
Units: mg/Kg (ppm)

Date Analyzed: 09/26/94
Date Extracted: 09/21/94
Batch Number: 940921-4704

Petroleum Fraction	Carbon Range	Reporting Limit	Concentration
Gasoline Range	C7 - C14	1	BRL
Diesel Range	C12 - C22	1	BRL
Motor Oil Range	C22 - C32	1	BRL
Total Petroleum Hydrocarbons		1	BRL

QUALITY CONTROL REPORT

Laboratory Control Sample
Method 8015 - Modified
Total Petroleum Hydrocarbons/TPH - Diesel

LP: 10106

Date Of Analysis: 09/23/94

Column: XTI-5

Instrument #: PGC#6

Batch #: 940921-4704

Spike Sample ID: LCSS#16

Spike ID Code: W5-226

Surrogate ID Code: NA

Matrix: Soil Units: mg/Kg

COMPOUNDS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC. %	(e) SAMPLE DUP. + SPIKE CONC.	(f) SPIKE DUP. REC. %	(g) RPD %	ACCEPTANCE LIMITS % REC.	RPD
Diesel	0	41.7	24.0	58	NA	NA	NA	52 - 125	≤ 25

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 8020 (BTEX)
Units: ug/Kg (ppb)

Date Analyzed: 09/19/94
Date Extracted: 09/19/94
Batch Number: 940919-4904

Analyte	Reporting Limit	Concentration
Benzene	5.0	BRL
Toluene	5.0	BRL
Ethylbenzene	5.0	BRL
1,2-Xylene	5.0	BRL
1,3-Xylene	5.0	BRL
1,4-Xylene	5.0	BRL

Surrogate	% Recovery	Acceptance Limits
Bromofluorobenzene	122[a]	51 - 102

[a] Sample surrogate recovery is beyond acceptance limits. All other quality control is acceptable.

Laboratory Control Sample
Method 8020

LP: 10106

Date Of Analysis: 09/19/94

Column: DB-Wax

Instrument #: 3

Batch #: 940919-4904

Spike Sample ID: LCSS

Spike ID Code: W1-937

Surrogate ID Code: W1-973

Matrix: Soil Units: ug/Kg

EPA METHOD	COMPOUNDS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC.	(f) SPIKE DUP. REC. %	(g) RPD%	ACCEPTANCE LIMITS % REC.	ACCEPTANCE LIMITS RPD
8020	Chlorobenzene	0	250	232	93	NA	NA	NA	60 - 128	≤25
8020	Benzene	0	250	230	92	NA	NA	NA	70 - 124	≤25
8020	Ethyl Benzene	0	250	230	92	NA	NA	NA	67 - 128	≤25

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

EPA METHOD	SURROGATE COMPOUNDS	DET.	(h) SUR. SPIKE CONC.	(i) SAMPLE + SUR. SPIKE CONC.	(j) SUR. REC. %	(k) SAMPLE DUP. + SUR. SPIKE CONC.	(l) SUR. DUP. RECOVERY %	ACCEPTANCE LIMITS % REC.
8020	Bromofluorobenzene	PID	200	268	134[a]	NA	NA	51 - 102

Surrogate % Recovery = j = (i/h) x 100
Surrogate Dup % Recovery = l = (k/h) x 100

[a] Sample surrogate recovery is beyond acceptance limits. All other quality control is acceptable.

Matrix Spike/Matrix Spike Duplicate
Method 8020

LP: 10106

Batch #: 940919-4904

Date Of Analysis: 09/19/94

Spike Sample ID: 10106-16 MS/MSD

Column: DB-Wax

Spike ID Code: W1-937

Instrument #: 3

Surrogate ID Code: W1-973

Matrix: Soil Units: ug/Kg

EPA METHOD	COMPOUNDS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC.	(f) SPIKE DUP. REC. %	(g) RPD%	ACCEPTANCE LIMITS % REC.	ACCEPTANCE LIMITS RPD
8020	Chlorobenzene	0	250	213	85	188	75	12	60 - 128	≤25
8020	Benzene	0	250	204	82	186	74	9	70 - 124	≤25
8020	Ethyl Benzene	0	250	209	84	187	75	11	67 - 128	≤25

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

EPA METHOD	SURROGATE COMPOUNDS	DET.	(h) SUR. SPIKE CONC.	(i) SAMPLE + SUR. SPIKE CONC.	(j) SUR. REC. %	(k) SAMPLE DUP. + SUR. SPIKE CONC.	(l) SUR. DUP. RECOVERY %	ACCEPTANCE LIMITS % REC.
8020	Bromofluorobenzene	PID	200	232	116[a]	248	124[a]	51 - 102

Surrogate % Recovery = j = (i/h) x 100
Surrogate Dup % Recovery = l = (k/h) x 100

[a] Sample surrogate recovery is beyond acceptance limits. All other quality control is acceptable.

MBT Environmental Laboratories

Master Builders Technologies

(CN10106)

QUALITY CONTROL REPORT

METHOD BLANK

Method: EPA 8240 - Low Level Modified Date Analyzed: 09/28/94
Units: ug/Kg (ppb)

Analyte	Reporting Limit	Concentration
Vinyl Chloride	10	BRL

Surrogate	% Recovery	Acceptance Limits
1,2-Dichloroethane-D4	104	70 - 121
Toluene-D8	99	81 - 117
Bromofluorobenzene	98	74 - 121

QUALITY CONTROL REPORT

METHOD BLANK

Method: EPA 8240 - Low Level Modified   Date Analyzed: 09/29/94
Units: ug/Kg (ppb)

Analyte	Reporting Limit	Concentration
Vinyl Chloride	10	BRL

Surrogate	% Recovery	Acceptance Limits
1,2-Dichloroethane-D4	92	70 - 121
Toluene-D8	101	81 - 117
Bromofluorobenzene	97	74 - 121

Laboratory Control Sample
Method 8240
Low Level

LP: 10106
Date Of Analysis: 09/29/94
Column: Capillary
Instrument #: MS04

Batch #: NA
Spike Sample ID: LCS-L29
Spike ID Code: W3-1591
Surrogate ID Code: W3-1664
Matrix: Soil Units: ug/Kg

COMPOUNDS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC.	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS % REC	ACCEPTANCE LIMITS RPD
1,1 - Dichloroethene	0	50.00	36.40	72	NA	NA	NA	59 - 172	≤22
Trichloroethene	0	50.00	43.90	87	NA	NA	NA	62 - 137	≤24
Benzene	0	50.00	43.80	87	NA	NA	NA	66 - 142	≤21
Toluene	0	50.00	43.50	86	NA	NA	NA	59 - 139	≤21
Chlorobenzene	0	50.00	45.10	90	NA	NA	NA	60 - 133	≤21

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|d-f|)/((d+f) x .5) x 100

SURROGATE COMPOUNDS	(h) SURROGATE SPIKE CONC.	(i) SAMPLE + SURROGATE SPIKE CONC.	(j) SURROGATE RECOVERY %	(k) SAMPLE DUP + SURROGATE SPIKE CONC.	(l) SURROGATE DUP RECOVERY %	ACCEPTANCE LIMITS % REC
1,2 - Dichloroethane - d4	50.00	48.85	98	NA	NA	70 - 121
Toluene - d8	50.00	49.95	100	NA	NA	81 - 117
Bromofluorobenzene	50.00	49.18	98	NA	NA	74 - 121

Surrogate % Recovery = j = (i/h) x 100
Surrogate Dup % Recovery = l = (k/h) x 100

ABBREVIATIONS USED IN THIS REPORT

BRL	Below Reporting Limit
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
RPD	Relative Percent Difference
NS	Not Specified
NA	Not Applicable

COMMENTS

Test methods may include minor modifications of published EPA methods (e.g., reporting limits or parameter lists). Reporting limits are adjusted to reflect dilution of the sample when appropriate. Solids and waste are analyzed with no correction made for moisture content.

For STLC metals analysis, the laboratory reports batch numbers on the following basis: Extraction batch numbers are reported for the samples and method blanks. Digestion batch numbers are reported for the spikes.

Values for total petroleum hydrocarbons were calculated based only on detected peaks.

The gasoline standard was obtained from a local BP station. Gasoline is sold commercially as unleaded gasoline.

The diesel standard was obtained from a local Chevron station. Diesel is sold commercially as Diesel Fuel #2.

The motor oil standard was obtained from a local automotive store. Manufacturer and motor oil type are Pennzoil SAE 10W-40.

The laboratory reported result for Total Petroleum Hydrocarbons is a summation result of the individual analytes.

(CN10106)

INORGANICS

Analysis: *Total Organic Carbon, TOC*

Method: *EPA 9060 Modified*

Project Name: *Mariner Square*

Project Number: *040601316000*

Date Sampled: *09/15/94*

Date Received: *09/17/94*

Date Analyzed: *09/27/94*

Batch Number:

Lab Project ID Number	Sample Number	Sample Description	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
10106 -17	52501	SB-A 1.5	6700	500
10106 -18	52502	SB-A 5.5'	960	500
10106 -19	52503	SB-B 1.5'	19000	500
10106 -20	52504	SB-B 4.5'	BRL	500
10106 -21	52505	SB-C 1.5'	4000	500
10106 -22	52506	SB-C 5.5'	BRL	500

Date sampled applies to all samples except 10106-019, 10106-020, 10106-021, and 10106-022 which were sampled on 09/16/94.

The cover letter and enclosures are integral parts of this report.

Approved by: [signature] Date: 10/5/94

473

MBT Environmental Laboratories

Master Builders Technologies

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-A 1.5*

Lab Project-ID Number: *10106-17*

Sample Number: *52501*

Date Sampled: *09/15/94*

Date Received: *09/17/94*

Date Digested: *09/23/94*

Batch Number: *940923-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
Antimony (Sb)/6010	09/26/94	29	2.5
Arsenic (As)/7060	09/27/94	{b} 7.2	2.5
Barium (Ba)/6010	09/26/94	410	1.0
Beryllium (Be)/6010	09/26/94	0.32	0.25
Cadmium (Cd)/6010	09/26/94	BRL	0.50
Chromium (Cr)/6010	09/26/94	44	1.0
Cobalt (Co)/6010	09/26/94	6.7	1.0
Copper (Cu)/6010	09/26/94	28	1.0
Lead (Pb)/6010	09/26/94	250	2.5
Mercury (Hg)/7471	09/23/94	0.33	0.10
Molybdenum (Mo)/6010	09/26/94	1.7	1.0
Nickel (Ni)/6010	09/26/94	26	1.0
Selenium (Se)/7740	09/23/94	BRL	0.25
Silver (Ag)/6010	09/26/94	BRL	1.0
Thallium (Tl)/7841	09/26/94	BRL	0.50
Vanadium (V)/6010	09/26/94	33	1.0
Zinc (Zn)/6010	09/26/94	370	1.0

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Selenium, Thallium, and Mercury. EPA Method 3050 Nitric is used for Arsenic, Selenium, and Thallium digestion. EPA Method 7471 is used for Mercury digestion.

{b} The sample was diluted 5 fold due to the presence of non-target analyte interferences.

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Lab Project-
ID Number: *10106-17*

Comments

Date Digested and Batch # apply to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.

Approved by: ____________________ Date: 10/5/94

MBT Environmental Laboratories

Master Builders Technologies

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Project Name: *Mariner Square*

Sample Description: *SB-B 1.5'*

Sample Number: *52503*

Date Received: *09/17/94*

Project Number: *040601316000*

Lab Project-ID Number: *10106-19*

Date Sampled: *09/16/94*

Date Digested: *09/23/94*

Batch Number: *940923-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
Antimony (Sb)/6010	09/26/94	BRL	2.5
Arsenic (As)/7060	09/26/94	1.8	0.50
Barium (Ba)/6010	09/26/94	88	1.0
Beryllium (Be)/6010	09/26/94	BRL	0.25
Cadmium (Cd)/6010	09/26/94	1.2	0.50
Chromium (Cr)/6010	09/26/94	40	1.0
Cobalt (Co)/6010	09/26/94	7.3	1.0
Copper (Cu)/6010	09/26/94	17	1.0
Lead (Pb)/6010	09/26/94	250	2.5
Mercury (Hg)/7471	09/23/94	0.20	0.10
Molybdenum (Mo)/6010	09/26/94	BRL	1.0
Nickel (Ni)/6010	09/26/94	36	1.0
Selenium (Se)/7740	09/23/94	BRL	0.25
Silver (Ag)/6010	09/26/94	BRL	1.0
Thallium (Tl)/7841	09/26/94	BRL	0.50
Vanadium (V)/6010	09/26/94	28	1.0
Zinc (Zn)/6010	09/26/94	580	1.0

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Lab Project-
ID Number: *10106-19*

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Selenium, Thallium, and Mercury. EPA Method 3050 Nitric is used for Arsenic, Selenium, and Thallium digestion. EPA Method 7471 is used for Mercury digestion.

Date Digested and Batch # apply to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.

Approved by: ________________ Date: 10/5/94

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-C 1.5'*

Lab Project-ID Number: *10106-21*

Sample Number: *52505*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Date Digested: *09/23/94*

Batch Number: *940923-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
Antimony (Sb)/6010	09/26/94	BRL	2.5
Arsenic (As)/7060	09/26/94	3.4	0.50
Barium (Ba)/6010	09/26/94	120	1.0
Beryllium (Be)/6010	09/26/94	BRL	0.25
Cadmium (Cd)/6010	09/26/94	BRL	0.50
Chromium (Cr)/6010	09/26/94	52	1.0
Cobalt (Co)/6010	09/26/94	8.5	1.0
Copper (Cu)/6010	09/26/94	25	1.0
Lead (Pb)/6010	09/26/94	1000	2.5
Mercury (Hg)/7471	09/23/94	0.26	0.10
Molybdenum (Mo)/6010	09/26/94	1.4	1.0
Nickel (Ni)/6010	09/26/94	47	1.0
Selenium (Se)/7740	09/23/94	BRL	0.25
Silver (Ag)/6010	09/26/94	BRL	1.0
Thallium (Tl)/7841	09/26/94	BRL	0.50
Vanadium (V)/6010	09/26/94	38	1.0
Zinc (Zn)/6010	09/26/94	210	1.0

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Lab Project-
ID Number: *10106-21*

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Selenium, Thallium, and Mercury. EPA Method 3050 Nitric is used for Arsenic, Selenium, and Thallium digestion. EPA Method 7471 is used for Mercury digestion.

Date Digested and Batch # apply to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.

Approved by: ________________ Date: 10/5/94

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Project Name: *Mariner Square*

Sample Description: *SB-D 1.5'*

Sample Number: *52463*

Date Received: *09/17/94*

Project Number: *040601316000*

Lab Project-ID Number: *10106-13*

Date Sampled: *09/16/94*

Date Digested: *09/23/94*

Batch Number: *940923-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
Antimony (Sb)/6010	09/26/94	BRL	2.5
Arsenic (As)/7060	09/26/94	3.3	0.50
Barium (Ba)/6010	09/26/94	36	1.0
Beryllium (Be)/6010	09/26/94	BRL	0.25
Cadmium (Cd)/6010	09/26/94	BRL	0.50
Chromium (Cr)/6010	09/26/94	35	1.0
Cobalt (Co)/6010	09/26/94	3.8	1.0
Copper (Cu)/6010	09/26/94	18	1.0
Lead (Pb)/6010	09/26/94	8.0	2.5
Mercury (Hg)/7471	09/23/94	BRL	0.10
Molybdenum (Mo)/6010	09/26/94	BRL	1.0
Nickel (Ni)/6010	09/26/94	25	1.0
Selenium (Se)/7740	09/23/94	BRL	0.25
Silver (Ag)/6010	09/26/94	BRL	1.0
Thallium (Tl)/7841	09/26/94	BRL	0.50
Vanadium (V)/6010	09/26/94	20	1.0
Zinc (Zn)/6010	09/26/94	18	1.0

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Lab Project-
ID Number: *10106-13*

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Selenium, Thallium, and Mercury. EPA Method 3050 Nitric is used for Arsenic, Selenium, and Thallium digestion. EPA Method 7471 is used for Mercury digestion.

Date Digested and Batch # apply to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.

Approved by: GH Date: 10/5/94

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-E 1.5'*

Lab Project-ID Number: *10106-15*

Sample Number: *52465*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Date Digested: *09/23/94*

Batch Number: *940923-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
Antimony (Sb)/6010	09/26/94	BRL	2.5
Arsenic (As)/7060	09/26/94	1.4	0.50
Barium (Ba)/6010	09/26/94	82	1.0
Beryllium (Be)/6010	09/26/94	BRL	0.25
Cadmium (Cd)/6010	09/26/94	BRL	0.50
Chromium (Cr)/6010	09/26/94	35	1.0
Cobalt (Co)/6010	09/26/94	4.3	1.0
Copper (Cu)/6010	09/26/94	14	1.0
Lead (Pb)/6010	09/26/94	38	2.5
Mercury (Hg)/7471	09/23/94	BRL	0.10
Molybdenum (Mo)/6010	09/26/94	BRL	1.0
Nickel (Ni)/6010	09/26/94	28	1.0
Selenium (Se)/7740	09/23/94	BRL	0.25
Silver (Ag)/6010	09/26/94	BRL	1.0
Thallium (Tl)/7841	09/26/94	BRL	0.50
Vanadium (V)/6010	09/26/94	25	1.0
Zinc (Zn)/6010	09/26/94	51	1.0

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Lab Project-
ID Number: *10106-15*

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Selenium, Thallium, and Mercury. EPA Method 3050 Nitric is used for Arsenic, Selenium, and Thallium digestion. EPA Method 7471 is used for Mercury digestion.

Date Digested and Batch # apply to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.

Approved by: [signature] Date: 10/5/94

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-F 1.5'*

Lab Project-ID Number: *10106-1*

Sample Number: *52451*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Date Digested: *09/23/94*

Batch Number: *940923-4302*

Analyte (Symbol)/EPA Method	**Date Analyzed**	**Concentration mg/Kg (ppm)**	**Reporting Limit mg/Kg (ppm)**
Antimony (Sb)/6010	09/26/94	BRL	2.5
Arsenic (As)/7060	09/26/94	1.2	0.50
Barium (Ba)/6010	09/26/94	31	1.0
Beryllium (Be)/6010	09/26/94	BRL	0.25
Cadmium (Cd)/6010	09/26/94	BRL	0.50
Chromium (Cr)/6010	09/26/94	31	1.0
Cobalt (Co)/6010	09/26/94	3.1	1.0
Copper (Cu)/6010	09/26/94	6.2	1.0
Lead (Pb)/6010	09/26/94	12	2.5
Mercury (Hg)/7471	09/23/94	BRL	0.10
Molybdenum (Mo)/6010	09/26/94	BRL	1.0
Nickel (Ni)/6010	09/26/94	20	1.0
Selenium (Se)/7740	09/23/94	BRL	0.25
Silver (Ag)/6010	09/26/94	BRL	1.0
Thallium (Tl)/7841	09/27/94	BRL	0.50
Vanadium (V)/6010	09/26/94	18	1.0
Zinc (Zn)/6010	09/26/94	34	1.0

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Lab Project-
ID Number: *10106-1*

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Selenium, Thallium, and Mercury. EPA Method 3050 Nitric is used for Arsenic, Selenium, and Thallium digestion. EPA Method 7471 is used for Mercury digestion.

Date Digested and Batch # apply to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.

Approved by: ______________ Date: 10/5/94

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Project Name: *Mariner Square*

Sample Description: *SB-G 1.5'*

Sample Number: *52453*

Date Received: *09/17/94*

Project Number: *040601316000*

Lab Project-ID Number: *10106-3*

Date Sampled: *09/16/94*

Date Digested: *09/23/94*

Batch Number: *940923-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
Antimony (Sb)/6010	09/26/94	BRL	2.5
Arsenic (As)/7060	09/26/94	2.2	0.50
Barium (Ba)/6010	09/26/94	69	1.0
Beryllium (Be)/6010	09/26/94	BRL	0.25
Cadmium (Cd)/6010	09/26/94	BRL	0.50
Chromium (Cr)/6010	09/26/94	39	1.0
Cobalt (Co)/6010	09/26/94	4.9	1.0
Copper (Cu)/6010	09/26/94	13	1.0
Lead (Pb)/6010	09/26/94	59	2.5
Mercury (Hg)/7471	09/23/94	BRL	0.10
Molybdenum (Mo)/6010	09/26/94	BRL	1.0
Nickel (Ni)/6010	09/26/94	31	1.0
Selenium (Se)/7740	09/23/94	BRL	0.25
Silver (Ag)/6010	09/26/94	BRL	1.0
Thallium (Tl)/7841	09/27/94	BRL	0.50
Vanadium (V)/6010	09/26/94	25	1.0
Zinc (Zn)/6010	09/26/94	150	1.0

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Lab Project-
ID Number: *10106-3*

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Selenium, Thallium, and Mercury. EPA Method 3050 Nitric is used for Arsenic, Selenium, and Thallium digestion. EPA Method 7471 is used for Mercury digestion.

Date Digested and Batch # apply to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.

Approved by: GH Date: 10/5/94

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Lab Project-
ID Number: *10106-3*

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Selenium, Thallium, and Mercury. EPA Method 3050 Nitric is used for Arsenic, Selenium, and Thallium digestion. EPA Method 7471 is used for Mercury digestion.

Date Digested and Batch # apply to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.

Approved by: JH Date: 10/5/94

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-H 1.5'*

Lab Project-ID Number: *10106-5*

Sample Number: *52455*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Date Digested: *09/23/94*

Batch Number: *940923-4302*

Analyte (Symbol)/EPA Method	**Date Analyzed**	**Concentration mg/Kg (ppm)**	**Reporting Limit mg/Kg (ppm)**
Antimony (Sb)/6010	09/26/94	BRL	2.5
Arsenic (As)/7060	09/26/94	3.0	0.50
Barium (Ba)/6010	09/26/94	76	1.0
Beryllium (Be)/6010	09/26/94	BRL	0.25
Cadmium (Cd)/6010	09/26/94	BRL	0.50
Chromium (Cr)/6010	09/26/94	46	1.0
Cobalt (Co)/6010	09/26/94	5.1	1.0
Copper (Cu)/6010	09/26/94	47	1.0
Lead (Pb)/6010	09/26/94	68	2.5
Mercury (Hg)/7471	09/23/94	BRL	0.10
Molybdenum (Mo)/6010	09/26/94	BRL	1.0
Nickel (Ni)/6010	09/26/94	35	1.0
Selenium (Se)/7740	09/23/94	BRL	0.25
Silver (Ag)/6010	09/26/94	BRL	1.0
Thallium (Tl)/7841	09/27/94	BRL	0.50
Vanadium (V)/6010	09/26/94	28	1.0
Zinc (Zn)/6010	09/26/94	160	1.0

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Lab Project-
ID Number: *10106-5*

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Selenium, Thallium, and Mercury. EPA Method 3050 Nitric is used for Arsenic, Selenium, and Thallium digestion. EPA Method 7471 is used for Mercury digestion.

Date Digested and Batch # apply to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.

Approved by: ______ Date: 10/5/94

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*SB-I 1.5'*	Lab Project-ID Number:	*10106-7*
Sample Number:	*52457*	Date Sampled:	*09/16/94*
Date Received:	*09/17/94*	Date Digested:	*09/23/94*
		Batch Number:	*940923-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
Antimony (Sb)/6010	09/26/94	BRL	2.5
Arsenic (As)/7060	09/26/94	{b} BRL	5.0
Barium (Ba)/6010	09/26/94	48	1.0
Beryllium (Be)/6010	09/26/94	BRL	0.25
Cadmium (Cd)/6010	09/26/94	BRL	0.50
Chromium (Cr)/6010	09/26/94	36	1.0
Cobalt (Co)/6010	09/26/94	10	1.0
Copper (Cu)/6010	09/26/94	90	1.0
Lead (Pb)/6010	09/26/94	38	2.5
Mercury (Hg)/7471	09/23/94	BRL	0.10
Molybdenum (Mo)/6010	09/26/94	1.1	1.0
Nickel (Ni)/6010	09/26/94	29	1.0
Selenium (Se)/7740	09/23/94	BRL	0.25
Silver (Ag)/6010	09/26/94	BRL	1.0
Thallium (Tl)/7841	09/27/94	BRL	0.50
Vanadium (V)/6010	09/26/94	24	1.0
Zinc (Zn)/6010	09/26/94	100	1.0

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Selenium, Thallium, and Mercury. EPA Method 3050 Nitric is used for Arsenic, Selenium, and Thallium digestion. EPA Method 7471 is used for Mercury digestion.

{b} The sample was diluted 10 fold due to the presence of non-target analyte interferences.

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Lab Project-
ID Number: *10106-7*

Comments

Date Digested and Batch # apply to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.

Approved by: [signature] Date: 10/5/94

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Project Name: *Mariner Square*

Sample Description: *SB-J 1.5'*

Sample Number: *52459*

Date Received: *09/17/94*

Project Number: *040601316000*

Lab Project-ID Number: *10106-9*

Date Sampled: *09/16/94*

Date Digested: *09/23/94*

Batch Number: *940923-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
Antimony (Sb)/6010	09/26/94	170	2.5
Arsenic (As)/7060	09/26/94	{b} 11	2.5
Barium (Ba)/6010	09/26/94	570	1.0
Beryllium (Be)/6010	09/26/94	BRL	0.25
Cadmium (Cd)/6010	09/26/94	1.9	0.50
Chromium (Cr)/6010	09/26/94	54	1.0
Cobalt (Co)/6010	09/26/94	11	1.0
Copper (Cu)/6010	09/26/94	300	1.0
Lead (Pb)/6010	09/27/94	{c} 5700	5.0
Mercury (Hg)/7471	09/23/94	0.16	0.10
Molybdenum (Mo)/6010	09/26/94	2.0	1.0
Nickel (Ni)/6010	09/26/94	43	1.0
Selenium (Se)/7740	09/23/94	BRL	0.25
Silver (Ag)/6010	09/26/94	BRL	1.0
Thallium (Tl)/7841	09/27/94	BRL	0.50
Vanadium (V)/6010	09/26/94	31	1.0
Zinc (Zn)/6010	09/26/94	2700	1.0

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Selenium, Thallium, and Mercury. EPA Method 3050 Nitric is used for Arsenic, Selenium, and Thallium digestion. EPA Method 7471 is used for Mercury digestion.

{b} The sample was diluted 5 fold due to the presence of non-target analyte interferences.

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Lab Project-
ID Number: *10106-9*

Comments

*{c} The sample was diluted 2 fold to bring target analyte within linear working range.
Date Digested and Batch # apply to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.*

Approved by: GH Date: 10/5/94

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-K 1.5'*

Lab Project-ID Number: *10106-11*

Sample Number: *52461*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Date Digested: *09/23/94*

Batch Number: *940923-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
Antimony (Sb)/6010	09/26/94	BRL	2.5
Arsenic (As)/7060	09/26/94	{b} 5.0	2.5
Barium (Ba)/6010	09/26/94	96	1.0
Beryllium (Be)/6010	09/26/94	BRL	0.25
Cadmium (Cd)/6010	09/26/94	BRL	0.50
Chromium (Cr)/6010	09/26/94	44	1.0
Cobalt (Co)/6010	09/26/94	5.6	1.0
Copper (Cu)/6010	09/26/94	4200	1.0
Lead (Pb)/6010	09/26/94	30	2.5
Mercury (Hg)/7471	09/23/94	BRL	0.10
Molybdenum (Mo)/6010	09/26/94	1.3	1.0
Nickel (Ni)/6010	09/26/94	33	1.0
Selenium (Se)/7740	09/23/94	BRL	0.25
Silver (Ag)/6010	09/26/94	1.0	1.0
Thallium (Tl)/7841	09/27/94	BRL	0.50
Vanadium (V)/6010	09/26/94	28	1.0
Zinc (Zn)/6010	09/26/94	150	1.0

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Selenium, Thallium, and Mercury. EPA Method 3050 Nitric is used for Arsenic, Selenium, and Thallium digestion. EPA Method 7471 is used for Mercury digestion.

{b} The sample was diluted 5 fold due to the presence of non-target analyte interferences.

CAM TITLE 22 METALS
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC)

Preparation Method: EPA 3050 {a}

Lab Project-
ID Number: *10106-11*

Comments

Date Digested and Batch # apply to all metals except Arsenic, Selenium, and Thallium, which were digested on 09/23/94, Batch # 940923-4303; and Mercury, which was digested on 09/23/94, Batch # 940923-4501.

Approved by: ____________ Date: 10/5/94

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*SB-D 4.5'*	Lab Project-ID Number:	*10106-14*
Sample Number:	*52464*	Date Sampled:	*09/16/94*
Date Received:	*09/17/94*	Date Extracted:	*09/19/94*
Date Analyzed:	*09/20/94*	Batch Number:	*940919-4904*

Analyte	**Concentration ug/Kg (ppb)**	**Reporting Limit ug/Kg (ppb)**
Benzene	BRL	50
Toluene	{a} BRL	73
Ethylbenzene	BRL	50
1,2-Xylene	390	50
1,3-Xylene	570	50
1,4-Xylene	420	50

Surrogates	**Percent Recovery**	**Acceptance Limits**
Orthochlorotoluene	NA	46 - 181
Bromofluorobenzene	{b} 330	51 - 102

Comments

The cover letter and enclosures are integral parts of this report.

{a} The reporting limit is elevated due to matrix interference.

{b} Sample surrogate recovery is beyond acceptance limits due to matrix interference.

A 10 fold dilution was required to quantitate target analytes due to the presence of non-target analyte interferences.

Approved by: JH Date: 10/5/94

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*SB-E 4.5'*	Lab Project-ID Number:	*10106-16*
Sample Number:	*52466*	Date Sampled:	*09/16/94*
Date Received:	*09/17/94*	Date Extracted:	*09/19/94*
Date Analyzed:	*09/20/94*	Batch Number:	*940919-4904*

Analyte	**Concentration ug/Kg (ppb)**	**Reporting Limit ug/Kg (ppb)**
Benzene	BRL	5.0
Toluene	19	5.0
Ethylbenzene	BRL	5.0
1,2-Xylene	BRL	5.0
1,3-Xylene	BRL	5.0
1,4-Xylene	BRL	5.0

Surrogates	**Percent Recovery**	**Acceptance Limits**
Orthochlorotoluene	NA	46 - 181
Bromofluorobenzene	{a} 111	51 - 102

Comments

The cover letter and enclosures are integral parts of this report.

{a} Sample surrogate recovery is beyond acceptance limits. All other quality control is acceptable.

Approved by: GH Date: 10/5/94

064

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*SB-A 5.5'*	Lab Project-ID Number:	*10106-18*
Sample Number:	*52502*	Date Sampled:	*09/16/94*
Date Received:	*09/17/94*	Date Extracted:	*09/19/94*
Date Analyzed:	*09/19/94*	Batch Number:	*940919-4904*

Analyte	**Concentration ug/Kg (ppb)**	**Reporting Limit ug/Kg (ppb)**
Benzene	BRL	5.0
Toluene	{a} BRL	6.3
Ethylbenzene	BRL	5.0
1,2-Xylene	{a} BRL	46
1,3-Xylene	{a} BRL	17
1,4-Xylene	BRL	5.0

Surrogates	**Percent Recovery**	**Acceptance Limits**
Orthochlorotoluene	NA	46 - 181
Bromofluorobenzene	98	51 - 102

Comments

The cover letter and enclosures are integral parts of this report.

{a} The reporting limit is elevated due to matrix interference.

Approved by: JH Date: 10/5/94

064

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *MW-7 4.0'*

Lab Project-ID Number: *10106-23*

Sample Number: *52507*

Date Sampled: *09/15/94*

Date Received: *09/17/94*

Date Extracted: *09/19/94*

Date Analyzed: *09/20/94*

Batch Number: *940919-4904*

Analyte	**Concentration ug/Kg (ppb)**	**Reporting Limit ug/Kg (ppb)**
Benzene	BRL	5.0
Toluene	{a} 14	5.0
Ethylbenzene	BRL	5.0
1,2-Xylene	BRL	5.0
1,3-Xylene	BRL	5.0
1,4-Xylene	BRL	5.0

Surrogates	**Percent Recovery**	**Acceptance Limits**
Orthochlorotoluene	NA	46 - 181
Bromofluorobenzene	86	51 - 102

Comments

The cover letter and enclosures are integral parts of this report.

{a} The final result from the primary column for Toluene did not quantitatively agree with the confirmation result. A matrix interferent is suspect and possibly responsible for the disagreement. The estimated confirmation result for Toluene was 110 ppb.

Approved by: [signature] Date: 10/5/94

064

MBT Environmental Laboratories

Master Builders Technologies

CAM TITLE 22 METALS
SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC)

Preparation Method: Title 22 Waste Extraction Test (WET)

Project Name: *Mariner Square*

Sample Description: *SB-G 1.5'*

Sample Number: *52453*

Date Received: *09/17/94*

Project Number: *040601316000*

Lab Project-ID Number: *10106-3*

Date Sampled: *09/16/94*

Date Extracted: *09/22/94*

Batch Number: *940922-4304*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration mg/L (ppm)	Reporting Limit mg/L (ppm)
Lead (Pb)/6010	09/27/94	2.7	1.0

Comments

The cover letter and enclosures are integral parts of this report.

Only the requested analyte is reported.

Approved by: JH Date: 10/5/94

MBT Environmental Laboratories

Master Builders Technologies

CAM TITLE 22 METALS
SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC)

Preparation Method: Title 22 Waste Extraction Test (WET)

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-H 1.5'*

Lab Project-ID Number: *10106-5*

Sample Number: *52455*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Date Extracted: *09/22/94*

Batch Number: *940922-4304*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration mg/L (ppm)	Reporting Limit mg/L (ppm)
Lead (Pb)/6010	09/27/94	2.8	1.0

Comments

The cover letter and enclosures are integral parts of this report.

Only the requested analyte is reported.

Approved by: ______ Date: 10/5/94

067

MBT Environmental Laboratories

Master Builders Technologies

CAM TITLE 22 METALS
SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC)

Preparation Method: Title 22 Waste Extraction Test (WET)

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-K 1.5'*

Lab Project-ID Number: *10106-11*

Sample Number: *52461*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Date Extracted: *09/22/94*

Batch Number: *940922-4304*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration mg/L (ppm)	Reporting Limit mg/L (ppm)
Lead (Pb)/6010	09/27/94	21	1.0

Comments

The cover letter and enclosures are integral parts of this report.

Only the requested analyte is reported.

Approved by: [signature] Date: 10/5/94

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015 {a}
Preparation Method: EPA 3580

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*SB-D 4.5'*	Lab Project-ID Number:	*10106-14*
Sample Number:	*52464*	Date Sampled:	*09/16/94*
Date Received:	*09/17/94*	Date Extracted:	*09/21/94*
Date Analyzed:	*09/27/94*	Batch Number:	*940921-4704*

Petroleum Fraction	Carbon Range	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
Gasoline Range	C7 - C14	BRL Below Reporting Limits	50
Diesel Range	C12 - C22	810	50
Motor Oil Range	C22 - C32	140	50
Total Petroleum Hydrocarbons		950	50

Comments

The cover letter and enclosures are integral parts of this report.

{a} Derived from EPA 8015. Gas Chromatograph with flame ionization detector is used to perform the analysis. Modification is due to the quantitation of petroleum fraction instead of non-halogenated volatile compounds.

The sample was diluted 50 fold to bring target analyte within linear working range.

Approved by: [signature] Date: 10/5/94

MBT Environmental Laboratories

Master Builders Technologies

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015 {a}
Preparation Method: EPA 3580

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-E 4.5'*

Lab Project-ID Number: *10106-16*

Sample Number: *52466*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Date Extracted: *09/21/94*

Date Analyzed: *09/27/94*

Batch Number: *940921-4704*

Petroleum Fraction	Carbon Range	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
Gasoline Range	C7 - C14	BRL	10
Diesel Range	C12 - C22	BRL	10
Motor Oil Range	C22 - C32	60	10
Total Petroleum Hydrocarbons		60	10

Comments

The cover letter and enclosures are integral parts of this report.

{a} Derived from EPA 8015. Gas Chromatograph with flame ionization detector is used to perform the analysis. Modification is due to the quantitation of petroleum fraction instead of non-halogenated volatile compounds.

The sample was diluted 10 fold to bring target analyte within linear working range.

Approved by: [signature] Date: 10/5/94

025

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015 {a}
Preparation Method: EPA 3580

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *MW-7 4.0'*

Lab Project-ID Number: *10106-23*

Sample Number: *52507*

Date Sampled: *09/15/94*

Date Received: *09/17/94*

Date Extracted: *09/21/94*

Date Analyzed: *09/27/94*

Batch Number: *940921-4704*

Petroleum Fraction	Carbon Range	Concentration mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)
Gasoline Range	C7 - C14	BRL	30
Diesel Range	C12 - C22	BRL	30
Motor Oil Range	C22 - C32	200	30
Total Petroleum Hydrocarbons		200	30

Comments

The cover letter and enclosures are integral parts of this report.

{a} Derived from EPA 8015. Gas Chromatograph with flame ionization detector is used to perform the analysis. Modification is due to the quantitation of petroleum fraction instead of non-halogenated volatile compounds.

The sample was diluted 10 fold to bring target analyte within linear working range.

Approved by: GK Date: 10/5/94

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*SB-A 5.5'*	Lab Project-ID Number:	*10106-18*
Sample Number:	*52502*	Date Sampled:	*09/15/94*
Date Received:	*09/17/94*	Date Analyzed:	*09/29/94*

Analyte	**Concentration ug/Kg (ppb)**	**Reporting Limit ug/Kg (ppb)**
Vinyl Chloride	BRL	10

Surrogates	**Percent Recovery**	**Acceptance Limits**
1,2-Dichloroethane-d4	103	70 - 121
Toluene-d8	92	81 - 117
Bromofluorobenzene	140	74 - 121

Comments

The cover letter and enclosures are integral parts of this report.

{a} Includes all analytes as listed in Table 2 of Method 8240, SW-846, 3rd edition.

{b} Additional analytes not listed in Table 2 of Method 8240, SW-846, 3rd edition.

Only the requested analyte is reported.

Approved by: [signature] Date: 10/5/94

VOLATILE ORGANICS

Analytical Method: EPA 8240 - Low Level Modified {a}

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-7 4.0'*	Lab Project-ID Number:	*10106-23*
Sample Number:	*52507*	Date Sampled:	*09/15/94*
Date Received:	*09/17/94*	Date Analyzed:	*09/29/94*

Analyte	Concentration ug/Kg (ppb)	Reporting Limit ug/Kg (ppb)
Vinyl Chloride	BRL	10

Surrogates	Percent Recovery	Acceptance Limits
1,2-Dichloroethane-d4	105	70 - 121
Toluene-d8	{c} 142	81 - 117
Bromofluorobenzene	76	74 - 121

Comments

The cover letter and enclosures are integral parts of this report.

{a} Includes all analytes as listed in Table 2 of Method 8240, SW-846, 3rd edition.

{b} Additional analytes not listed in Table 2 of Method 8240, SW-846, 3rd edition.

Only the requested analyte is reported.

{c} Sample surrogate recovery is beyond acceptance limits. All other quality control is acceptable.

The sample was analyzed on 09/29/94 and exhibited surrogate and/or internal standard recoveries beyond QC acceptance limits. The sample was reanalyzed on 09/29/94 and again exhibited surrogate and/or internal standard recoveries beyond QC acceptance limits, indicating the presence of a matrix effect.

Approved by: JH Date: 10/5/94

MBT Environmental Laboratories

Master Builders Technologies

MBT Environmental
Laboratories

3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

Date: October 14, 1994
LP #: 10208

Saul Germanas
McLaren/Hart Environmental Engineering
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. Germanas:

Enclosed are the laboratory results for the ten samples submitted to MBT Environmental Laboratories on September 29, 1994, for the project *Mariner Square*.

The analyses requested are:

TDS (3 - Water)
PP Metals (9 - Water)
Modified EPA 8015 (9 - Water)
EPA 8010 (5 - Water)
EPA 8020 (BTEX) (10 - Water)

The report consists of the following sections:

1. Cover Page
2. Copy of Chain-of-Custody
3. Quality Control Report
4. Analytical Results

Unless otherwise instructed by you, samples will be disposed of two weeks from the date of this letter.

Thank you for choosing MBT Environmental Laboratories. We are looking forward to serving you in the future. Should you have any questions concerning this analytical report or the analytical methods employed, please do not hesitate to call.

Sincerely,

Cheryl Matterson for:
Shakoora Azimi
Laboratory Director, Principal Scientist

ANALYTICAL REPORT

LABORATORY PROJECT (LP) NUMBER 10208

MARINER SQUARE

This report complies with the requirements under the following certification/approval:

✓	CALIFORNIA:	Hazardous Waste, #1417 Waste Water, # 1417 Drinking Water, #1417	OKLAHOMA:	Hazardous Waste, #9318 Waste Water, #9318
	CONNECTICUT:	Waste Water, #PH0799	TENNESSEE:	Underground Storage Tank
	FLORIDA:	Environmental Water, #E87298	UTAH:	Hazardous Waste, #E-165 Waste Water, #E-165 Drinking Water, #E-165
	KANSAS:	Hazardous Waste, #E-1167 Waste Water, #E-192 Drinking Water, #E-192	WASHINGTON:	Hazardous Waste, #C048
	NEW HAMPSHIRE:	Waste Water, #253193-A	WISCONSIN:	Hazardous Waste, #999940920 Waste Water, #999940920
	NEW JERSEY:	Waste Water, #44818	USACOE:	Hazardous Waste Waste Water
	NEW YORK:	Hazardous Waste, #11241 Waste Water, #11241 CLP, #11241	AFCEE	

(CN10208)

MBT Environmental Laboratories

MBT Environmental Laboratories

3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

1/4

CHAIN OF CUSTODY RECORD 09781

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: MBT
Address:

Project Name: MARINER SQUARE
Project Number: 04.0601316.000
Project Location: (State) ALAMEDA, CA

FOR LABORATORY USE ONLY
Laboratory Project #: 10208
Storage Refrigerator ID: 4, 4-8, 7
Storage Freezer ID:

Sampler Name: E. C. WARWICK
Signature: E C Warwick
PPE Worn in Field: D

Relinquished By	Date/Time	Received By or Method of Shipment/Shipment I.D.	Date/Time
E C Warwick	09-28-94/1100	EXPRESS-IT COURIER	09-28-94/1100
EXPRESS IT		[signature]	29 Sept 94/830

Sample Disposal (check one)
- [x] Laboratory Standard
- [ ] Other

Level of QC (see Side 2): [x] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6A [ ] 6B [ ] 6C [ ] 6D [ ] 6E [ ] 6F [ ] 7 [ ] 8

Write in Analysis Method →

ANALYSES REQUESTED

SAMPLE INFORMATION

FOR LABORATORY USE ONLY Lab ID	Sample ID Number	Date	Time	Locator	Depth	Container #	Container Type	Matrix Type	Pres. Type	TAT	8020 BTEX	8240 VC ONLY	8015M	TDS B1/Cl	PP METALS
1 10208-001	244428-31	9/28/94	1500	TRIP BLANK	—	4	V	AQU	HCl	4		X			
2 ↓	244432-5	↓	↓	↓	—	↓	↓	↓	↓	↓	X				
3 -002	244436-7	↓	1536	MW-2	—	2	A	↓	NP	↓			X		
4 ↓	244438-41	↓	↓	↓	—	4	V	↓	HCl	↓	X				
5 ↓	244442	↓	↓	↓	—	1	P	↓	NP	↓				X	
6 ↓	244443	↓	↓	↓	—	1	P	↓	HNO_3	↓					X
7 -003	260633-4	↓	1823	MW-9	—	2	A	↓	NP	↓			X		
8 ↓	260635-8	↓	↓	↓	—	4	V	↓	HCl	↓	X				
9 ↓	260639-42	↓	↓	↓	—	↓	↓	↓	↓	↓		X			
10 ↓	260643	↓	↓	↓	—	1	P	↓	HNO_3	↓					X

Special Instructions/Comments: FOR 8240, PLEASE REPORT ONLY VINYL CHLORIDE.
PLEASE ANALYZE FOR TPH-GAS, DIESEL, MOTOR OIL BY 8015M
PLEASE ANALYZE PRIORITY POLLUTANT METALS BY SERIES 6010/7000

FOR LABORATORY USE ONLY Sample Condition Upon Receipt: Temp Good SAMPLES INTACT (RSP)

Please use LUFT reporting limits.
(1) Please see COC amendment (CP) 10/10/94 RH 9/30

Container Types: B=Brass Tube, G=Glass Jar, O=Other, A=1 Liter Amber, C=Cassette, P=Polyethylene, V=Voa Vial

TAT (Analytical Turn Around Time): 1 = 24 hours, 2 = 48 hours, 3 = 1 week, 4 = 2 weeks, 0 = Other

SEND DOCUMENTATION AND RESULTS TO (Check one):
- [x] Project Manager/Office: PAUL GERIKNAS / ALAMEDA
- [ ] Client Name:

Company:
Address:
Phone: FAX:

Common Analytical Methods: 413.1, 413.2 Long Method, 413.2 Short Method, 418.1 Long Method, 418.1 Short Method, 420.1, 502.2, 503E, 503.1, 524.2, 601, 602, 604, 608, 610, 624, 625, 8010, 8015, 8015 Mod., 8020, 8021, 8040, 8080, 8100, 8150, 8240, 8270, 8310, Acidity, Alkalinity, BTEX, Chloride, CLP (see Side 2), COD, Color, Conductivity, Corrosivity, Cyanide, Flashpoint, Fluoride, General Mineral, Hex. Chromium, Ion Balance, Metals (write specific metal & method #)*, Metals 6010*, Metals PP*, Metals Title 22: TTLC Level, STLC Level (see Side 2), Nitrate, Nitrite, Odor, Org. Lead, Org. Mercury, Percent Moisture, Percent Solid, Perchlorate, pH, Phosphates, Phosphorus, Sulfate, Sulfides, TCLP: VOA, Semivoa, Metals, Pesticide, TDS, Total Hardness, Total Solids, TPH/D, TPH/G, TSS, Turbidity

* Specify Total or Dissolved

MB[illegible]vironmental Labo[illegible]atories

3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

CHAIN OF CUSTODY RECORD

2/4 9781 (new) ~~09784~~

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: MBT
Address:

Project Name: MARINER SQUARE
Project Number: 04.0601316.000
Project Location: (State) ALAMEDA, CA

FOR LABORATORY USE ONLY
Laboratory Project #: 10208
Storage Refrigerator ID: 4-8, 7
Storage Freezer ID:

Sampler Name	Signature	PPE Worn in Field	
E. C. WARWICK	E C Warwick	D	
Relinquished By:	**Date/Time**	**Received By or Method of Shipment/Shipment I.D.**	**Date/Time**
E C Warwick	09-28-94 / 0900	EXPRESS-IT	09/28/94 / 0900
Relinquished By:	**Date/Time**	**Received By or Method of Shipment/Shipment I.D.**	**Date/Time**
Express-it		[illegible signature]	92994 / 830
Relinquished By:	**Date/Time**	**Received By or Method of Shipment/Shipment I.D.**	**Date/Time**

Sample Disposal (check one)
- [x] Laboratory Standard
- [ ] Other

Level of QC (see Side 2): [x] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6A [ ] 6B [ ] 6C [ ] 6D [ ] 6E [ ] 6F [ ] 7 [ ] 8

Write in Analysis Method →

SAMPLE INFORMATION

ANALYSES REQUESTED

FOR LABORATORY USE ONLY Lab ID	Sample ID Number	Date	Time	Description: Locator	Description: Depth	Container(s): #	Container(s): Type	Matrix Type	Pres. Type	TAT	8015M	8020 BTEX	TDS 160.1	PP METALS	~~8240 V.C. only~~	8010 Vinyl Chloride (CA)	10/10/94
1 10208-004	260467-4	9/27/94	1447	MW-8	—	2	A	AQU	NP	4	X						
2 ↓	260465-8	↓	↓	↓	—	4	V	↓	HCl	↓		X					
3	260469				—	1	P		NP				X				
4	260470		↓	↓	—	1	P		HNO3					X			
5 -005	260478-9		1745	MW-6	—	2	A		NP		X						
6	260480-3				—	4	V		HCl			X					
7	260484-7				—	↓	↓		↓						X		
8 ↓	260488	↓	↓	↓	—	1	P	↓	HNO3	↓				X			
9																	
10																	

Special Instructions/Comments: FOR 8240, PLEASE REPORT ONLY VINYL CHLORIDE; PLEASE ANALYZE FOR TPH-GAS, DIESEL, MOTOR OIL BY 8015 MODIFIED; PLEASE ANALYZE PRIORITY POLLUTANT METALS BY SERIES 6010/7000

FOR LABORATORY USE ONLY Sample Condition Upon Receipt: Temp Good SAMPLES INTACT RP

(N) ~~Please see CA amendment~~ (CA) 10/10

Container Types: A=1 Liter Amber; B=Brass Tube; C=Cassette; G=Glass Jar; P=Polyethylene; O=Other; V=Voa Vial

TAT (Analytical Turn Around Time): 1 = 24 hours; 2 = 48 hours; 3 = 1 week; 4 = 2 weeks; 0 = Other

SEND DOCUMENTATION AND RESULTS TO (Check one):
- [x] Project Manager/Office: PAUL GERMAINS / ALAMEDA
- [ ] Client Name:

Company:
Address:
Phone: FAX:

Common Analytical Methods
413.1
413.2 Long Method
413.2 Short Method
418.1 Long Method
418.1 Short Method
420.1
502.2
503E
503.1
524.2
601
602
604
608
610
624
625
8010
8015
8015 Mod.
8020
8021
8040
8080
8100 *
8150
8240
8270
8310
Acidity
Alkalinity
BTEX
Chloride
CLP (see Side 2)
COD
Color
Conductivity
Corrosivity
Cyanide
Flashpoint
Fluoride
General Mineral
Hex. Chromium
Ion Balance
Metals (write specific metal & method #)*
Metals 6010*
Metals PP*
Metals Title 22: TTLC Level, STLC Level (see Side 2)
Nitrate
Nitrite
Odor
Org. Lead
Org. Mercury
Percent Moisture
Percent Solid
Perchlorate
pH
Phosphates
Phosphorus
Sulfate
Sulfides
TCLP: VOA, Semivoa, Metals, Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
TSS
Turbidity

* Specify Total or Dissolved

MBT Environmental Laboratories
3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

3/4 (ccw) 9781 ~~09783~~

CHAIN OF CUSTODY RECORD

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: MBT
Address:

Project Name: MARINER SQUARE
Project Number: 04.0601316.000
Project Location: (State) ALAMEDA, CA

FOR LABORATORY USE ONLY
Laboratory Project #: 10208
Storage Refrigerator ID: 1, 4-8, 7
Storage Freezer ID:

Sampler Name: E.C. WARWICK — Signature: E C Warwick — PPE Worn in Field: D

Relinquished By: E C Warwick — Date/Time: 09/28-94/ 0900 — Received By or Method of Shipment/Shipment I.D.: EXPRESS - IT — Date/Time: 09-28-94/ 0900

Relinquished By: Expressit — Date/Time: — Received By or Method of Shipment/Shipment I.D.: [illegible signature] — Date/Time: 9 29 94/ 830

Relinquished By: — Date/Time: — Received By or Method of Shipment/Shipment I.D.: — Date/Time:

Sample Disposal (check one): [x] Laboratory Standard [ ] Other

Level of QC (see Side 2): [x] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6A [ ] 6B [ ] 6C [ ] 6D [ ] 6E [ ] 6F [ ] 7 [ ] 8

Write in Analysis Method →

ANALYSES REQUESTED / SAMPLE INFORMATION

FOR LABORATORY USE ONLY Lab ID	Sample ID Number	Date	Time	Locator	Depth	Container(s) #	Type	Matrix Type	Pres. Type	TAT	8015M	8020 BTEX	8240 VINYL CHLORIDE	PPMETALS
1 10208-006	260451-2	9/27/94	1205	MW-7	—	2	A	AQU	NP	4	X			
2 ↓	260453-6	↓	↓	↓	—	4	V	↓	HCl	↓		X		
3	260457-10				—	↓	↓		↓				X	
4	260461		↓	↓	—	1	P		HNO3					X
5 -007	244295-6		1335	MW-1	—	2	A		NP		X			
6	244297-300		↓	↓	—	4	V		HCl			X		
7	260467		↓	↓	—	1	P		HNO3					X
8 -008	260471-2		1611	MW-3	—	2	A		NP		X			
9	260473-6		↓	↓	—	4	V		HCl			X		
10 ↓	260477	↓	↓	↓	—	1	P	↓	HNO3	↓				X

Special Instructions/Comments: FOR 8240, PLEASE REPORT ONLY VINYL CHLORIDE; PLEASE ANALYZE FOR TPH-GAS, DIESEL, MOTOR OIL BY 8015 MODIFIED; PLEASE ANALYZE PRIORITY POLLUTANT METALS BY SERIES 6010/7000

FOR LABORATORY USE ONLY Sample Condition Upon Receipt: Temp Good Sampler Sorted (RP)

(a) Please See COC Amendment of 10/12.

Container Types: B=Brass Tube, G=Glass Jar, O=Other ____, A=1 Liter Amber, C=Cassette, P=Polyethylene, V=Voa Vial

TAT (Analytical Turn Around Time): 1 = 24 hours, 2 = 48 hours, 3 = 1 week, 4 = 2 weeks, 0 = Other ____

SEND DOCUMENTATION AND RESULTS TO (Check one):
[x] Project Manager/Office: SAUL GERMANAS/ALAMEDA
[ ] Client Name:
Company:
Address:
Phone: FAX:

Common Analytical Methods
413.1
413.2 Long Method
413.2 Short Method
418.1 Long Method
418.1 Short Method
420.1
502.2
503E
503.1
524.2
601
602
604
608
610
624
625
8010
8015
8015 Mod.
8020
8021
8040
8080
8100
8150
8240
8270
8310
Acidity
Alkalinity
BTEX
Chloride
CLP (see Side 2)
COD
Color
Conductivity
Corrosivity
Cyanide
Flashpoint
Fluoride
General Mineral
Hex. Chromium
Ion Balance
Metals (write specific metal & method #)*
Metals 6010*
Metals PP*
Metals Title 22: TTLC Level, STLC Level (see Side 2)
Nitrate
Nitrite
Odor
Org. Lead
Org. Mercury
Percent Moisture
Percent Solid
Perchlorate
pH
Phosphates
Phosphorus
Sulfate
Sulfides
TCLP: VOA, Semivoa, Metals, Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
TSS
Turbidity
* Specify Total or Dissolv

MBT Environmental Laboratories
3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

4/4

(ccw) 9781 ~~09782~~

CHAIN OF CUSTODY RECORD

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: MBT
Address:

Project Name: MARINER SQUARE
Project Number: 04.0601316.000
Project Location: (State) ALAMEDA, CA

FOR LABORATORY USE ONLY
Laboratory Project #: 10208
Storage Refrigerator ID: 1, 4-8, 7
Storage Freezer ID:

Sampler Name	Signature	PPE Worn in Field
E.C. WARWICK	E.C. Warwick	D

Relinquished By:	Date/Time	Received By or Method of Shipment/Shipment I.D.	Date/Time
E. Warwick	09/28/94 0900	EXPRESS-IT	09-28-94 / 0900
Expressit		[illegible]	9 29 94 / 830

Sample Disposal (check one)
- [x] Laboratory Standard
- [ ] Other

Level of QC (see Side 2): [x] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6A [ ] 6B [ ] 6C [ ] 6D [ ] 6E [ ] 6F [ ] 7 [ ] 8

Write in Analysis Method →

ANALYSES REQUESTED

SAMPLE INFORMATION

	FOR LABORATORY USE ONLY Lab ID	Sample ID Number	Date	Time	Description: Locator	Description: Depth	Container(s): #	Container(s): Type	Matrix Type	Pres. Type	TAT	8020 BTEX	8240 V.C. ONLY	8015M	PP METALS	TDS BY 160.1					
1	10208-009	2-44444-5	9/26/94	1220	MW-5	—	2	A	AQU	NP	4			X							
2		2-44446-9				—	4	V		HCl		X									
3		2-44450	↓	↓	↓	—	1	P		HNO_3					X						
4	-010	2-60439-40	9/27/94	1016	MW-4	—	2	A		NP				X							
5		2-60441-4				—	4	V		HCl		X									
6		2-60445-8				—	4	↓		↓			X								
7		2-60449				—	1	P		NP						X					
8		2-60450	↓	↓	↓	—	↓	↓	↓	HNO_3	↓				X						
9																					
10																					

Special Instructions/Comments: FOR 8240, PLEASE REPORT ONLY VINYL CHLORIDE; PLEASE ANALYZE FOR TPH-GAS, DIESEL, MOTOR OIL BY 8015M; PLEASE ANALYZE PRIORITY POLLUTANT METALS BY SERIES 6010/7000

Container Types: B=Brass Tube, G=Glass Jar, O=Other, A=1 Liter Amber, C=Cassette, P=Polyethylene, V=Voa Vial

TAT (Analytical Turn Around Time): 1 = 24 hours, 2 = 48 hours, 3 = 1 week, 4 = 2 weeks, 0 = Other

FOR LABORATORY USE ONLY Sample Condition Upon Receipt: Temp Good
SAMPLES INTACT

① ~~Please See coc amendment 10/10/94~~

SEND DOCUMENTATION AND RESULTS TO (Check one):
- [ ] Project Manager/Office: S. GERMANOS / ALA.
- [ ] Client Name:

Company:
Address:
Phone: FAX:

Common Analytical Methods
413.1
413.2 Long Method
413.2 Short Method
418.1 Long Method
418.1 Short Method
420.1
502.2
503E
503.1
524.2
601
602
604
608
610
624
625
8010
8015
8015 Mod.
8020
8021
8040
8080
8100
8150
8240
8270
8310
Acidity
Alkalinity
BTEX
Chloride
CLP (see Side 2)
COD
Color
Conductivity
Corrosivity
Cyanide
Flashpoint
Fluoride
General Mineral
Hex. Chromium
Ion Balance
Metals (write specific metal & method #)*
Metals 6010*
Metals PP*
Metals Title 22: TTLC Level, STLC Level (see Side 2)
Nitrate
Nitrite
Odor
Org. Lead
Org. Mercury
Percent Moisture
Percent Solid
Perchlorate
pH
Phosphates
Phosphorus
Sulfate
Sulfides
TCLP: VOA, Semivoa, Metals, Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
TSS
Turbidity

* Specify Total or Dissolve

QUALITY CONTROL REPORT

METHOD BLANK

Method: Priority Pollutant Metals
Units: ug/L (ppb)

Date Analyzed: 10/07/94[a]
Date Digested: 10/06/94[b]
Batch Number: 941006-4302[b]

Analyte	Reporting Limit	Concentration
Antimony (Sb)/6010	50	BRL
Arsenic (As)/7060	10	BRL
Beryllium (Be)/6010	5	BRL
Cadmium (Cd)/6010	10	BRL
Chromium (Cr)/6010	10	BRL
Copper (Cu)/6010	20	BRL
Lead (Pb)/7421	3	BRL
Mercury (Hg)/7470	0.2	BRL
Nickel (Ni)/6010	20	BRL
Selenium (Se)/7740	5	BRL
Silver (Ag)/6010	10	BRL
Thallium (Tl)/7841	10	BRL
Zinc (Zn)/6010	20	BRL

[a] Applies to all metals except Arsenic and Lead, which were analyzed on 10/06/94.

[b] Applies to all metals except Arsenic, Lead, Selenium, and Thallium, which were digested on 10/06/94, Batch # 941006-4303; and Mercury, which was digested on 10/07/94, Batch # 941007-2202.

(CN10208)

QUALITY CONTROL REPORT

Laboratory Control Sample/Laboratory Control Sample Duplicate Metals

LP: 10208

Date of Analysis: 10/07/94

Date of Digestion: 10/06/94

Batch #: 941006-4302

Instrument #: ICP1

Spike Sample ID: LCSW/LCSDW

Spike ID Code: W4-7850, 4-1694

Matrix: Water Units: ug/L

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
Sb	0	500	498	100	507	101	2	80 - 120	≤20
Be	0	50	50	100	50	100	0	80 - 120	≤20
Cd	0	50	46	92	50	100	8	80 - 120	≤20
Cr	0	200	210	105	198	99	6	80 - 120	≤20
Cu	0	250	249	100	249	100	0	80 - 120	≤20
Ni	0	500	504	101	492	98	2	80 - 120	≤20
Ag	0	50	49	98	48	96	2	80 - 120	≤20
Zn	0	500	492	98	490	98	0	80 - 120	≤20

Spike Recovery = $d = ((c-a)/b) \times 100$

Spike Duplicate Recovery = $f = ((e-a)/b) \times 100$

Relative Percent Difference = $g = (|c-e|)/((c+e) \times .5) \times 100$

Laboratory Control Sample
Metals

LP: 10208

Instrument #: PE5100

Date of Analysis: 10/06/94[a]

Spike Sample ID: LCSW

Date of Digestion: 10/06/94

Spike ID Code: W4-7551

Batch #: 941006-4303

Matrix: Water Units: ug/L

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
As	0	40.0	38.5	96	NA	NA	NA	80 - 120	≤20
Pb	0	20.0	21.3	106	NA	NA	NA	80 - 120	≤20
Se	0	10.0	10.4	104	NA	NA	NA	80 - 120	≤20
Tl	0	50.0	47.6	95	NA	NA	NA	80 - 120	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

[a] Date of Analysis applies to As and Pb only. Se and Tl were analyzed on 10/07/94.

QUALITY CONTROL REPORT

Laboratory Control Sample
Metals

LP: 10208

Instrument #: PS200

Date of Analysis: 10/07/94

Spike Sample ID: LCSW

Date of Digestion: 10/07/94

Spike ID Code: W4-8059

Batch #: 941007-2202

Matrix: Water Units: ug/L

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	RPD
Hg	0	1.00	1.16	116	NA	NA	NA	80 - 120	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

MBT Environmental Laboratories

(CN10208)

QUALITY CONTROL REPORT

Matrix Spike/Matrix Spike Duplicate
Metals

LP: 10208

Instrument #: ICP1

Date of Analysis: 10/07/94

Spike Sample ID: 10208-10 MS/MSD

Date of Digestion: 10/06/94

Spike ID Code: W4-7850, 4-1694

Batch #: 941006-4302

Matrix: Water Units: ug/L

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
Sb	0	500	500	100	510	102	2	80 - 120	≤20
Be	0	50	49	98	50	100	2	80 - 120	≤20
Cd	0	50	46	92	48	96	4	80 - 120	≤20
Cr	0	200	200	100	200	100	0	80 - 120	≤20
Cu	0	250	240	96	240	96	0	80 - 120	≤20
Ni	0	500	490	98	480	96	2	80 - 120	≤20
Ag	0	50	46	92	48	96	4	80 - 120	≤20
Zn	0	500	480	96	480	96	0	80 - 120	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

QUALITY CONTROL REPORT

Matrix Spike/Matrix Spike Duplicate
Metals

LP: 10208

Instrument #: PE5100

Date of Analysis: 10/07/94[a]

Spike Sample ID: 10208-10 MS/MSD

Date of Digestion: 10/06/94

Spike ID Code: W4-7551

Batch #: 941006-4303

Matrix: Water Units: ug/L

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
As	0	40.0	46	115	48	120	4	80 - 120	≤20
Pb	0	20.0	24	120	23	115	4	80 - 120	≤20
Se	0	10.0	0	0[b]	0	0[b]	0	80 - 120	≤20
Tl	0	50.0	15	30[c]	20	40[c]	29[d]	80 - 120	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

[a] Date of Analysis applies to all metals except As, which was analyzed on 10/06/94.

[b] A zero percent matrix spike/matrix spike duplicate recovery was obtained; however, the laboratory control sample data are acceptable.

[c] Matrix spike and matrix spike duplicate recoveries are beyond advisory acceptance limits; however, the laboratory control sample data are acceptable.

[d] Matrix spike duplicate RPD is beyond advisory acceptance limits; however, the laboratory control sample data are acceptable.

Matrix Spike/Matrix Spike Duplicate
Metals

LP: 10208

Instrument #: PS200

Date of Analysis: 10/07/94

Spike Sample ID: 10208-10 MS/MSD

Date of Digestion: 10/07/94

Spike ID Code: W4-8059

Batch #: 941007-2202

Matrix: Water Units: ug/L

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
Hg	0.2	1.00	0.82	60[a]	0.57	37[a]	36[b]	80 - 120	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

[a] Matrix spike and matrix spike duplicate recoveries are beyond advisory acceptance limits; however, the laboratory control sample data are acceptable.

[b] Matrix spike duplicate RPD is beyond advisory acceptance limits; however, the laborat control sample data are acceptable.

QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 8015
Units: mg/L (ppm)

Date Analyzed: 10/04/94
Date Extracted: 10/02/94
Batch Number: 941002-2005

Petroleum Fraction	Carbon Range	Reporting Limit	Concentration
Gasoline Range	C7 - C14	0.050	BRL
Diesel Range	C12 - C22	0.050	BRL
Motor Oil Range	C22 - C32	0.050	BRL
Total Petroleum Hydrocarbons		0.050	BRL

QUALITY CONTROL REPORT

Laboratory Control Sample
Method 8015 - Modified
Total Petroleum Hydrocarbons/TPH - Diesel

LP: 10208

Date Of Analysis: 10/04/94

Column: XTI-5

Instrument #: PGC#4

Batch #: 941002-2005

Spike Sample ID: LCSW 78

Spike ID Code: W5-236

Surrogate ID Code: NA

Matrix: Water Units: mg/L

COMPOUNDS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC. %	(e) SAMPLE DUP. + SPIKE CONC.	(f) SPIKE DUP. REC. %	(g) RPD %	ACCEPTANCE LIMITS % REC	ACCEPTANCE LIMITS RPD
Diesel	0	2.50	2.07	83	NA	NA	NA	34 - 153	≤ 25

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

MBT Environmental Laboratories

Master Builders Technologies

(CN10208)

Matrix Spike/Matrix Spike Duplicate
Method 8015 - Modified
Total Petroleum Hydrocarbons/TPH - Diesel

LP: 10208

Batch #: 941002-2005

Date Of Analysis: 10/04/94

Spike Sample ID: 10208-002 MS/MSD

Column: XTI-5

Spike ID Code: W5-236

Instrument #: PGC#4

Surrogate ID Code: NA

Matrix: Water Units: mg/L

COMPOUNDS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC. %	(e) SAMPLE DUP. + SPIKE CONC.	(f) SPIKE DUP. REC. %	(g) RPD %	ACCEPTANCE LIMITS % REC	ACCEPTANCE LIMITS RPD
Diesel	0	5.00	3.76	75	3.75	75	0	34 - 153	≤ 25

Spike Recovery = d = ((c-a)/b) x 100

Spike Duplicate Recovery = f = ((e-a)/b) x 100

Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 601
Units: ug/L (ppb)

Date Analyzed: 10/10/94

Analyte	Reporting Limit	Concentration
Vinyl Chloride	1.0	BRL

Surrogate	% Recovery	Acceptance Limits
Bromochloromethane	94	51 - 144
Orthochlorotoluene	102	80 - 120

Laboratory Control Sample
Method 8010 (Modified)

LP#: 10208

Spike Sample ID: LCSW

Date Of Analysis: 10/10/94

Spike ID Code: W1-985

Column: 502.2

Surrogate ID Code: W1-970

Instrument #: GC10

Matrix: Water

Units: ug/L

EPA METHOD	COMPOUNDS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC.	(f) SPIKE DUP. REC. %	(g) RPD%	ACCEPTANCE LIMITS % REC.	ACCEPTANCE LIMITS RPD
8010	1,1 - Dichloroethane	0	10.0	12.8	128	NA	NA	NA	64 - 128	≤20
8010	1,1,1 - Trichloroethane	0	10.0	11.2	112	NA	NA	NA	65 - 118	≤20
8010	Trichloroethene	0	10.0	11.6	116	NA	NA	NA	69 - 131	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

EPA METHOD	SURROGATE COMPOUNDS	DET.	(h) SUR. SPIKE CONC.	(i) SAMPLE + SUR. SPIKE CONC.	(j) SUR. REC. %	(k) SAMPLE DUP. + SUR.SPIKE CONC.	(l) SUR. DUP. RECOVERY %	ACCEPTANCE LIMITS % REC.
8010	Bromochloromethane	Hall	8.00	7.60	95	NA	NA	51 - 144
8010	Orthochlorotoluene	Hall	8.00	7.76	97	NA	NA	80 - 120

Surrogate % Recovery = j = (i/h) x 100
Surrogate Dup % Recovery = l = (k/h) x 100

QUALITY CONTROL REPORT

METHOD BLANK

Method: Mód. EPA 8020 (BTEX)   Date Analyzed: 10/06/94
Units: ug/L (ppb)

Analyte	Reporting Limit	Concentration
Benzene	0.30	BRL
Toluene	0.30	BRL
Ethylbenzene	0.30	BRL
1,2-Xylene	0.30	BRL
1,3-Xylene	0.30	BRL
1,4-Xylene	0.30	BRL

Surrogate	% Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	84	63 - 134

ABBREVIATIONS USED IN THIS REPORT

BRL	Below Reporting Limit
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
RPD	Relative Percent Difference
NS	Not Specified
NA	Not Applicable

COMMENTS

Test methods may include minor modifications of published EPA methods (e.g., reporting limits or parameter lists). Reporting limits are adjusted to reflect dilution of the sample when appropriate. Solids and waste are analyzed with no correction made for moisture content.

Values for total petroleum hydrocarbons were calculated based only on detected peaks.

The gasoline standard was obtained from a local BP station. Gasoline is sold commercially as unleaded gasoline.

The diesel standard was obtained from a local Chevron station. Diesel is sold commercially as Diesel Fuel #2.

The motor oil standard was obtained from a local automotive store. Manufacturer and motor oil type are Pennzoil SAE 10W-40.

The laboratory reported result for Total Petroleum Hydrocarbons is a summation result of the individual analytes.

(CN10208)

INORGANICS

Analysis: *Total Dissolved Solids (TDS)*

Method: *EPA 160.1*

Project Name: *Mariner Square*

Project Number: *040601316000*

Date Sampled: *09/26/94*

Date Received: *09/29/94*

Date Analyzed: *10/03/94*

Lab Project ID Number	Sample Number	Sample Description	Concentration mg/L (ppm)	Reporting Limit mg/L (ppm)
10208 -2	244442	MW-2	740	10
10208 -4	260469	MW-8	4100	10
10208 -10	260449	MW-4	580	10

The cover letter and enclosures are integral parts of this report.

Approved by: [signature] Date: 10/14/94

MBT Environmental Laboratories

Master Builders Technologies

PRIORITY POLLUTANT METALS & total metals

Preparation Method: EPA 3010 {a}

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *MW-1*

Lab Project-ID Number: *10208-7*

Sample Number: *260462*

Date Sampled: *09/27/94*

Date Received: *09/29/94*

Date Digested: *10/06/94*

Batch Number: *941006-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Antimony (Sb)/6010	10/07/94	BRL	50
Arsenic (As)/7060	10/06/94	22	10
Beryllium (Be)/6010	10/07/94	BRL	5
Cadmium (Cd)/6010	10/07/94	BRL	10
Chromium (Cr)/6010	10/07/94	BRL	10
Copper (Cu)/6010	10/07/94	BRL	20
Lead (Pb)/7421	10/06/94	BRL	3
Mercury (Hg)/7470	10/07/94	BRL	0.2
Nickel (Ni)/6010	10/07/94	BRL	20
Selenium (Se)/7740	10/07/94	BRL	5
Silver (Ag)/6010	10/07/94	BRL	10
Thallium (Tl)/7841	10/07/94	BRL	10
Zinc (Zn)/6010	10/07/94	BRL	20

Comments

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{a} Applies to all metals except Arsenic, Lead, Selenium, Thallium, and Mercury. EPA Method 3020 is used for Arsenic, Selenium, Lead, and Thallium digestion. EPA Method 7470 is used for Mercury digestion.

Date Digested and Batch # apply to all metals except Arsenic, Lead, Selenium, and Thallium, which were digested on 10/06/94, Batch # 941006-4303; and Mercury, which was digested on 10/07/94, Batch # 941007-2202.

Approved by: [signature] Date: 10/14/94

096

MBT Environmental Laboratories

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PRIORITY POLLUTANT METALS

Preparation Method: EPA 3010 {a}

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-2*	Lab Project-ID Number:	*10208-2*
Sample Number:	*244443*	Date Sampled:	*09/26/94*
Date Received:	*09/29/94*	Date Digested:	*10/06/94*
		Batch Number:	*941006-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Antimony (Sb)/6010	10/07/94	BRL	50
Arsenic (As)/7060	10/06/94	BRL	10
Beryllium (Be)/6010	10/07/94	BRL	5
Cadmium (Cd)/6010	10/07/94	BRL	10
Chromium (Cr)/6010	10/07/94	BRL	10
Copper (Cu)/6010	10/07/94	BRL	20
Lead (Pb)/7421	10/06/94	BRL	3
Mercury (Hg)/7470	10/07/94	BRL	0.2
Nickel (Ni)/6010	10/07/94	BRL	20
Selenium (Se)/7740	10/07/94	BRL	5
Silver (Ag)/6010	10/07/94	BRL	10
Thallium (Tl)/7841	10/07/94	BRL	10
Zinc (Zn)/6010	10/07/94	BRL	20

Comments

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Approved by: JH Date: 10/14/94

096

MBT Environmental Laboratories

Master Builders Technologies

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3010 {a}

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-3*	Lab Project-ID Number:	*10208-8*
Sample Number:	*260477*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Digested:	*10/06/94*
		Batch Number:	*941006-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Antimony (Sb)/6010	10/07/94	BRL	50
Arsenic (As)/7060	10/06/94	BRL	10
Beryllium (Be)/6010	10/07/94	BRL	5
Cadmium (Cd)/6010	10/07/94	BRL	10
Chromium (Cr)/6010	10/07/94	BRL	10
Copper (Cu)/6010	10/07/94	BRL	20
Lead (Pb)/7421	10/06/94	BRL	3
Mercury (Hg)/7470	10/07/94	BRL	0.2
Nickel (Ni)/6010	10/07/94	BRL	20
Selenium (Se)/7740	10/07/94	BRL	5
Silver (Ag)/6010	10/07/94	BRL	10
Thallium (Tl)/7841	10/07/94	BRL	10
Zinc (Zn)/6010	10/07/94	BRL	20

Comments

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Approved by: [signature] Date: 10/14/94

096

MBT Environmental Laboratories

Master Builders Technologies

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3010 {a}

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *MW-4*

Lab Project-ID Number: *10208-10*

Sample Number: *260450*

Date Sampled: *09/27/94*

Date Received: *09/29/94*

Date Digested: *10/06/94*

Batch Number: *941006-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Antimony (Sb)/6010	10/07/94	BRL	50
Arsenic (As)/7060	10/06/94	BRL	10
Beryllium (Be)/6010	10/07/94	BRL	5
Cadmium (Cd)/6010	10/07/94	BRL	10
Chromium (Cr)/6010	10/07/94	BRL	10
Copper (Cu)/6010	10/07/94	BRL	20
Lead (Pb)/7421	10/07/94	BRL	3
Mercury (Hg)/7470	10/07/94	0.2	0.2
Nickel (Ni)/6010	10/07/94	BRL	20
Selenium (Se)/7740	10/07/94	BRL	5
Silver (Ag)/6010	10/07/94	BRL	10
Thallium (Tl)/7841	10/07/94	BRL	10
Zinc (Zn)/6010	10/07/94	BRL	20

Comments

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Approved by: [signature] Date: 10/14/94

096

MBT Environmental Laboratories

Master Builders Technologies

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3010 {a}

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *MW-5*

Lab Project-ID Number: *10208-9*

Sample Number: *244450*

Date Sampled: *09/26/94*

Date Received: *09/29/94*

Date Digested: *10/06/94*

Batch Number: *941006-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Antimony (Sb)/6010	10/07/94	BRL	50
Arsenic (As)/7060	10/06/94	BRL	10
Beryllium (Be)/6010	10/07/94	BRL	5
Cadmium (Cd)/6010	10/07/94	BRL	10
Chromium (Cr)/6010	10/07/94	BRL	10
Copper (Cu)/6010	10/07/94	BRL	20
Lead (Pb)/7421	10/07/94	BRL	3
Mercury (Hg)/7470	10/07/94	BRL	0.2
Nickel (Ni)/6010	10/07/94	BRL	20
Selenium (Se)/7740	10/07/94	BRL	5
Silver (Ag)/6010	10/07/94	BRL	10
Thallium (Tl)/7841	10/07/94	BRL	10
Zinc (Zn)/6010	10/07/94	BRL	20

Comments

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Approved by: *[signature]* Date: 10/14/94

096

MBT Environmental Laboratories

Master Builders Technologies

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3010 {a}

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-6*	Lab Project-ID Number:	*10208-5*
Sample Number:	*260488*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Digested:	*10/06/94*
		Batch Number:	*941006-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Antimony (Sb)/6010	10/07/94	BRL	50
Arsenic (As)/7060	10/06/94	BRL	10
Beryllium (Be)/6010	10/07/94	BRL	5
Cadmium (Cd)/6010	10/07/94	BRL	10
Chromium (Cr)/6010	10/07/94	BRL	10
Copper (Cu)/6010	10/07/94	BRL	20
Lead (Pb)/7421	10/06/94	BRL	3
Mercury (Hg)/7470	10/07/94	BRL	0.2
Nickel (Ni)/6010	10/07/94	BRL	20
Selenium (Se)/7740	10/07/94	BRL	5
Silver (Ag)/6010	10/07/94	BRL	10
Thallium (Tl)/7841	10/07/94	BRL	10
Zinc (Zn)/6010	10/07/94	BRL	20

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Date Digested and Batch # apply to all metals except Arsenic, Lead, Selenium, and Thallium, which were digested on 10/06/94, Batch # 941006-4303; and Mercury, which was digested on 10/07/94, Batch # 941007-2202.

Approved by: [signature] Date: 10/14/94

096

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3010 {a}

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *MW-7*

Lab Project-ID Number: *10208-6*

Sample Number: *260461*

Date Sampled: *09/27/94*

Date Received: *09/29/94*

Date Digested: *10/06/94*

Batch Number: *941006-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Antimony (Sb)/6010	10/07/94	BRL	50
Arsenic (As)/7060	10/06/94	20	10
Beryllium (Be)/6010	10/07/94	BRL	5
Cadmium (Cd)/6010	10/07/94	BRL	10
Chromium (Cr)/6010	10/07/94	BRL	10
Copper (Cu)/6010	10/07/94	BRL	20
Lead (Pb)/7421	10/06/94	BRL	3
Mercury (Hg)/7470	10/07/94	0.2	0.2
Nickel (Ni)/6010	10/07/94	BRL	20
Selenium (Se)/7740	10/07/94	BRL	5
Silver (Ag)/6010	10/07/94	BRL	10
Thallium (Tl)/7841	10/07/94	BRL	10
Zinc (Zn)/6010	10/07/94	BRL	20

Comments

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Approved by: [signature] Date: 10/14/94

MBT Environmental Laboratories

Master Builders Technologies

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3010 {a}

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-8*	Lab Project-ID Number:	*10208-4*
Sample Number:	*260470*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Digested:	*10/06/94*
		Batch Number:	*941006-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Antimony (Sb)/6010	10/07/94	BRL	50
Arsenic (As)/7060	10/06/94	13	10
Beryllium (Be)/6010	10/07/94	BRL	5
Cadmium (Cd)/6010	10/07/94	BRL	10
Chromium (Cr)/6010	10/07/94	BRL	10
Copper (Cu)/6010	10/07/94	BRL	20
Lead (Pb)/7421	10/06/94	BRL	3
Mercury (Hg)/7470	10/07/94	0.2	0.2
Nickel (Ni)/6010	10/07/94	BRL	20
Selenium (Se)/7740	10/07/94	BRL	5
Silver (Ag)/6010	10/07/94	BRL	10
Thallium (Tl)/7841	10/07/94	BRL	10
Zinc (Zn)/6010	10/07/94	BRL	20

Comments

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Date Digested and Batch # apply to all metals except Arsenic, Lead, Selenium, and Thallium, which were digested on 10/06/94, Batch # 941006-4303; and Mercury, which was digested on 10/07/94, Batch # 941007-2202.

Approved by: [signature] Date: 10/14/94

096

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3010 {a}

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *MW-9*

Lab Project-ID Number: *10208-3*

Sample Number: *260643*

Date Sampled: *09/26/94*

Date Received: *09/29/94*

Date Digested: *10/06/94*

Batch Number: *941006-4302*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Antimony (Sb)/6010	10/07/94	BRL	50
Arsenic (As)/7060	10/06/94	BRL	10
Beryllium (Be)/6010	10/07/94	BRL	5
Cadmium (Cd)/6010	10/07/94	BRL	10
Chromium (Cr)/6010	10/07/94	BRL	10
Copper (Cu)/6010	10/07/94	BRL	20
Lead (Pb)/7421	10/06/94	BRL	3
Mercury (Hg)/7470	10/07/94	BRL	0.2
Nickel (Ni)/6010	10/07/94	BRL	20
Selenium (Se)/7740	10/07/94	BRL	5
Silver (Ag)/6010	10/07/94	BRL	10
Thallium (Tl)/7841	10/07/94	BRL	10
Zinc (Zn)/6010	10/07/94	BRL	20

Comments

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Date Digested and Batch # apply to all metals except Arsenic, Lead, Selenium, and Thallium, which were digested on 10/06/94, Batch # 941006-4303; and Mercury, which was digested on 10/07/94, Batch # 941007-2202.

Approved by: [signature] Date: 10/14/94

MBT Environmental Laboratories

Master Builders Technologies

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015 {a}
Preparation Method: EPA 3510

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *MW-2*

Lab Project-ID Number: *10208-2*

Sample Number: *244436*

Date Sampled: *09/26/94*

Date Received: *09/29/94*

Date Extracted: *10/02/94*

Date Analyzed: *10/04/94*

Batch Number: *941002-2005*

Petroleum Fraction	Carbon Range	Concentration mg/L (ppm)	Reporting Limit mg/L (ppm)
Gasoline Range	C7 - C14	0.32	0.050
Diesel Range	C12 - C22	BRL	0.050
Motor Oil Range	C22 - C32	0.24	0.050
Total Petroleum Hydrocarbons		0.56	0.050

Comments

The cover letter and enclosures are integral parts of this report.

{a} Derived from EPA 8015. Gas Chromatograph with flame ionization detector is used to perform the analysis. Modification is due to the quantitation of petroleum fraction instead of non-halogenated volatile compounds.

Approved by: [signature] Date: 10/14/94

026

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015 {a}
Preparation Method: EPA 3510

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-9*	Lab Project-ID Number:	*10208-3*
Sample Number:	*260633*	Date Sampled:	*09/26/94*
Date Received:	*09/29/94*	Date Extracted:	*10/02/94*
Date Analyzed:	*10/06/94*	Batch Number:	*941002-2005*

Petroleum Fraction	Carbon Range	Concentration mg/L (ppm)	Reporting Limit mg/L (ppm)
Gasoline Range	C7 - C14	BRL	0.50
Diesel Range	C12 - C22	{b} 2.2	0.50
Motor Oil Range	C22 - C32	BRL	0.50
Total Petroleum Hydrocarbons		2.2	0.50

Comments

The cover letter and enclosures are integral parts of this report.

{a} Derived from EPA 8015. Gas Chromatograph with flame ionization detector is used to perform the analysis. Modification is due to the quantitation of petroleum fraction instead of non-halogenated volatile compounds.

{b} The chromatographic pattern of Diesel in the sample does not exactly match the standard chromatograph.

The sample was diluted 10 fold to bring target analytes within linear working range.

Approved by: JH Date: 10/14/94

026

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015 {a}
Preparation Method: EPA 3510

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-8*	Lab Project-ID Number:	*10208-4*
Sample Number:	*260463*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Extracted:	*10/02/94*
Date Analyzed:	*10/04/94*	Batch Number:	*941002-2005*

Petroleum Fraction	**Carbon Range**	**Concentration mg/L (ppm)**	**Reporting Limit mg/L (ppm)**
Gasoline Range	C7 - C14	BRL	0.050
Diesel Range	C12 - C22	{b} 0.32	0.050
Motor Oil Range	C22 - C32	BRL	0.050
Total Petroleum Hydrocarbons		0.32	0.050

Comments

The cover letter and enclosures are integral parts of this report.

{a} Derived from EPA 8015. Gas Chromatograph with flame ionization detector is used to perform the analysis. Modification is due to the quantitation of petroleum fraction instead of non-halogenated volatile compounds.

{b} The chromatographic pattern of Diesel in the sample does not exactly match the standard chromatograph.

Approved by: [signature] Date: 10/14/94

MBT Environmental Laboratories

Master Builders Technologies

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015 {a}
Preparation Method: EPA 3510

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *MW-6*

Lab Project-ID Number: *10208-5*

Sample Number: *260478*

Date Sampled: *09/27/94*

Date Received: *09/29/94*

Date Extracted: *10/02/94*

Date Analyzed: *10/05/94*

Batch Number: *941002-2005*

Petroleum Fraction	**Carbon Range**	**Concentration mg/L (ppm)**	**Reporting Limit mg/L (ppm)**
Gasoline Range	C7 - C14	1.1	0.050
Diesel Range	C12 - C22	9.9	0.050
Motor Oil Range	C22 - C32	3.2	0.050
Total Petroleum Hydrocarbons		14	0.050

Comments

The cover letter and enclosures are integral parts of this report.

{a} Derived from EPA 8015. Gas Chromatograph with flame ionization detector is used to perform the analysis. Modification is due to the quantitation of petroleum fraction instead of non-halogenated volatile compounds.

Approved by: ____________________ Date: 10/14/94

MBT Environmental Laboratories

Master Builders Technologies

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015 {a}
Preparation Method: EPA 3510

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-7*	Lab Project-ID Number:	*10208-6*
Sample Number:	*260451*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Extracted:	*10/02/94*
Date Analyzed:	*10/06/94*	Batch Number:	*941002-2005*

Petroleum Fraction	**Carbon Range**	**Concentration mg/L (ppm)**	**Reporting Limit mg/L (ppm)**
Gasoline Range	C7 - C14	BRL	0.25
Diesel Range	C12 - C22	{b} 1.8	0.25
Motor Oil Range	C22 - C32	BRL	0.25
Total Petroleum Hydrocarbons		1.8	0.25

Comments

The cover letter and enclosures are integral parts of this report.

{a} Derived from EPA 8015. Gas Chromatograph with flame ionization detector is used to perform the analysis. Modification is due to the quantitation of petroleum fraction instead of non-halogenated volatile compounds.

{b} The chromatographic pattern of Diesel in the sample does not exactly match the standard chromatograph.

The sample was diluted 5 fold to bring target analytes within linear working range.

Approved by: [signature] Date: 10/14/94

026

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015 {a}
Preparation Method: EPA 3510

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-1*	Lab Project-ID Number:	*10208-7*
Sample Number:	*244295*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Extracted:	*10/02/94*
Date Analyzed:	*10/05/94*	Batch Number:	*941002-2005*

Petroleum Fraction	Carbon Range	Concentration mg/L (ppm)	Reporting Limit mg/L (ppm)
Gasoline Range	C7 - C14	BRL	0.050
Diesel Range	C12 - C22	{b} 0.53	0.050
Motor Oil Range	C22 - C32	BRL	0.050
Total Petroleum Hydrocarbons		0.53	0.050

Comments

The cover letter and enclosures are integral parts of this report.

{a} Derived from EPA 8015. Gas Chromatograph with flame ionization detector is used to perform the analysis. Modification is due to the quantitation of petroleum fraction instead of non-halogenated volatile compounds.

{b} The chromatographic pattern of Diesel in the sample does not exactly match the standard chromatograph.

Approved by: [signature] Date: 10/14/94

MBT Environmental Laboratories

Master Builders Technologies

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015 {a}
Preparation Method: EPA 3510

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-3*	Lab Project-ID Number:	*10208-8*
Sample Number:	*260471*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Extracted:	*10/02/94*
Date Analyzed:	*10/05/94*	Batch Number:	*941002-2005*

Petroleum Fraction	**Carbon Range**	**Concentration mg/L (ppm)**	**Reporting Limit mg/L (ppm)**
Gasoline Range	C7 - C14	BRL	0.050
Diesel Range	C12 - C22	{b} 0.72	0.050
Motor Oil Range	C22 - C32	BRL	0.050
Total Petroleum Hydrocarbons		0.72	0.050

Comments

The cover letter and enclosures are integral parts of this report.

{a} Derived from EPA 8015. Gas Chromatograph with flame ionization detector is used to perform the analysis. Modification is due to the quantitation of petroleum fraction instead of non-halogenated volatile compounds.

{b} The chromatographic pattern of Diesel in the sample does not exactly match the standard chromatograph.

Approved by: [signature] Date: 10/14/94

MBT Environmental Laboratories

Master Builders Technologies

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015 {a}
Preparation Method: EPA 3510

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-5*	Lab Project-ID Number:	*10208-9*
Sample Number:	*244444*	Date Sampled:	*09/26/94*
Date Received:	*09/29/94*	Date Extracted:	*10/02/94*
Date Analyzed:	*10/06/94*	Batch Number:	*941002-2005*

Petroleum Fraction	**Carbon Range**	**Concentration mg/L (ppm)**	**Reporting Limit mg/L (ppm)**
Gasoline Range	C7 - C14	3.1	0.50
Diesel Range	C12 - C22	{b} 0.78	0.50
Motor Oil Range	C22 - C32	BRL	0.50
Total Petroleum Hydrocarbons		3.9	0.50

Comments

The cover letter and enclosures are integral parts of this report.

{a} Derived from EPA 8015. Gas Chromatograph with flame ionization detector is used to perform the analysis. Modification is due to the quantitation of petroleum fraction instead of non-halogenated volatile compounds.

{b} The chromatographic pattern of Diesel in the sample does not exactly match the standard chromatograph.

The sample was diluted 10 fold to bring target analytes within linear working range.

Approved by: ~~JH~~ Date: 10/14/94

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015 {a}
Preparation Method: EPA 3510

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-4*	Lab Project-ID Number:	*10208-10*
Sample Number:	*260439*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Extracted:	*10/02/94*
Date Analyzed:	*10/05/94*	Batch Number:	*941002-2005*

Petroleum Fraction	Carbon Range	Concentration mg/L (ppm)	Reporting Limit mg/L (ppm)
Gasoline Range	C7 - C14	BRL	0.050
Diesel Range	C12 - C22	{b} 0.89	0.050
Motor Oil Range	C22 - C32	BRL	0.050
Total Petroleum Hydrocarbons		0.89	0.050

Comments

The cover letter and enclosures are integral parts of this report.

{a} Derived from EPA 8015. Gas Chromatograph with flame ionization detector is used to perform the analysis. Modification is due to the quantitation of petroleum fraction instead of non-halogenated volatile compounds.

{b} The chromatographic pattern of Diesel in the sample does not exactly match the standard chromatograph.

Approved by: [signature] Date: 10/14/94

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE HALOGENATED ORGANIC COMPOUNDS

Analytical Method: Modified EPA 8010 {a}
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*Trip Blank*	Lab Project-ID Number:	*10208-1*
Sample Number:	*244435*	Date Sampled:	*09/26/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/10/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Vinyl Chloride	BRL	1.0

Surrogates	**Percent Recovery**	**Acceptance Limits**
Bromochloromethane	98	51 - 144
Orthochlorotoluene	102	80 - 120

Comments

The cover letter and enclosures are integral parts of this report.

{a} Modification includes 26 of 39 compounds. c-1,2-Dichloroethene, Freon and c-1,3-Dichloropropene are reported additionally.

Approved by: ____ Date: 10/14/94

022

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE HALOGENATED ORGANIC COMPOUNDS

Analytical Method: Modified EPA 8010 {a}
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-9*	Lab Project-ID Number:	*10208-3*
Sample Number:	*260638*	Date Sampled:	*09/26/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/10/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Vinyl Chloride	BRL	1.0

Surrogates	**Percent Recovery**	**Acceptance Limits**
Bromochloromethane	87	51 - 144
Orthochlorotoluene	104	80 - 120

Comments

The cover letter and enclosures are integral parts of this report.

{a} Modification includes 26 of 39 compounds. c-1,2-Dichloroethene, Freon and c-1,3-Dichloropropene are reported additionally.

Approved by: [signature] Date: 10/14/94

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE HALOGENATED ORGANIC COMPOUNDS

Analytical Method: Modified EPA 8010 {a}
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-6*	Lab Project-ID Number:	*10208-5*
Sample Number:	*260481*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/10/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Vinyl Chloride	BRL	1.0

Surrogates	**Percent Recovery**	**Acceptance Limits**
Bromochloromethane	95	51 - 144
Orthochlorotoluene	105	80 - 120

Comments

The cover letter and enclosures are integral parts of this report.

{a} Modification includes 26 of 39 compounds. c-1,2-Dichloroethene, Freon and c-1,3-Dichloropropene are reported additionally.

Approved by: [signature] Date: 10/14/94

022

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE HALOGENATED ORGANIC COMPOUNDS

Analytical Method: Modified EPA 8010 {a}
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-7*	Lab Project-ID Number:	*10208-6*
Sample Number:	*260455*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/10/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Vinyl Chloride	BRL	1.0

Surrogates	**Percent Recovery**	**Acceptance Limits**
Bromochloromethane	89	51 - 144
Orthochlorotoluene	105	80 - 120

Comments

The cover letter and enclosures are integral parts of this report.

{a} Modification includes 26 of 39 compounds. c-1,2-Dichloroethene, Freon and c-1,3-Dichloropropene are reported additionally.

Approved by: [signature] Date: 10/14/94

022

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE HALOGENATED ORGANIC COMPOUNDS

Analytical Method: Modified EPA 8010 {a}
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-4*	Lab Project-ID Number:	*10208-10*
Sample Number:	*260443*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/10/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Vinyl Chloride	8.0	1.0

Surrogates	**Percent Recovery**	**Acceptance Limits**
Bromochloromethane	83	51 - 144
Orthochlorotoluene	{b} 122	80 - 120

Comments

The cover letter and enclosures are integral parts of this report.

{a} Modification includes 26 of 39 compounds. c-1,2-Dichloroethene, Freon and c-1,3-Dichloropropene are reported additionally.

{b} Sample surrogate recovery is beyond acceptance limits. All other quality control is acceptable.

Approved by: [signature] Date: 10/14/94

022

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*Trip Blank*	Lab Project-ID Number:	*10208-1*
Sample Number:	*244434*	Date Sampled:	*09/26/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/06/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Benzene	BRL	0.30
Toluene	BRL	0.30
Ethylbenzene	BRL	0.30
1,2-Xylene	BRL	0.30
1,3-Xylene	BRL	0.30
1,4-Xylene	BRL	0.30

Surrogates	**Percent Recovery**	**Acceptance Limits**
a,a,a-Trifluorotoluene	106	63 - 134
a,a,a-Trifluorotoluene	107	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

Approved by: [signature] Date: 10/14/94

065

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *MW-2*

Lab Project-ID Number: *10208-2*

Sample Number: *244439*

Date Sampled: *09/26/94*

Date Received: *09/29/94*

Date Analyzed: *10/06/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Benzene	BRL	3.0
Toluene	BRL	3.0
Ethylbenzene	BRL	3.0
1,2-Xylene	BRL	3.0
1,3-Xylene	BRL	3.0
1,4-Xylene	BRL	3.0

Surrogates	**Percent Recovery**	**Acceptance Limits**
a,a,a-Trifluorotoluene	109	63 - 134
a,a,a-Trifluorotoluene	98	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

The sample was diluted 10 fold due to the presence of non-target analyte interferences.

Approved by: ____________________ Date: 10/14/94

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-9*	Lab Project-ID Number:	*10208-3*
Sample Number:	*260636*	Date Sampled:	*09/26/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/06/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Benzene	BRL	0.30
Toluene	BRL	0.30
Ethylbenzene	BRL	0.30
1,2-Xylene	BRL	0.30
1,3-Xylene	BRL	0.30
1,4-Xylene	BRL	0.30

Surrogates	**Percent Recovery**	**Acceptance Limits**
a,a,a-Trifluorotoluene	100	63 - 134
a,a,a-Trifluorotoluene	93	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

Non-target analytes are present on the chromatograph.

Approved by: ____________________ Date: 10/14/94

065

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-8*	Lab Project-ID Number:	*10208-4*
Sample Number:	*260466*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/06/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Benzene	BRL	0.30
Toluene	BRL	0.30
Ethylbenzene	BRL	0.30
1,2-Xylene	BRL	0.30
1,3-Xylene	BRL	0.30
1,4-Xylene	BRL	0.30

Surrogates	**Percent Recovery**	**Acceptance Limits**
a,a,a-Trifluorotoluene	95	63 - 134
a,a,a-Trifluorotoluene	90	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

Approved by: [signature] Date: 10/14/94

065

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-6*	Lab Project-ID Number:	*10208-5*
Sample Number:	*260480*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/06/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Benzene	BRL	3.0
Toluene	BRL	3.0
Ethylbenzene	BRL	3.0
1,2-Xylene	BRL	3.0
1,3-Xylene	BRL	3.0
1,4-Xylene	BRL	3.0

Surrogates	**Percent Recovery**	**Acceptance Limits**
a,a,a-Trifluorotoluene	90	63 - 134
a,a,a-Trifluorotoluene	82	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

A 10 fold dilution was required to quantitate target analytes due to the presence of non-target analyte interferences.

Approved by: ______________________ Date: 10/14/94

065

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-7*	Lab Project-ID Number:	*10208-6*
Sample Number:	*260454*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/06/94*

Analyte	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Benzene	BRL	3.0
Toluene	BRL	3.0
Ethylbenzene	BRL	3.0
1,2-Xylene	BRL	3.0
1,3-Xylene	BRL	3.0
1,4-Xylene	BRL	3.0

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	107	63 - 134
a,a,a-Trifluorotoluene	100	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

A 10 fold dilution was required to quantitate target analytes due to the presence of non-target analyte interferences.

Approved by: [signature] Date: 11/14/94

065

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-1*	Lab Project-ID Number:	*10208-7*
Sample Number:	*244298*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/06/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Benzene	BRL	0.30
Toluene	BRL	0.30
Ethylbenzene	BRL	0.30
1,2-Xylene	BRL	0.30
1,3-Xylene	BRL	0.30
1,4-Xylene	BRL	0.30

Surrogates	**Percent Recovery**	**Acceptance Limits**
a,a,a-Trifluorotoluene	104	63 - 134
a,a,a-Trifluorotoluene	103	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

Approved by: [signature] Date: 10/14/94

065

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-3*	Lab Project-ID Number:	*10208-8*
Sample Number:	*260475*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/07/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Benzene	BRL	0.30
Toluene	BRL	0.30
Ethylbenzene	BRL	0.30
1,2-Xylene	BRL	0.30
1,3-Xylene	BRL	0.30
1,4-Xylene	BRL	0.30

Surrogates	**Percent Recovery**	**Acceptance Limits**
a,a,a-Trifluorotoluene	94	63 - 134
a,a,a-Trifluorotoluene	81	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

Non-target analytes are present on the chromatograph.

Approved by: [signature] Date: 10/14/94

065

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-5*	Lab Project-ID Number:	*10208-9*
Sample Number:	*244447*	Date Sampled:	*09/26/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/06/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Benzene	7.9	3.0
Toluene	11	3.0
Ethylbenzene	8.7	3.0
1,2-Xylene	BRL	3.0
1,3-Xylene	{a}{b}	3.0
1,4-Xylene	{a} 14	3.0

Surrogates	**Percent Recovery**	**Acceptance Limits**
a,a,a-Trifluorotoluene	126	63 - 134
a,a,a-Trifluorotoluene	87	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

{a} The data was reported from a different analytical run on 10/06/94 at a 10 fold dilution for which the associated standard was within daily calibration criteria.

{b} Coelutes with 1,4-Xylene.

The sample was diluted 10 fold to bring target analytes within linear working range.

Approved by: ____________ Date: 10/14/94

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-4*	Lab Project-ID Number:	*10208-10*
Sample Number:	*260442*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Analyzed:	*10/06/94*

Analyte	**Concentration ug/L (ppb)**	**Reporting Limit ug/L (ppb)**
Benzene	12	0.30
Toluene	0.43	0.30
Ethylbenzene	BRL	0.30
1,2-Xylene	BRL	0.30
1,3-Xylene	BRL	0.30
1,4-Xylene	BRL	0.30

Surrogates	**Percent Recovery**	**Acceptance Limits**
a,a,a-Trifluorotoluene	97	63 - 134
a,a,a-Trifluorotoluene	98	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

Non-target analytes are present on the chromatograph.

Approved by: ______ Date: 10/14/94

MBT Environmental Laboratories

Master Builders Technologies

MBT Environmental
Laboratories

3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

Date: October 26, 1994
LP #: 10336

Saul Germanas
McLaren/Hart Environmental Engineering
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. Germanas:

Enclosed are the additional laboratory results requested on October 11, 1994, for the samples submitted to MBT Environmental Laboratories on September 17, 1994, for the project *Mariner Square*.

The additional analyses requested are:

EPA 8010 (Vinyl Chloride only) (1 - Soil)
EPA 8020 (BTEX only) (1 - Soil)

The report consists of the following sections:

1. A copy of the Chain-of-Custody
2. Quality Control Definitions and Report
3. Abbreviations and Comments
4. Analytical results

Unless otherwise instructed by you, samples will be disposed of two weeks from the date of this letter.

Thank you for choosing MBT Environmental Laboratories. We are looking forward to serving you in the future. Should you have any questions concerning this analytical report or the analytical methods employed, please do not hesitate to call.

Sincerely,

Shakoora Azimi
Laboratory Director, Principal Scientist

ANALYTICAL REPORT

LABORATORY PROJECT (LP) NUMBER 10336

MARINER SQUARE

This report complies with the requirements under the following certification/approval:

√	CALIFORNIA:	Hazardous Waste, #1417 Waste Water, # 1417 Drinking Water, #1417
	CONNECTICUT:	Waste Water, #PH0799
	FLORIDA:	Environmental Water, #E87298
	KANSAS:	Hazardous Waste, #E-1167 Waste Water, #E-192 Drinking Water, #E-192
	NEW HAMPSHIRE:	Waste Water, #253193-A
	NEW JERSEY:	Waste Water, #44818
	NEW YORK:	Hazardous Waste, #11241 Waste Water, #11241 CLP, #11241
	OKLAHOMA:	Hazardous Waste, #9318 Waste Water, #9318
	TENNESSEE:	Underground Storage Tank
	UTAH:	Hazardous Waste, #E-165 Waste Water, #E-165 Drinking Water, #E-165
	WASHINGTON:	Hazardous Waste, #C048
	WISCONSIN:	Hazardous Waste, #999940920 Waste Water, #999940920
	USACOE:	Hazardous Waste Waste Water
	AFCEE	

(CN10336)

MBT Environmental Laboratories

Master Builders Technologies

MB[illegible]vironmental Laboratories
3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

Master Builders Technologies

CHAIN OF CUSTODY RECORD 09820

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: ____
Address: ____

Project Name: Mariner Square
Project Number: 640601316000
Project Location: (State) CA

FOR LABORATORY USE ONLY
Laboratory Project #: 10336
Storage Refrigerator ID: 4-ice
Storage Freezer ID:

Sampler Name | Signature | PPE Worn in Field

Relinquished By:	Date/Time	Received By or Method of Shipment/Shipment I.D.	Date/Time
		Samples	9/19/94 0945
		Request	10/11/94 1200

Sample Disposal (check one)
☐ Laboratory Standard
☑ Other see LP 10106

Level of QC (see Side 2): ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6A ☐ 6B ☐ 6C ☐ 6D ☐ 6E ☐ 6F ☐ 7 ☐ 8

Write in Analysis Method →

ANALYSES REQUESTED

SAMPLE INFORMATION

FOR LABORATORY USE ONLY Lab ID (new / old)	Sample ID Number	Date (94)	Time	Locator	Depth	#	Type	Matrix Type	Pres. Type	TAT	8010 VC only	BTEX
10336-1 / 10106-21	52505	9/16		SB-C	1.5'	1	B	Soil	Ice	4	X	X
2												
3												
4												
5												
6												
7												
8												
9												
10												

Special Instructions/Comments:

Container Types: B=Brass Tube, G=Glass Jar, O=Other, A=1 Liter Amber, C=Cassette, P=Polyethylene, V=Voa Vial

TAT (Analytical Turn Around Time): 1 = 24 hours, 2 = 48 hours, 3 = 1 week, 4 = 2 weeks, 0 = Other

FOR LABORATORY USE ONLY Sample Condition Upon Receipt:

SEND DOCUMENTATION AND RESULTS TO (Check one):
☑ Project Manager/Office: Saul Germanas/Alameda
☐ Client Name:
Company:
Address:
Phone: FAX:

Common Analytical Methods
413.1
413.2 Long Method
413.2 Short Method
418.1 Long Method
418.1 Short Method
420.1
502.2
503E
503.1
524.2
601
602
604
608
610
624
625
8010
8015
8015 Mod.
8020
8021
8040
8080
8100
8150
8240
8270
8310
Acidity
Alkalinity
BTEX
Chloride
CLP (see Side 2)
COD
Color
Conductivity
Corrosivity
Cyanide
Flashpoint
Fluoride
General Mineral
Hex. Chromium
Ion Balance
Metals (write specific metal & method #)*
Metals 6010*
Metals PP*
Metals Title 22: TTLC Level, STLC Level (see Side 2)
Nitrate
Nitrite
Odor
Org. Lead
Org. Mercury
Percent Moisture
Percent Solid
Perchlorate
pH
Phosphates
Phosphorus
Sulfate
Sulfides
TCLP: VOA, Semivoa, Metals, Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
TSS
Turbidity

* Specify Total or Dissolved

QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 8010
Units: ug/Kg (ppb)

Date Analyzed: 10/17/94
Date Extracted: 10/14/94
Batch Number: 941014-4901

Analyte	Reporting Limit	Concentration
Vinyl Chloride	20	BRL

Surrogate	% Recovery	Acceptance Limits
Bromofluorobenzene	93	76 - 158

(CN10336)

Laboratory Control Sample
Method 8010 (Modified)
Medium Level

LP#: 10336

Date Of Analysis: 10/18/94

Column: 502.2

Instrument #: GC 10

Batch #: 941014-4901

Spike Sample ID: LCSS

Spike ID Code: W-1-985

Surrogate ID Code: W-1-967

Matrix: Soil Units: ug/Kg

EPA METHOD	COMPOUNDS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC.	(f) SPIKE DUP. REC. %	(g) RPD%	ACCEPTANCE LIMITS % REC.	ACCEPTANCE LIMITS RPD
8010	1,1 - Dichloroethane	0	250	190	76	NA	NA	NA	65 - 120	≤25
8010	1,1,1 - Trichloroethane	0	250	173	69	NA	NA	NA	60 - 114	≤25
8010	Trichloroethene	0	250	202	81	NA	NA	NA	62 - 138	≤25

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

EPA METHOD	SURROGATE COMPOUNDS	DET.	(h) SUR. SPIKE CONC.	(i) SAMPLE + SUR. SPIKE CONC.	(j) SUR. REC. %	(k) SAMPLE DUP. + SUR. SPIKE CONC.	(l) SUR. DUP. RECOVERY %	ACCEPTANCE LIMITS % REC.
8010	Bromofluorobenzene	Hall	200	210	105	NA	NA	65 - 143

Surrogate % Recovery = j = (i/h) x 100
Surrogate Dup % Recovery = l = (k/h) x 100

QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 8020 (BTEX)
Units: ug/Kg (ppb)

Date Analyzed: 10/12/94
Date Extracted: 10/12/94
Batch Number: 941012-4901

Analyte	Reporting Limit	Concentration
Benzene	5.0	BRL
Toluene	5.0	BRL
Ethylbenzene	5.0	BRL
1,2-Xylene	5.0	BRL
1,3-Xylene	5.0	BRL
1,4-Xylene	5.0	BRL

Surrogate	% Recovery	Acceptance Limits
Bromofluorobenzene	127[a]	51 - 102

[a] Sample surrogate recovery is beyond acceptance limits. All other quality control is acceptable.

QUALITY CONTROL REPORT

Laboratory Control Sample
Method 8020
Medium Level

LP#: 10336

Date Of Analysis: 10/14/94

Column: DBWAX

Instrument #: 3

Batch #: 941012-4903

Spike Sample ID: LCSS-10/12

Spike ID Code: W1-985

Surrogate ID Code: W1-964

Matrix: Soil Units: ug/Kg

EPA METHOD	COMPOUNDS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC.	(f) SPIKE DUP. REC. %	(g) RPD%	ACCEPTANCE LIMITS % REC.	ACCEPTANCE LIMITS RPD
8020	Chlorobenzene	0	250	279	112	NA	NA	NA	60 - 128	≤25
8020	Benzene	0	250	303	121	NA	NA	NA	70 - 124	≤25
8020	Ethyl Benzene	0	250	274	110	NA	NA	NA	67 - 128	≤25

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

EPA METHOD	SURROGATE COMPOUNDS	DET.	(h) SUR. SPIKE CONC.	(i) SAMPLE + SUR. SPIKE CONC.	(j) SUR. REC. %	(k) SAMPLE DUP. + SUR. SPIKE CONC.	(l) SUR. DUP. RECOVERY %	ACCEPTANCE LIMITS % REC.
8020	Bromofluorobenzene	PID	200	210	105[a]	NA	NA	51 - 102

Surrogate % Recovery = j = (i/h) x 100
Surrogate Dup % Recovery = l = (k/h) x 100

[a] Sample surrogate recovery is beyond acceptance limits. All other quality control is acceptable.

ABBREVIATIONS USED IN THIS REPORT

BRL	Below Reporting Limit
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
RPD	Relative Percent Difference
NS	Not Specified
NA	Not Applicable

COMMENTS

Test methods may include minor modifications of published EPA methods (e.g., reporting limits or parameter lists). Reporting limits are adjusted to reflect dilution of the sample when appropriate. Solids and waste are analyzed with no correction made for moisture content.

The sample was collected on 09/16/94. The client requested analysis on 10/11/94. The sample for EPA 8010 Vinyl Chloride analysis was extracted on 10/14/94 and analyzed on 10/18/94.

(CN10336)

VOLATILE HALOGENATED ORGANIC COMPOUNDS

Analytical Method: Modified EPA 8010
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*SB-C 1.5'*	Lab Project-ID Number:	*10336-1*
Sample Number:	*52505*	Date Sampled:	*09/16/94*
Date Received:	*09/17/94*	Date Extracted:	*10/14/94*
Date Analyzed:	*10/18/94*	Batch Number:	*941014-4901*

Analyte	**Concentration ug/Kg (ppb)**	**Reporting Limit ug/Kg (ppb)**
Vinyl Chloride	BRL	20

Surrogates	**Percent Recovery**	**Acceptance Limits**
Orthochlorotoluene	NA	65 - 143
Bromofluorobenzene	115	76 - 158

Comments

The cover letter and enclosures are integral parts of this report.

Only the requested analyte is reported.

Approved by: [signature] Date: 10/24/94

021

MBT Environmental Laboratories

Master Builders Technologies

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*SB-C 1.5'*	Lab Project-ID Number:	*10336-1*
Sample Number:	*52505*	Date Sampled:	*09/16/94*
Date Received:	*09/17/94*	Date Extracted:	*10/12/94*
Date Analyzed:	*10/15/94*	Batch Number:	*941012-4903*

Analyte	**Concentration ug/Kg (ppb)**	**Reporting Limit ug/Kg (ppb)**
Benzene	BRL	5.0
Toluene	13	5.0
Ethylbenzene	5.8	5.0
1,2-Xylene	BRL	5.0
1,3-Xylene	BRL	5.0
1,4-Xylene	BRL	5.0

Surrogates	**Percent Recovery**	**Acceptance Limits**
Orthochlorotoluene	NA	46 - 181
Bromofluorobenzene	87	51 - 102

Comments

The cover letter and enclosures are integral parts of this report.

Approved by: [signature] Date: 10/24/94

064

MBT Environmental Laboratories

Master Builders Technologies

MBT Environmental
Laboratories

3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

Date: October 31, 1994
LP #: 10371

Saul Germanas
McLaren/Hart Environmental Engineering
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. Germanas:

Enclosed are the additional laboratory results requested on October 13, 1994, for the samples submitted to MBT Environmental Laboratories on September 17, 1994, for the project *Mariner Square*.

The analyses requested are:

CAM TTLC (Lead only) (5 - Soil)
CAM TTLC (Sb, Zn, Pb, & Cu) (1 - Soil)
CAM TTLC (Copper only) (1 - Soil)

The report consists of the following sections:

1. Cover Page
2. Copy of Chain-of-Custody
3. Quality Control Report
4. Analytical Results

Thank you for choosing MBT Environmental Laboratories. We are looking forward to serving you in the future. Should you have any questions concerning this analytical report or the analytical methods employed, please do not hesitate to call.

Sincerely,

Shakoora Azimi
Laboratory Director, Principal Scientist

ANALYTICAL REPORT

LABORATORY PROJECT (LP) NUMBER 10371

MARINER SQUARE

This report complies with the requirements under the following certification/approval:

✓	CALIFORNIA:	Hazardous Waste, #1417 Waste Water, # 1417 Drinking Water, #1417
	CONNECTICUT:	Waste Water, #PH0799
	FLORIDA:	Environmental Water, #E87298
	KANSAS:	Hazardous Waste, #E-1167 Waste Water, #E-192 Drinking Water, #E-192
	NEW HAMPSHIRE:	Waste Water, #253193-A
	NEW JERSEY:	Waste Water, #44818
	NEW YORK:	Hazardous Waste, #11241 Waste Water, #11241 CLP, #11241
	OKLAHOMA:	Hazardous Waste, #9318 Waste Water, #9318
	TENNESSEE:	Underground Storage Tank
	UTAH:	Hazardous Waste, #E-165 Waste Water, #E-165 Drinking Water, #E-165
	WASHINGTON:	Hazardous Waste, #C048
	WISCONSIN:	Hazardous Waste, #999940920 Waste Water, #999940920
	USACOE:	Hazardous Waste Waste Water
	AFCEE	

(CN10371)

MBT Environmental Laboratories

Master Builders Technologies

MBT Environmental Laboratories
3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

CHAIN OF CUSTODY RECORD 09815

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To:
Address:

Project Name: Mariner Square
Project Number: 14010013416000
Project Location: (State) CA

FOR LABORATORY USE ONLY
Laboratory Project #: 10211
Storage Refrigerator ID: 4-1ce
Storage Freezer ID:

Sampler Name | Signature | PPE Worn in Field

Relinquished By: | Date/Time | Received By or Method of Shipment/Shipment I.D. Samples | Date/Time 9-19-94 0945
Relinquished By: | Date/Time | Received By or Method of Shipment/Shipment I.D. Request | Date/Time 10-13-94 1200
Relinquished By: | Date/Time | Received By or Method of Shipment/Shipment I.D. | Date/Time

Sample Disposal (check one)
☐ Laboratory Standard
☑ Other /see LP10106

Level of QC (see Side 2): ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6A ☐ 6B ☐ 6C ☐ 6D ☐ 6E ☐ 6F ☐ 7 ☐ 8

Write in Analysis Method →

ANALYSES REQUESTED

SAMPLE INFORMATION

FOR LABORATORY USE ONLY Lab ID (new)	(old)	Sample ID Number	Date (94)	Time	Locator	Depth	#	Type	Matrix Type	Pres. Type	TAT	Pb TTLC	Pb STLC	Pb TCLP
10211-1	10106-4	52454	9/16		SB-G	3.0	1	B	Soil		4	X		
2 -2	-6	52456	↓		SB-H	3.0'	↓	↓	↓		↓	X		
3 -3	-10	52460	↓		SB-J	3.0'	↓	↓	↓		↓		X	
4 -4	-12	52462	↓		SB-K	3.0'	↓	↓	↓		↓			X
5 -5	-18	52502	9/15		SB-A	5.5'	↓	↓	↓		↓	X		
6 -6	-20	52504	9/16		SB-B	4.5'	↓	↓	↓		↓	X		
7 -7	-22	52506	9/16		SB-C	5.5'	↓	↓	↓		↓	X		
8														
9														
10														

Special Instructions/Comments:

Container Types: A=1 Liter Amber, B=Brass Tube, C=Cassette, G=Glass Jar, P=Polyethylene, O=Other ____, V=Voa Vial

TAT (Analytical Turn Around Time): 1 = 24 hours, 2 = 48 hours, 3 = 1 week, 4 = 2 weeks, 0 = Other ____

FOR LABORATORY USE ONLY Sample Condition Upon Receipt:

SEND DOCUMENTATION AND RESULTS TO (Check one):
☑ Project Manager/Office: Saul Germanas/Ala
☐ Client Name:
Company:
Address:
Phone: FAX:

Common Analytical Methods
413.1
413.2 Long Method
413.2 Short Method
418.1 Long Method
418.1 Short Method
420.1
502.2
503E
503.1
524.2
601
602
604
608
610
624
625
8010
8015
8015 Mod.
8020
8021
8040
8080
8100
8150
8240
8270
8310
Acidity
Alkalinity
BTEX
Chloride
CLP (see Side 2)
COD
Color
Conductivity
Corrosivity
Cyanide
Flashpoint
Fluoride
General Mineral
Hex. Chromium
Ion Balance
Metals (write specific metal & method #)*
Metals 6010*
Metals PP*
Metals Title 22: TTLC Level, STLC Level (see Side 2)
Nitrate
Nitrite
Odor
Org. Lead
Org. Mercury
Percent Moisture
Percent Solid
Perchlorate
pH
Phosphates
Phosphorus
Sulfate
Sulfides
TCLP: VOA, Semivoa, Metals, Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
[illegible]
[illegible]idity
* Specify Total or Dissolved

QUALITY CONTROL REPORT

METHOD BLANK

Method: CAM Title 22 Metals (TTLC Limit)
Units: mg/Kg (ppm)

Date Analyzed: 10/24/94
Date Digested: 10/24/94
Batch Number: 941024-4302

Analyte	Reporting Limit	Concentration
Antimony (Sb)/6010	2.5	BRL
Copper (Cu)/6010	1.0	BRL
Lead (Pb)/6010	2.5	BRL
Zinc (Zn)/6010	1.0	BRL

(CN10371)

QUALITY CONTROL REPORT

Laboratory Control Sample
Metals

LP: 10371

Date of Analysis: 10/24/94

Date of Digestion: 10/24/94

Batch #: 941024-4302

Instrument #: ICP1

Spike Sample ID: LCSS

Spike ID Code: W4-8136, 4-1718

Matrix: Soil Units: mg/Kg

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	RPD
Sb	0	25	25.6	102	NA	NA	NA	75 - 125	≤20
Cu	0	12.5	13.1	105	NA	NA	NA	75 - 125	≤20
Pb	0	25	26.6	106	NA	NA	NA	75 - 125	≤20
Zn	0	25	27.3	109	NA	NA	NA	75 - 125	≤20

Spike Recovery = $d = ((c-a)/b) \times 100$

Spike Duplicate Recovery = $f = ((e-a)/b) \times 100$

Relative Percent Difference = $g = (|c-e|)/((c+e) \times .5) \times 100$

QUALITY CONTROL REPORT

Matrix Spike/Matrix Spike Duplicate
Metals

LP: 10371

Instrument #: ICP1

Date of Analysis: 10/24/94

Spike Sample ID: 10371-1 MS/MSD

Date of Digestion: 10/24/94

Spike ID Code: W4-8136, 4-1718

Batch #: 941024-4302

Matrix: Soil Units: mg/Kg

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
Pb	25	25	49	96	52	108	6	75 - 125	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

ABBREVIATIONS USED IN THIS REPORT

BRL	Below Reporting Limit
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
RPD	Relative Percent Difference
NS	Not Specified
NA	Not Applicable

COMMENTS

Test methods may include minor modifications of published EPA methods (e.g., reporting limits or parameter lists). Reporting limits are adjusted to reflect dilution of the sample when appropriate. Solids and waste are analyzed with no correction made for moisture content.

(CN10371)

METALS

Company: *McLaren/Hart*

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-G*

Lab ID: *10371-1*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Matrix: *Soil*

Preparation Information:	Batch#	Date Prepared	Method	Sample Number
ICAP:	*941024-4302*	*10/24/94*	*3050H*	*52454*

Analyte	**Result mg/Kg (ppm)**	**Reporting Limit mg/Kg (ppm)**	**Dilution Factor**	**Date Analyzed**
Lead (Pb)/6010	25	2.5	1	10/24/94

The cover letter and enclosures are integral parts of this report.

Approved by: [signature] Date: 10/31/94

MBT Environmental Laboratories

Master Builders Technologies

METALS

Company: *McLaren/Hart*

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-H*

Lab ID: *10371-2*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Matrix: *Soil*

Preparation Information:	Batch#	Date Prepared	Method	Sample Number
ICAP:	*941024-4302*	*10/24/94*	*3050H*	*52456*

Analyte	**Result mg/Kg (ppm)**	**Reporting Limit mg/Kg (ppm)**	**Dilution Factor**	**Date Analyzed**
Lead (Pb)/6010	26	2.5	1	10/24/94

The cover letter and enclosures are integral parts of this report.

Approved by: ________ Date: 10/31/94

METALS

Company: *McLaren/Hart*

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-J*

Lab ID: *10371-3*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Matrix: *Soil*

Preparation Information:	Batch#	Date Prepared	Method	Sample Number
ICAP:	*941024-4302*	*10/24/94*	*3050H*	*52460*

Analyte	**Result mg/Kg (ppm)**	**Reporting Limit mg/Kg (ppm)**	**Dilution Factor**	**Date Analyzed**
Antimony (Sb)/6010	BRL	2.5	1	10/24/94
Copper (Cu)/6010	5.4	1.0	1	10/24/94
Lead (Pb)/6010	4.6	2.5	1	10/24/94
Zinc (Zn)/6010	16	1.0	1	10/24/94

The cover letter and enclosures are integral parts of this report.

Approved by: [signature] Date: 10/31/94

MBT Environmental Laboratories

Master Builders Technologies

METALS

Company: *McLaren/Hart*

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-K*

Lab ID: *10371-4*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Matrix: *Soil*

Preparation Information:	Batch#	Date Prepared	Method	Sample Number
ICAP:	*941024-4302*	*10/24/94*	*3050H*	*52462*

Analyte	Result mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)	Dilution Factor	Date Analyzed
Copper (Cu)/6010	6.5	1.0	1	10/24/94

The cover letter and enclosures are integral parts of this report.

Approved by: [signature] Date: 10/31/94

MBT Environmental Laboratories

Master Builders Technologies

METALS

Company: *McLaren/Hart*

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-A*

Lab ID: *10371-5*

Date Sampled: *09/15/94*

Date Received: *09/17/94*

Matrix: *Soil*

Preparation Information:	Batch#	Date Prepared	Method	Sample Number
ICAP:	*941024-4302*	*10/24/94*	*3050H*	*52502*

Analyte	Result mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)	Dilution Factor	Date Analyzed
Lead (Pb)/6010	4.2	2.5	1	10/24/94

The cover letter and enclosures are integral parts of this report.

Approved by: ____________ Date: 10/21/94

MBT Environmental Laboratories

Master Builders Technologies

METALS

Company: *McLaren/Hart*

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-B*

Lab ID: *10371-6*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Matrix: *Soil*

Preparation Information:	Batch#	Date Prepared	Method	Sample Number
ICAP:	*941024-4302*	*10/24/94*	*3050H*	*52504*

Analyte	**Result mg/Kg (ppm)**	**Reporting Limit mg/Kg (ppm)**	**Dilution Factor**	**Date Analyzed**
Lead (Pb)/6010	14	2.5	1	10/24/94

The cover letter and enclosures are integral parts of this report.

Approved by: [signature] Date: 10/31/94

MBT Environmental Laboratories

Master Builders Technologies

METALS

Company: *McLaren/Hart*

Project Name: *Mariner Square*

Project Number: *040601316000*

Sample Description: *SB-C*

Lab ID: *10371-7*

Date Sampled: *09/16/94*

Date Received: *09/17/94*

Matrix: *Soil*

Preparation Information:	Batch#	Date Prepared	Method	Sample Number
ICAP:	941024-4302	10/24/94	3050H	52506

Analyte	Result mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)	Dilution Factor	Date Analyzed
Lead (Pb)/6010	5.7	2.5	1	10/24/94

The cover letter and enclosures are integral parts of this report.

Approved by: [signature] Date: 10/31/94

MBT Environmental Laboratories

Master Builders Technologies

MBT Environmental
Laboratories

3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

Date: November 1, 1994
LP #: 10208

Saul Germanas
McLaren/Hart Environmental Engineering
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. Germanas:

As you requested, enclosed are the laboratory results for the reanalysis of mercury for Samples 10208-4, -6, and -10 for the samples submitted to MBT Environmental Laboratories on September 29, 1994, for the project *Mariner Square*.

The reanalysis requested is:

PP Metals (Mercury only) (3 - Water)

The report consists of the following sections:

1. Cover Page
2. Copy of Chain-of-Custody
3. Quality Control Report
4. Analytical Results

Unless otherwise instructed by you, samples will be disposed of two weeks from the date of this letter.

Thank you for choosing MBT Environmental Laboratories. We are looking forward to serving you in the future. Should you have any questions concerning this analytical report or the analytical methods employed, please do not hesitate to call.

Sincerely,

Shakoora Azimi
Laboratory Director, Principal Scientist

ANALYTICAL REPORT

LABORATORY PROJECT (LP) NUMBER 10208

MARINER SQUARE

This report complies with the requirements under the following certification/approval:

✓	CALIFORNIA:	Hazardous Waste, #1417 Waste Water, # 1417 Drinking Water, #1417	OKLAHOMA:	Hazardous Waste, #9318 Waste Water, #9318
	CONNECTICUT:	Waste Water, #PH0799	TENNESSEE:	Underground Storage Tank
	FLORIDA:	Environmental Water, #E87298	UTAH:	Hazardous Waste, #E-165 Waste Water, #E-165 Drinking Water, #E-165
	KANSAS:	Hazardous Waste, #E-1167 Waste Water, #E-192 Drinking Water, #E-192	WASHINGTON:	Hazardous Waste, #C048
	NEW HAMPSHIRE:	Waste Water, #253193-A	WISCONSIN:	Hazardous Waste, #999940920 Waste Water, #999940920
	NEW JERSEY:	Waste Water, #44818	USACOE:	Hazardous Waste Waste Water
	NEW YORK:	Hazardous Waste, #11241 Waste Water, #11241 CLP, #11241	AFCEE	

(CN10208)

QUALITY CONTROL REPORT

METHOD BLANK

Method: Priority Pollutant Metals
Units: ug/L (ppb)

Date Analyzed: 10/26/94
Date Digested: 10/26/94
Batch Number: 941026-4501

Analyte	Reporting Limit	Concentration
Mercury (Hg)/7470	0.2	BRL

(CN10208)

QUALITY CONTROL REPORT

Laboratory Control Sample
Metals

LP: 10208

Date of Analysis: 10/26/94

Date of Digestion: 10/26/94

Batch #: 941026-4501

Instrument #: PS200

Spike Sample ID: LCSW

Spike ID Code: W4-8059

Matrix: Water Units: ug/L

METALS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC	(f) SPIKE DUP. REC.%	(g) RPD %	ACCEPTANCE LIMITS REC%	ACCEPTANCE LIMITS RPD
Hg	0	1.00	1.06	106	NA	NA	NA	80 - 120	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

ABBREVIATIONS USED IN THIS REPORT

BRL	Below Reporting Limit
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
RPD	Relative Percent Difference
NS	Not Specified
NA	Not Applicable

COMMENTS

Test methods may include minor modifications of published EPA methods (e.g., reporting limits or parameter lists). Reporting limits are adjusted to reflect dilution of the sample when appropriate. Solids and waste are analyzed with no correction made for moisture content.

(CN10208)

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3010 {a}

Project Name: *Mariner Square*

Sample Description: *MW-8*

Sample Number: *260470*

Date Received: *09/29/94*

Project Number: *040601316000*

Lab Project-ID Number: *10208-4*

Date Sampled: *09/27/94*

Date Digested: *10/26/94*

Batch Number: *941026-4501*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Mercury (Hg)/7470	10/26/94	BRL	0.2

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Lead, Selenium, Thallium, and Mercury. EPA Method 3020 is used for Arsenic, Selenium, Lead, and Thallium digestion. EPA Method 7470 is used for Mercury digestion.

Only the requested analyte is reported.

Approved by: [signature] Date: 11/1/94

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3010 {a}

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-7*	Lab Project-ID Number:	*10208-6*
Sample Number:	*260461*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Digested:	*10/26/94*
		Batch Number:	*941026-4501*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Mercury (Hg)/7470	10/26/94	BRL	0.2

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Lead, Selenium, Thallium, and Mercury. EPA Method 3020 is used for Arsenic, Selenium, Lead, and Thallium digestion. EPA Method 7470 is used for Mercury digestion.

Only the requested analyte is reported.

Approved by: JA Date: 11/1/94

PRIORITY POLLUTANT METALS

Preparation Method: EPA 3010 {a}

Project Name:	*Mariner Square*	Project Number:	*040601316000*
Sample Description:	*MW-4*	Lab Project-ID Number:	*10208-10*
Sample Number:	*260450*	Date Sampled:	*09/27/94*
Date Received:	*09/29/94*	Date Digested:	*10/26/94*
		Batch Number:	*941026-4501*

Analyte (Symbol)/EPA Method	Date Analyzed	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Mercury (Hg)/7470	10/26/94	BRL	0.2

Comments

The cover letter and enclosures are integral parts of this report.

{a} Applies to all metals except Arsenic, Lead, Selenium, Thallium, and Mercury. EPA Method 3020 is used for Arsenic, Selenium, Lead, and Thallium digestion. EPA Method 7470 is used for Mercury digestion.

Only the requested analyte is reported.

Approved by: JH Date: 11/1/94

096

MBT Environmental Laboratories

Master Builders Technologies

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

September 26, 1994

Saul Germanas, Project Manager
McLaren Hart
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. Germanas:

Enclosed are the results from the testing of material submitted on September 20, 1994 from Project 04.0601316.000, Mariner Square.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

Amy Gray

Amy M. Gray
Chemist

AMG/dp

Enclosures

FAX: (510) 521-1547

QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 8020 (BTEX) Date Analyzed: 10/06/94
Units: ug/L (ppb)

Analyte	Reporting Limit	Concentration
Benzene	0.30	BRL
Toluene	0.30	BRL
Ethylbenzene	0.30	BRL
1,2-Xylene	0.30	BRL
1,3-Xylene	0.30	BRL
1,4-Xylene	0.30	BRL

Surrogate	% Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	94	63 - 134

Laboratory Control Sample/Laboratory Control Sample Duplicate Method 8020

LP#: 10208

Spike Sample ID: 1005-LCSW

Date Of Analysis: 10/05/94

Spike ID Code: W-1-937

Column: DBWax

Surrogate ID Code: W-1-981

Instrument #: 6

Matrix: Water Units: ug/L

EPA METHOD	COMPOUNDS	(a) SAMPLE CONC.	(b) SPIKE CONC.	(c) SAMPLE + SPIKE CONC.	(d) SPIKE REC.%	(e) SAMPLE DUP. + SPIKE CONC.	(f) SPIKE DUP. REC. %	(g) RPD%	ACCEPTANCE LIMITS % REC.	ACCEPTANCE LIMITS RPD
8020	Chlorobenzene	0	4.00	4.18	104	4.24	106	1	69 - 131	≤20
8020	Benzene	0	4.00	4.38	110	4.37	109	0	72 - 134	≤20
8020	Ethyl Benzene	0	4.00	4.03	101	4.06	102	1	72 - 128	≤20

Spike Recovery = d = ((c-a)/b) x 100
Spike Duplicate Recovery = f = ((e-a)/b) x 100
Relative Percent Difference = g = (|c-e|)/((c+e) x .5) x 100

EPA METHOD	SURROGATE COMPOUNDS	DET.	(h) SUR. SPIKE CONC.	(i) SAMPLE + SUR. SPIKE CONC.	(j) SUR. REC. %	(k) SAMPLE DUP. + SUR.SPIKE CONC.	(l) SUR. DUP. RECOVERY %	ACCEPTANCE LIMITS % REC.
8020	a,a,a-Trifluorotoluene	PID	4.00	4.12	103	4.16	104	63 - 134

Surrogate % Recovery = j = (i/h) x 100
Surrogate Dup % Recovery = l = (k/h) x 100

Date of Report: September 26, 1994
Date Received: September 20, 1994
Project: 04.0601316.000, Mariner Square

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID) AND ELECTRON CAPTURE DETECTOR (ECD)

Sample ID	GC Characterization
52467	The GC trace using the flame ionization detector (FID) and the GC electron capture detector (ECD) trace **showed an absence of volatile and semi-volatile** compounds. The detection limit for this analysis is 20, 50 and 100 ppm for gasoline, diesel and motor oil, respectively. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second internal standard peak seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.
52468	The GC trace using the flame ionization detector (FID) and the GC electron capture detector (ECD) trace **showed an absence of volatile and semi-volatile** compounds. The detection limit for this analysis is 20, 50 and 100 ppm for gasoline, diesel and motor oil, respectively. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second internal standard peak seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.
52469	The GC trace using the flame ionization detector (FID) showed the presence of high boiling compounds. The patterns displayed by these peaks are indicative of **motor oil or lubricating oil.** The high boiling compounds appeared as a broad hump eluting from n-C_{16} to beyond n-C_{35} showing a maximum near n-C_{28}. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second internal standard peak seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.

Handwritten beside 52467: no detectable concentrations of gas, diesel or motor oil

Handwritten beside 52468: no detectable concentrations of gas, diesel and motor oil

Date of Report: September 26, 1994
Date Received: September 20, 1994
Project: 04.0601316.000, Mariner Square

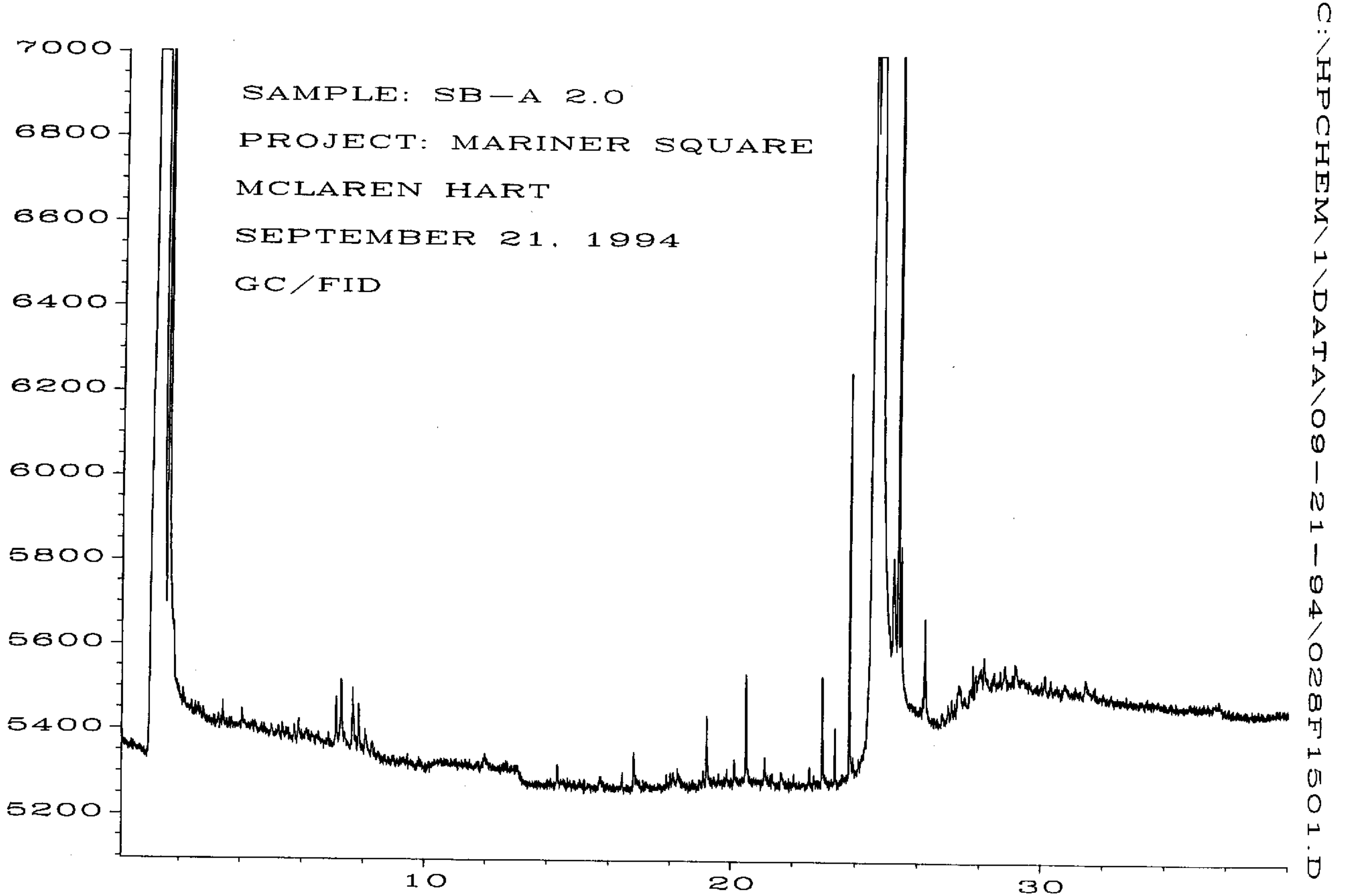
RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID) AND ELECTRON CAPTURE DETECTOR (ECD)

Sample ID	GC Characterization
52470	The GC trace using the flame ionization detector (FID) showed the presence of high boiling compounds. The patterns displayed are at a level too low to easily identify. The boiling range suggests it may be a motor oil or lubricating oil. The high boiling compounds appeared as a broad hump eluting from n-C_{20} to n-C_{30} showing a maximum near n-C_{28}. The material was present at our detection limit and may be due to carryover from a previous injection. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second internal standard peak seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.
52471	The GC trace using the flame ionization detector (FID) showed the presence of medium and high boiling compounds. The patterns displayed by these peaks are indicative of hydraulic oil or Bunker C, and/or motor oil or a lubricating oil. The material appeared as a broad hump eluting from n-C_{10} to beyond n-C_{35}. A lack of a dominant pattern of n-alkanes was seen for this material. The GC/ECD trace showed the presence of halogenated and/or highly oxidized compounds. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second internal standard peak seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.

Date of Report: September 26, 1994
Date Received: September 20, 1994
Project: 04.0601316.000, Mariner Square

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID) AND ELECTRON CAPTURE DETECTOR (ECD)

Sample ID	GC Characterization
52472	The GC trace using the flame ionization detector (FID) showed the presence of high boiling compounds. The patterns displayed by these peaks are indicative of motor oil or lubricating oil. The high boiling compounds appeared as a broad hump of an unresolved pattern of peaks eluting from n-C_{20} to beyond n-C_{35} showing a maximum near n-C_{28}. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second internal standard peak seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.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PROJECT: MARINER SQUARE
MCLAREN HART
SEPTEMBER 21, 1994
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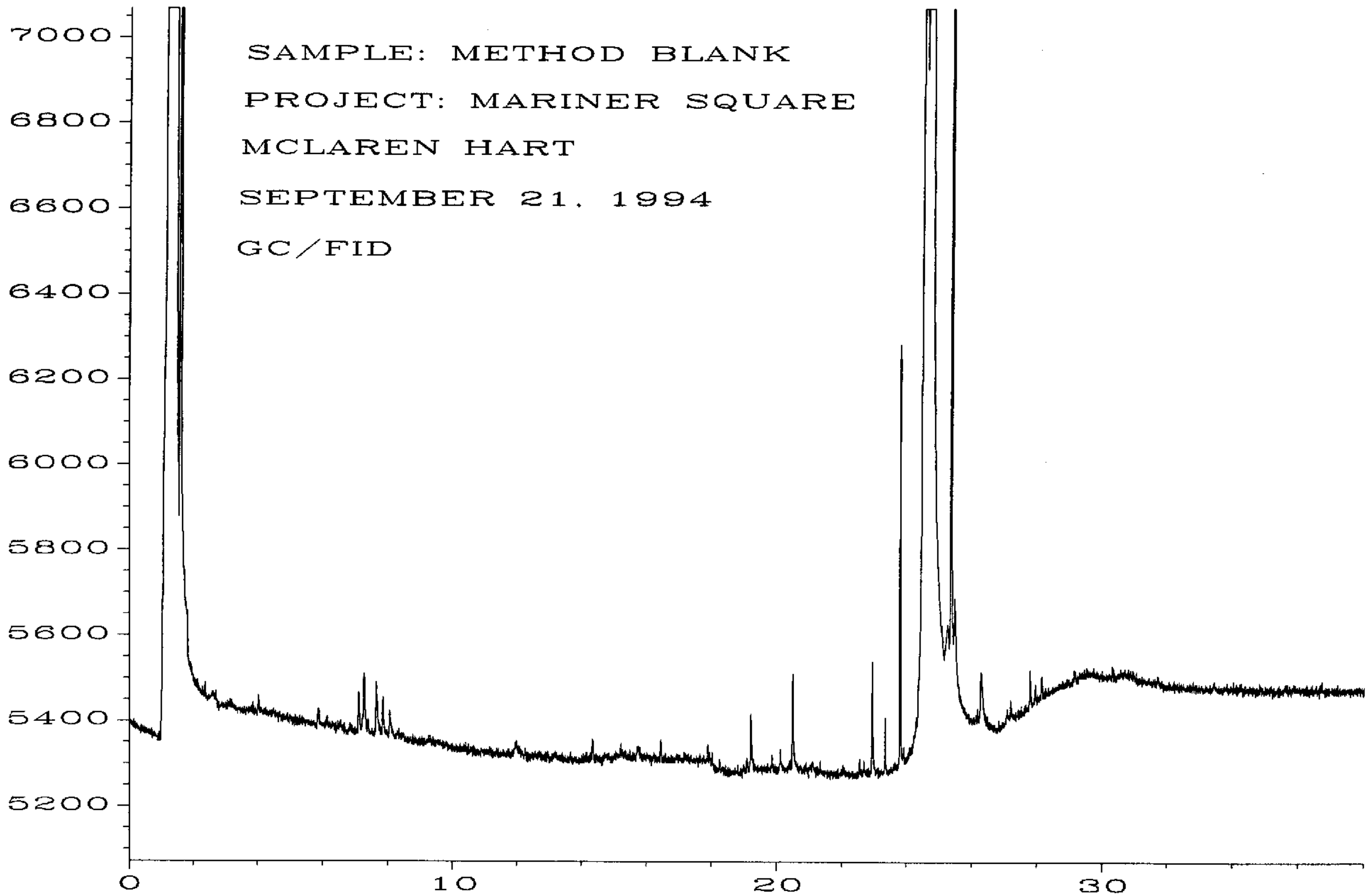

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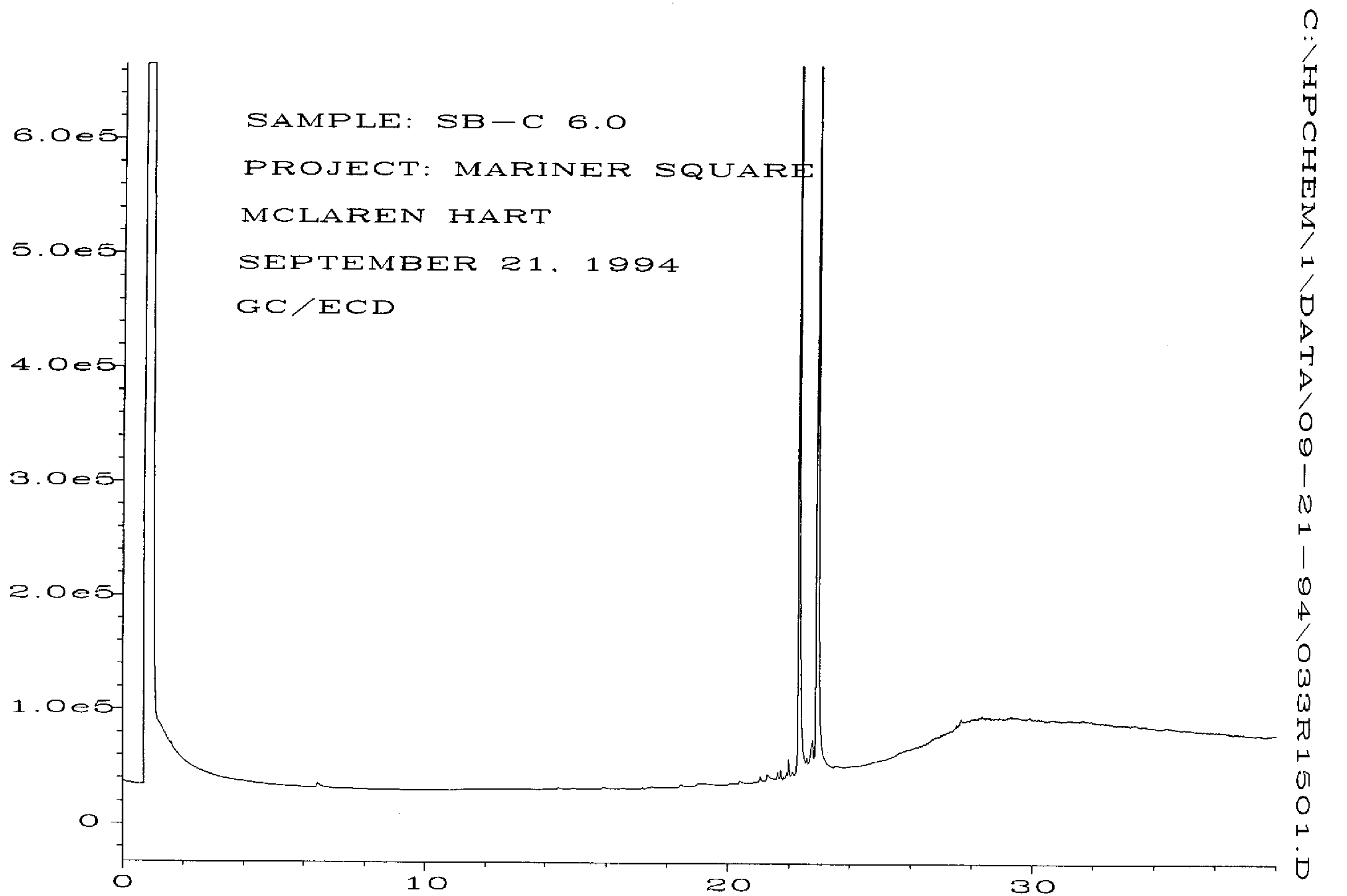

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MCLAREN HART
SEPTEMBER 21, 1994
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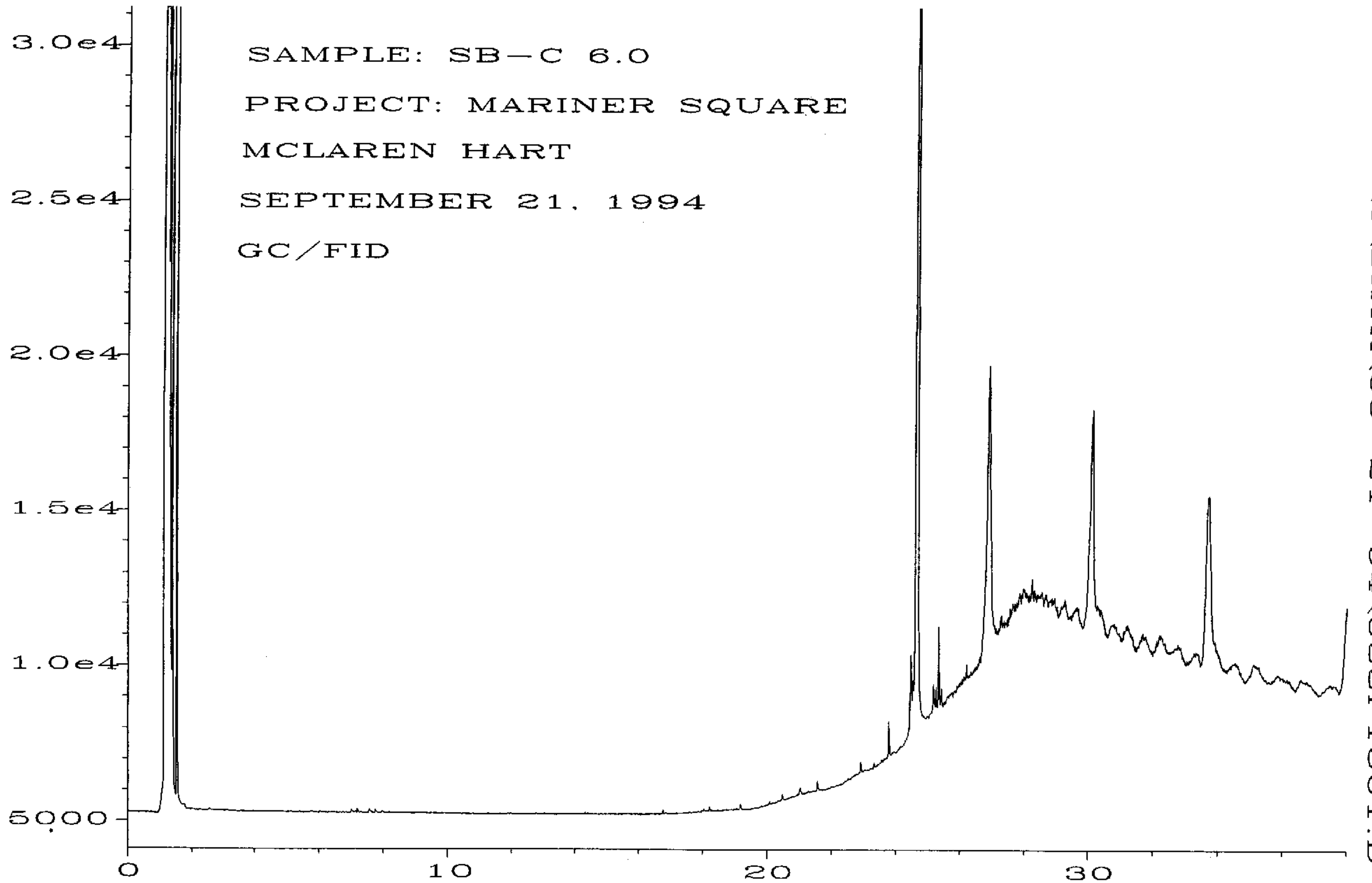
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SEPTEMBER 21, 1994
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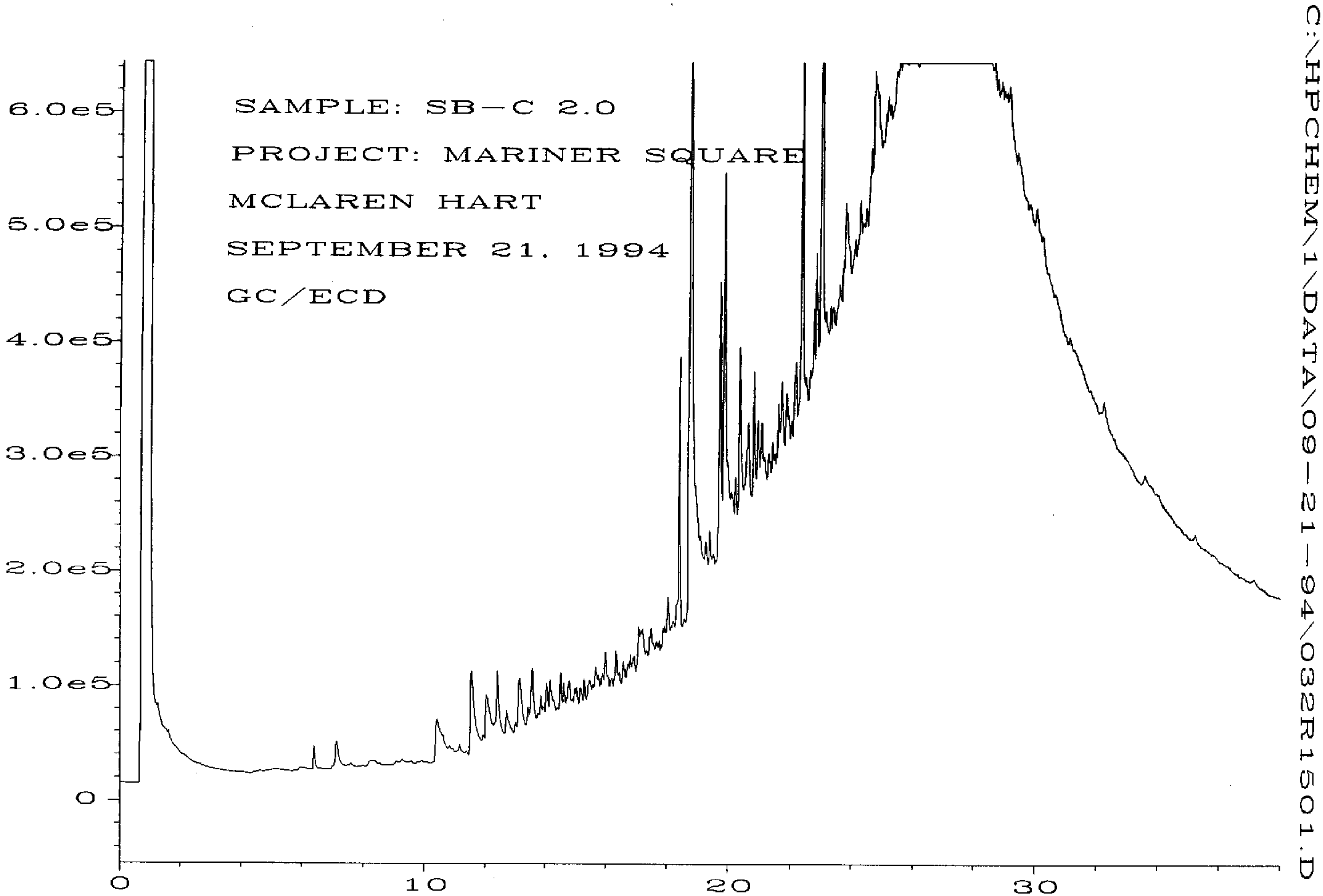
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MCLAREN HART
SEPTEMBER 21, 1994
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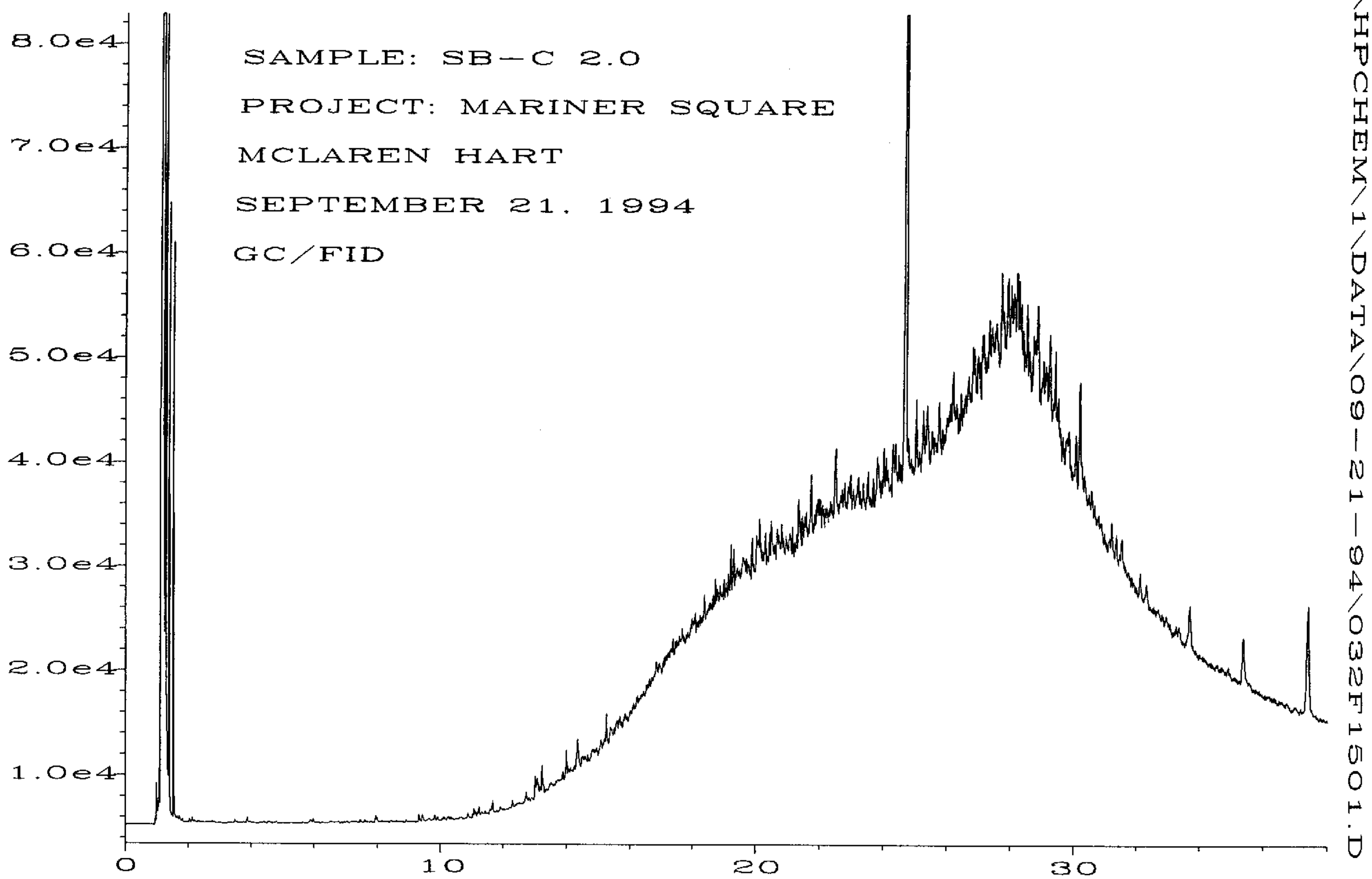
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MCLAREN HART
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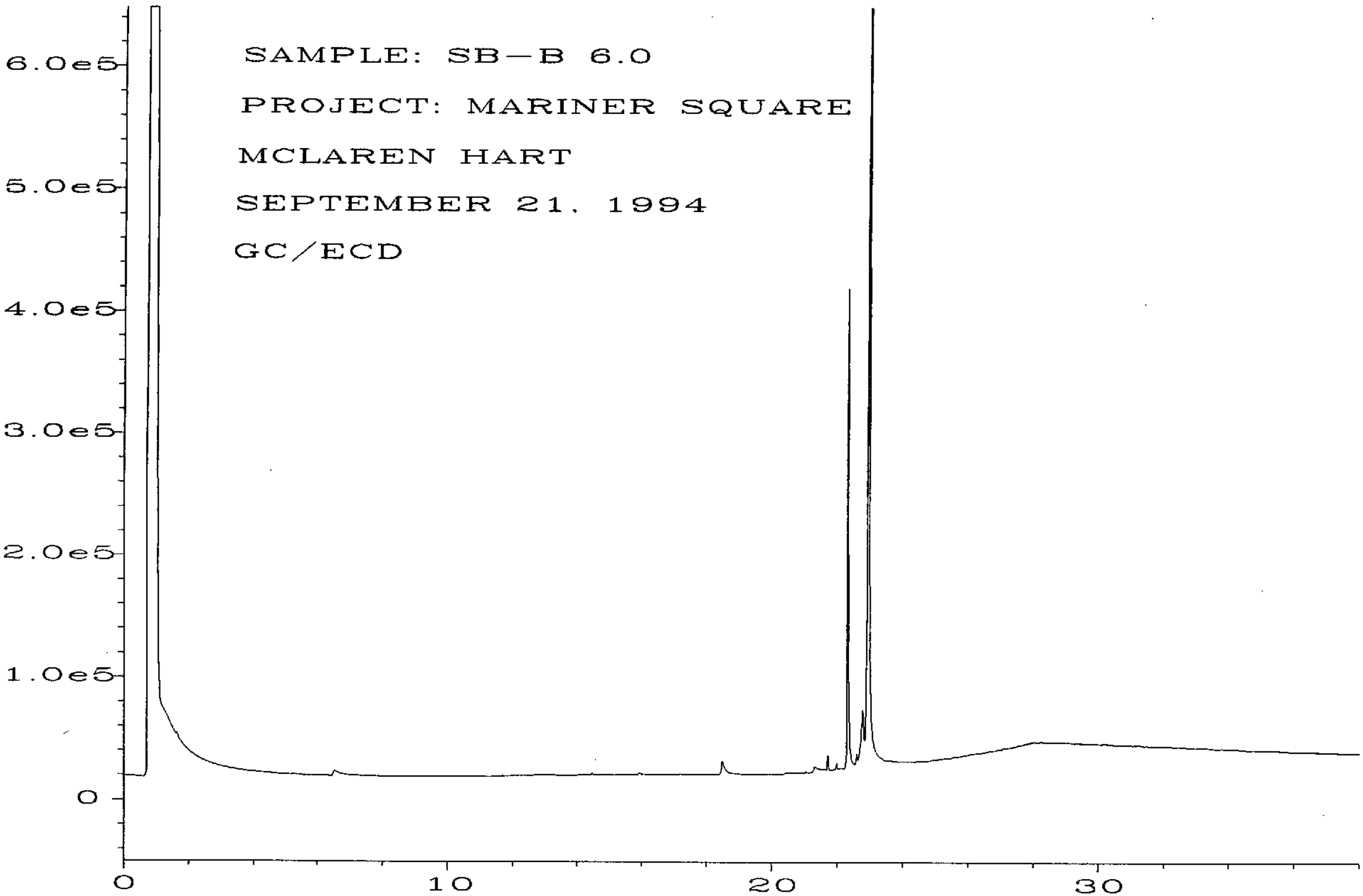

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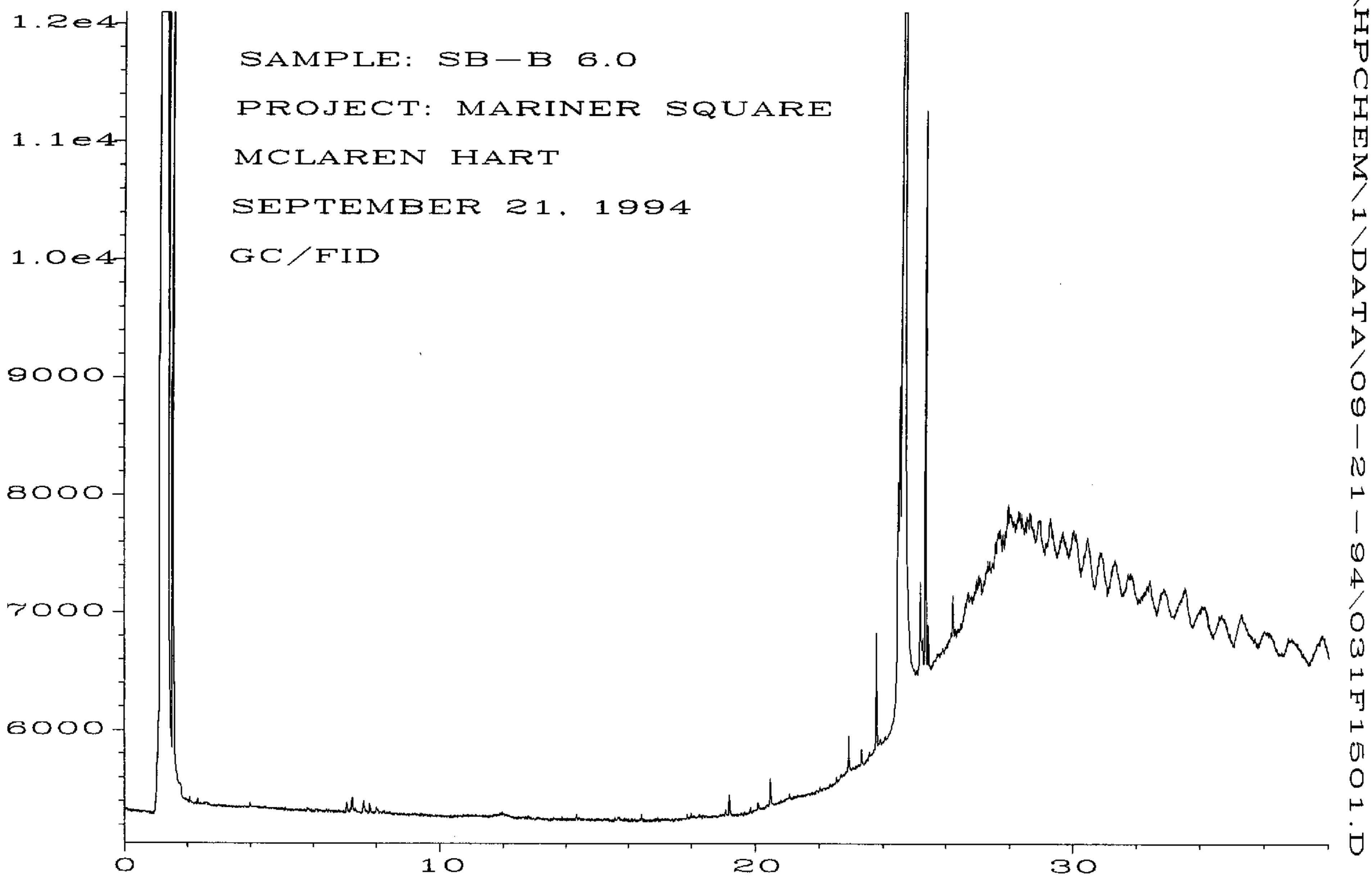

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MCLAREN HART
SEPTEMBER 21, 1994
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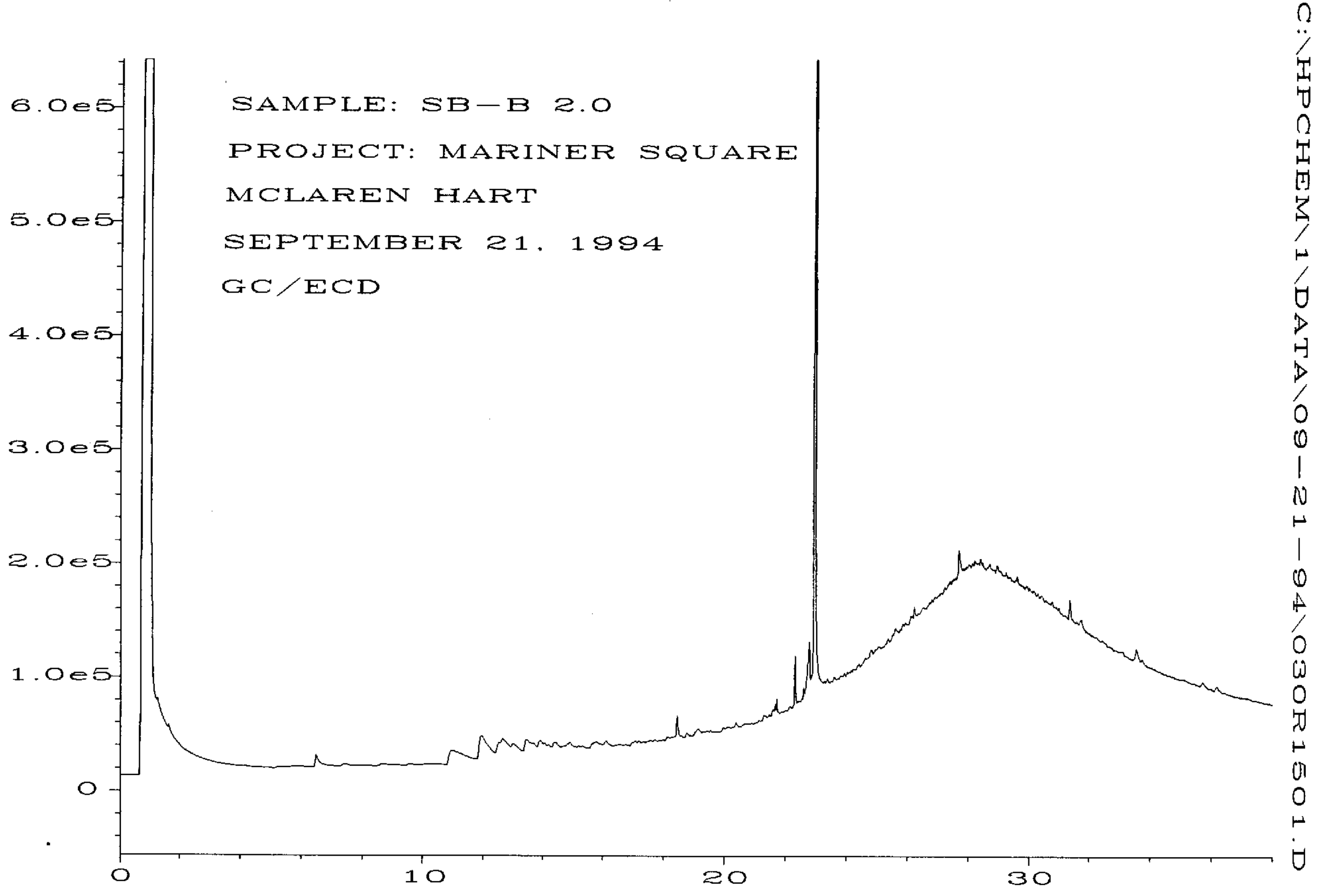

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MCLAREN HART
SEPTEMBER 21, 1994
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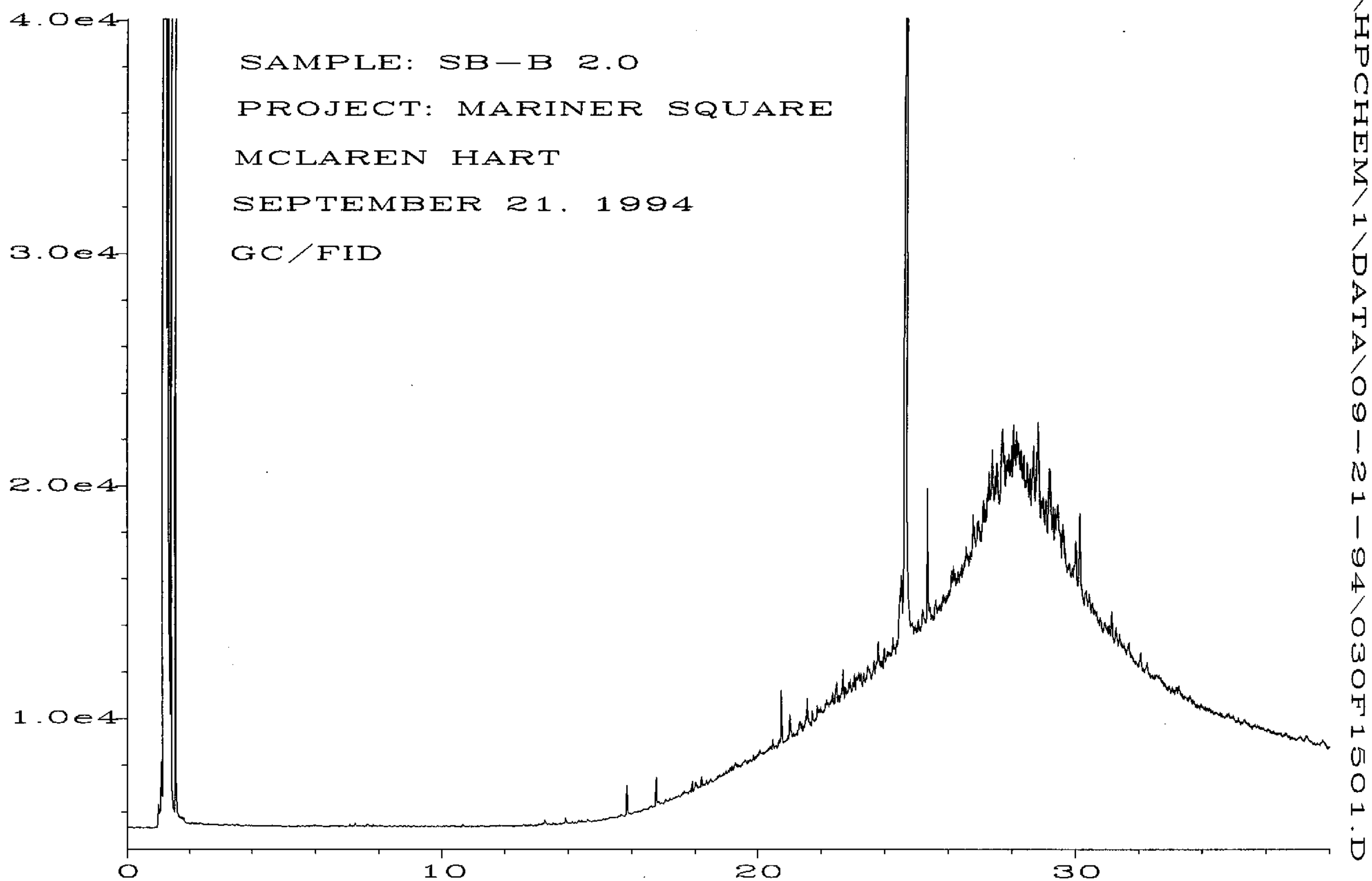
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MCLAREN HART
SEPTEMBER 21. 1994
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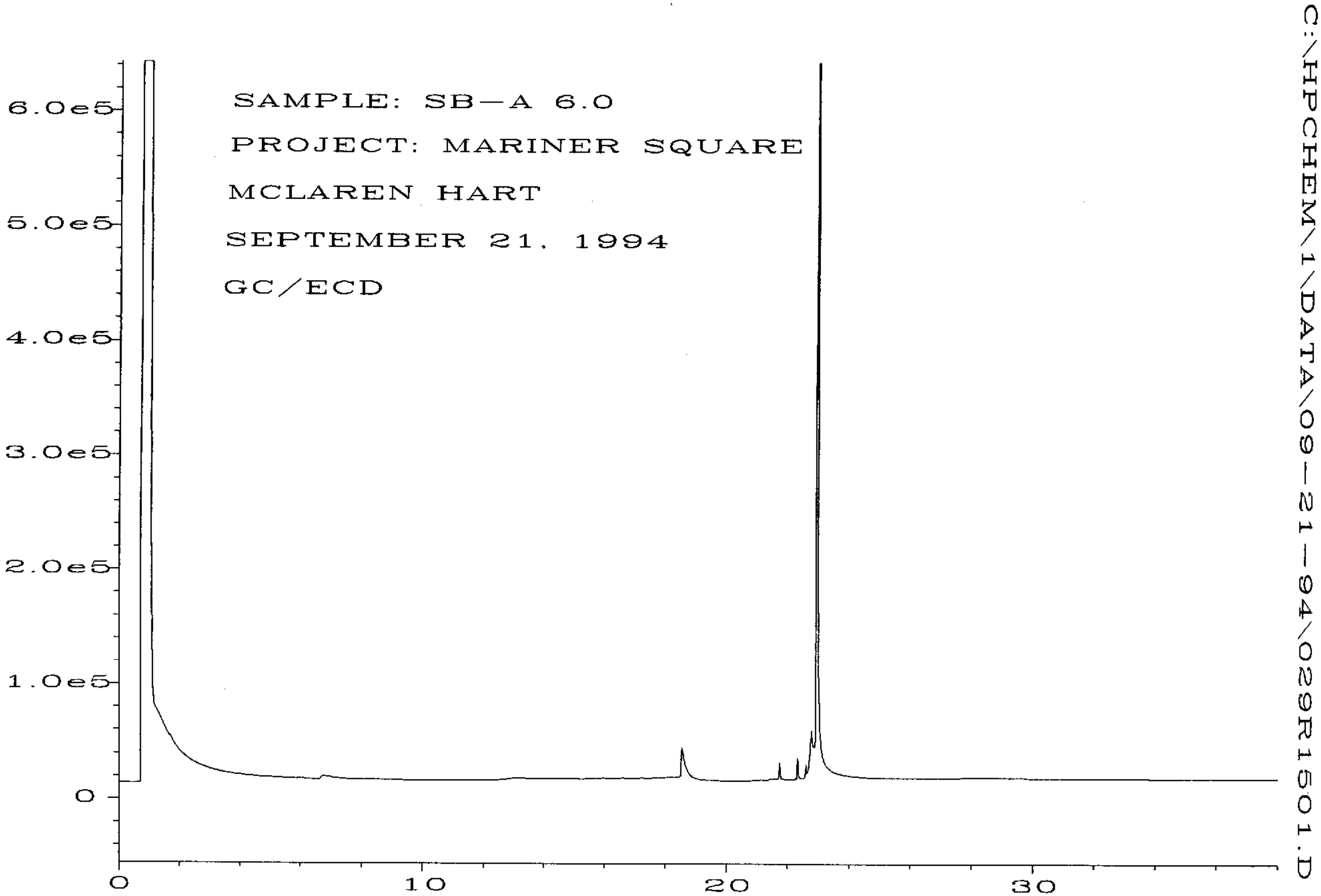
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PROJECT: MARINER SQUARE
MCLAREN HART
SEPTEMBER 21, 1994
GC/ECD
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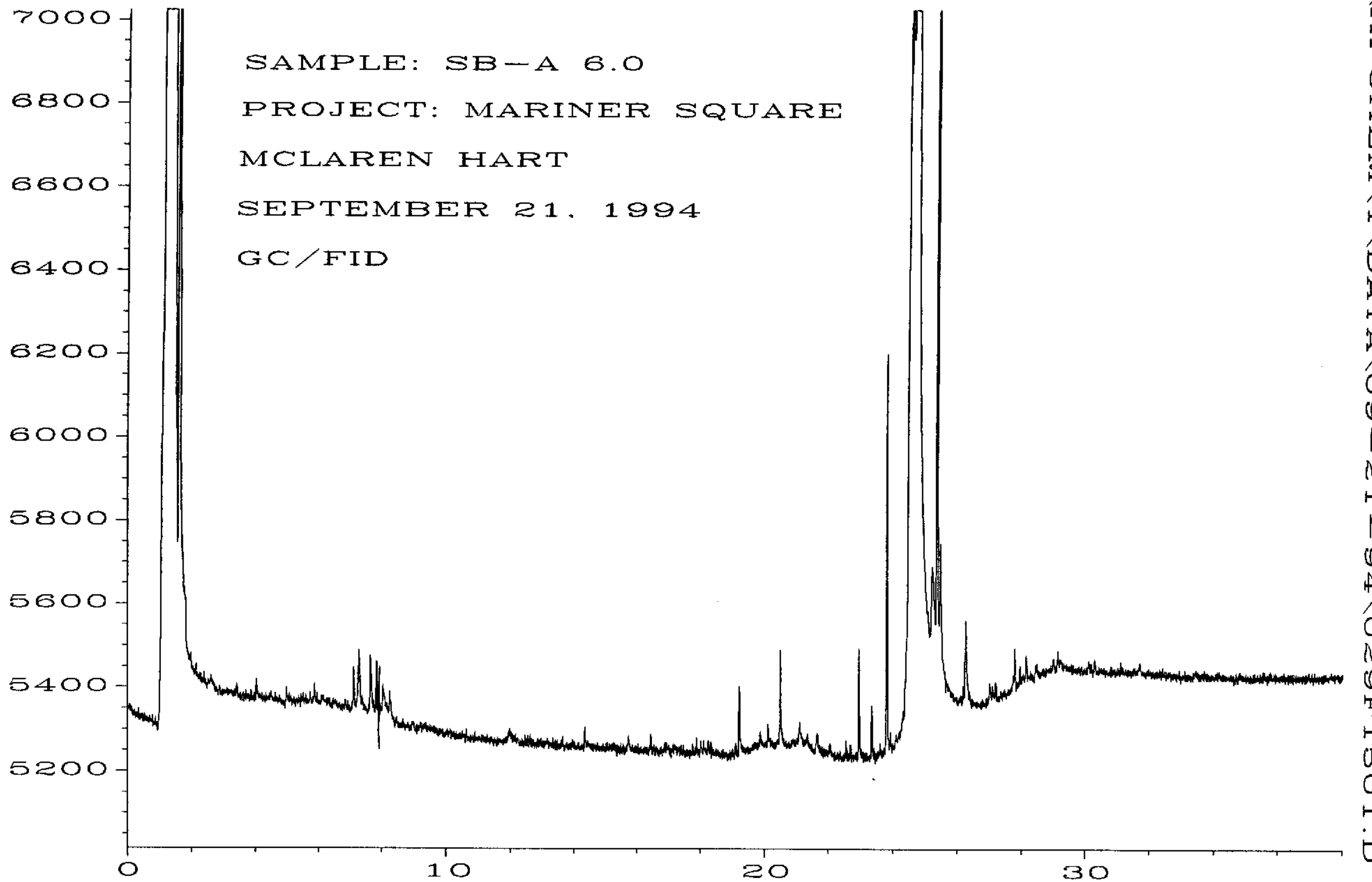
SAMPLE: SB-A 6.0
PROJECT: MARINER SQUARE
MCLAREN HART
SEPTEMBER 21, 1994
GC/FID
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6400
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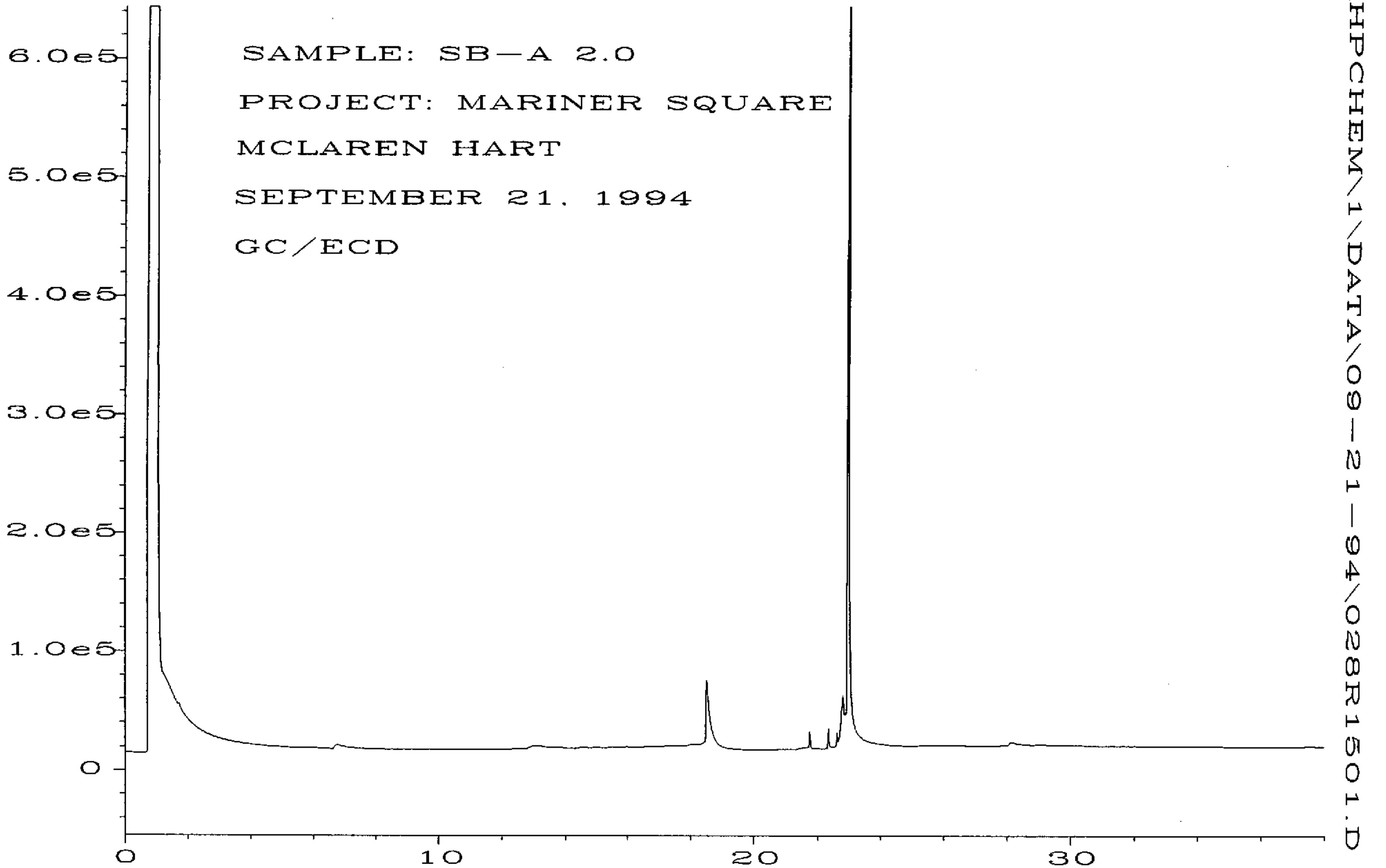
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MCLAREN HART
SEPTEMBER 21, 1994
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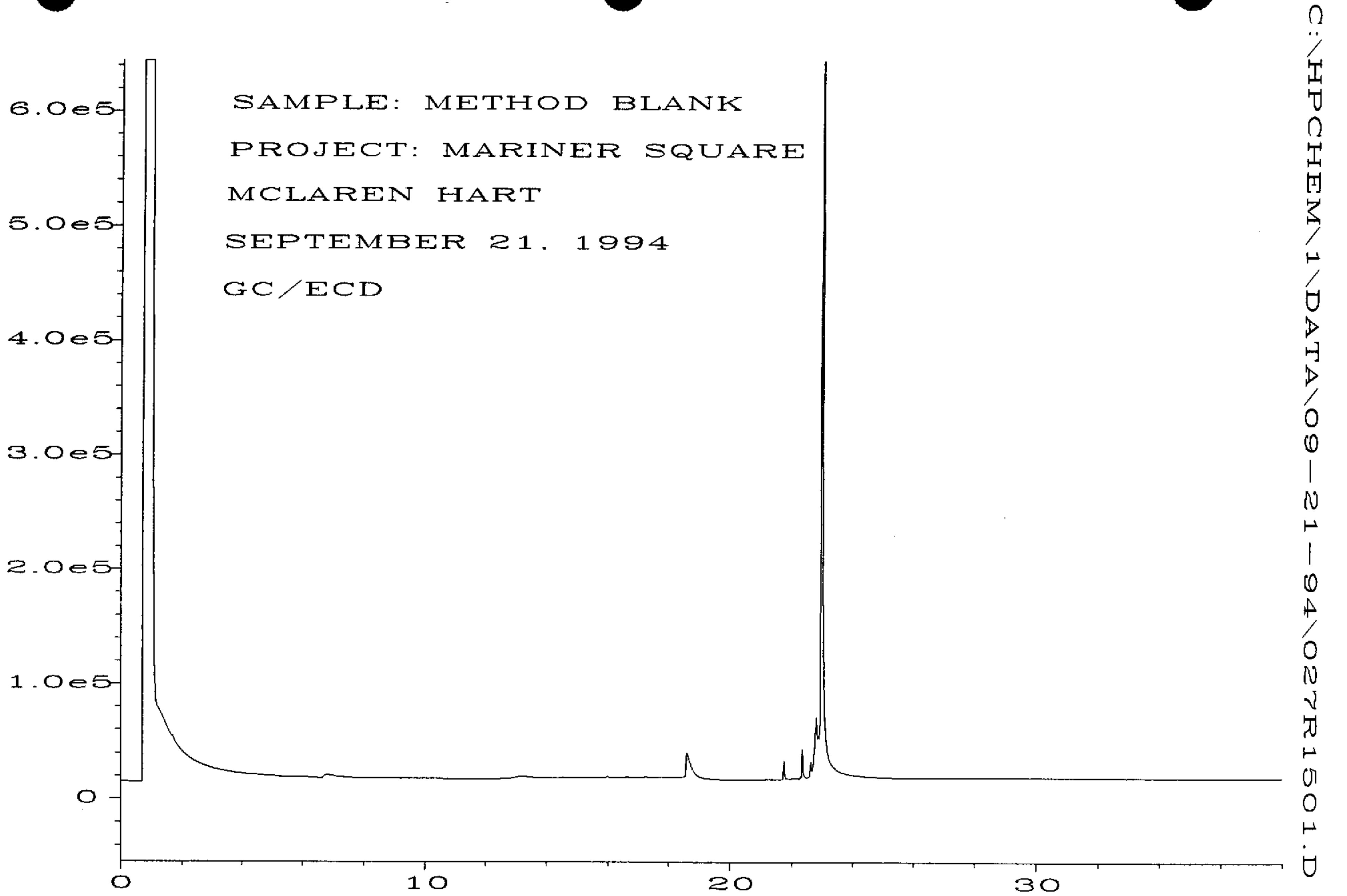

SAMPLE: METHOD BLANK
PROJECT: MARINER SQUARE
MCLAREN HART
SEPTEMBER 21, 1994
GC/ECD
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1.0e5
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0
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20
30
C:\HPCHEM\1\DATA\09-21-94\027R1501.D

SEP 21 '94 10:05 FR MCLAREN/HART ALAMEDA 510 521 1547 TO 12062835044 P.02

MBT Environmental Laboratories
3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

CHAIN OF CUSTODY RECORD 6910

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: FRIEDMAN & BRUYA
Address: 3008-B 16TH AVE WEST
SEATTLE, WA 98119

Project Name: MARINER SQUARE
Project Number: 04.0601316.000
Project Location: (State) ALAMEDA, CA

FOR LABORATORY USE ONLY
Laboratory Project #:
Storage Refrigerator ID:
Storage Freezer ID:

Sampler Name: Chris Warwick
Signature: [signature]
PPE Worn in Field: D

Relinquished By	Date/Time	Received By or Method of Shipment/Shipment I.D.	Date/Time
[signature]	09-19-94/1800	FEDX	09-19-94/1800

Sample Disposal (check one)
- [x] Laboratory Standard
- [ ] Other

Level of QC (see Side 2): [x] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6A [ ] 6B [ ] 6C [ ] 6D [ ] 6E [ ] 6F [ ] 7 [ ] 8

Write in Analysis Method →

ANALYSES REQUESTED

SAMPLE INFORMATION

FOR LABORATORY USE ONLY Lab ID	Sample ID Number	Date	Time	Locator	Depth	Container #	Container Type	Matrix Type	Pres. Type	TAT	BOISM-INDOOR SPECIATION
1	52467	9/15/94	—	SB-A	2.0	1	B	SOIL	ICE	4	✓
2	52468	↓	—	SB-A	6.0	↓	↓	↓	↓	↓	✓
3	52469	9/16/94	—	SB-B	2.0						✓
4	52470	↓	—	SB-B	6.0						✓
5	52471		—	SB-C	2.0						✓
6	52472	↓	—	SB-C	6.0						✓
7											
8	CW										
9	09-21-94										
10											

Special Instructions/Comments:

Container Types: A=1 Liter Amber, B=Brass Tube, C=Cassette, G=Glass Jar, P=Polyethylene, O=Other, V=Voa Vial

TAT (Analytical Turn Around Time): 1 = 24 hours, 2 = 48 hours, 3 = 1 week, 4 = 2 weeks, 0 = Other

FOR LABORATORY USE ONLY Sample Condition Upon Receipt:

SEND DOCUMENTATION AND RESULTS TO (Check one):
- [x] Project Manager/Office: SAM GERMANAS
- [ ] Client Name: McLAREN/HART

Company: 1135 ATLANTIC AVE
Address: ALAMEDA, CA 94501
Phone: (510) 748-5628 FAX: (510) 521-1547

Common Analytical Methods: 413.1, 413.2 Long Method, 413.2 Short Method, 418.1 Long Method, 418.1 Short Method, 420.1, 602.2, 503E, 503.1, 524.2, 601, 602, 604, 608, 610, 624, 625, 8010, 8015, 8015 Mod., 8020, 8021, 8040, 8080, 8100, 8150, 8240, 8270, 8310, Acidity, Alkalinity, BTEX, Chloride, CLP (see Side 2), COD, Color, Conductivity, Corrosivity, Cyanide, Flashpoint, Fluoride, General Mineral, Hex. Chromium, Ion Balance, Metals (write specific metal & method #)*, Metals 6010*, Metals PP*, Metals Title 22: TTLC Level, STLC Level (see Side 2), Nitrate, Nitrite, Odor, Org. Lead, Org. Mercury, Percent Moisture, Percent Solid, Perchlorate, pH, Phosphates, Phosphorus, Sulfate, Sulfides, TCLP: VOA, Semivoa, Metals, Pesticide, TDS, Total Hardness, Total Solids, TPH/D, TPH/G, Turbidity

*Specify Total or Dissolved

Environmental Laboratories
3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

CHAIN OF CUSTODY RECORD

09.AMG.AO 09/20/94 10:30

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: FRIEDMAN & BRUYA
Address: 3008-B 16TH AVE WEST
SEATTLE, WA 98119

Project Name: MARINER SQUARE
Project Number: 04.0601316.000
Project Location: (State) ALAMEDA, CA

FOR LABORATORY USE ONLY
Laboratory Project #:
Storage Refrigerator ID:
Storage Freezer ID:

Sampler Name: CHRIS WARWICK
Signature: C Warwick
PPE Worn in Field: D

Relinquished By: C Warwick — Date/Time: 09-19-94/1800 — Received By or Method of Shipment/Shipment I.D.: FED X — Date/Time: 09-19-94/1800
Relinquished By: — Date/Time: — Received By or Method of Shipment/Shipment I.D.: Kathy Miller PEL — Date/Time: 9/20/94-10:18
Relinquished By: — Date/Time: — Received By or Method of Shipment/Shipment I.D.: — Date/Time:

Sample Disposal (check one)
☑ Laboratory Standard
☐ Other

Level of QC (see Side 2): ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6A ☐ 6B ☐ 6C ☐ 6D ☐ 6E ☐ 6F ☐ 7 ☐ 8

Write in Analysis Method →

ANALYSES REQUESTED

SAMPLE INFORMATION

FOR LABORATORY USE ONLY Lab ID	Sample ID Number	Date	Time	Description: Locator	Description: Depth	Container(s): #	Container(s): Type	Matrix Type	Pres. Type	TAT	8015M-HYDROCARBON SPECIATION
1 53098				SB-A	2.0	1	B	SOIL	ICE	4	✓
2 53099				SB-A	6.0	|	|	|	|	|	✓
3 53100				SB-B	2.0	|	|	|	|	|	✓
4 53101				SB-B	6.0	|	|	|	|	|	✓
5 53102				SB-C	2.0	|	|	|	|	|	✓
6 53103				SB-C	6.0	|	|	|	|	|	✓
7											
8											
9											
10											

Special Instructions/Comments:

Container Types: B=Brass Tube, G=Glass Jar, O=Other, A=1 Liter Amber, C=Cassette, P=Polyethylene, V=Voa Vial

TAT (Analytical Turn Around Time): 1 = 24 hours, 2 = 48 hours, 3 = 1 week, 4 = 2 weeks, 0 = Other

FOR LABORATORY USE ONLY Sample Condition Upon Receipt:

SEND DOCUMENTATION AND RESULTS TO (Check one):
☑ Project Manager/Office: SAM GERMANAS
☐ Client Name: MCLAREN/HART
Company: 1135 ATLANTIC AVE
Address: ALAMEDA, CA 94501
Phone (510) 748-5628 FAX: (510) 521-1547

Common Analytical Methods
413.2 Long Method
413.2 Short Method
418.1 Long Method
418.1 Short Method
420.1
502.2
503E
503.1
524.2
601
602
604
608
610
624
625
8010
8015
8015 Mod.
8020
8021
8040
8080
8100
8150
8240
8270
8310
Acidity
Alkalinity
BTEX
Chloride
CLP (see Side 2)
COD
Color
Conductivity
Corrosivity
Cyanide
Flashpoint
Fluoride
General Mineral
Hex. Chromium
Ion Balance
Metals (write specific metal & method #)*
Metals 6010*
Metals PP*
Metals Title 22: TTLC Level, STLC Level (see Side 2)
Nitrate
Nitrite
Odor
Org. Lead
Org. Mercury
Percent Moisture
Percent Solid
Perchlorate
pH
Phosphates
Phosphorus
Sulfate
Sulfides
TCLP: VOA, Semivoa, Metals, Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
TSS
Turbidity

* Specify Total or Dissolved

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

October 12, 1994

Saul Germanas, Project Leader
McLaren Hart
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. Germanas:

Enclosed are the results from the additional testing of material submitted on September 20, 1994 from your 04.0601316.00, Mariner Square project.

As we discussed, these samples have fallen out of holding time. We have re-extracted the samples to include the quality assurance and quality control data and have enclosed the results of the analyses. The results from quantification of the samples which were extracted September 20, 1994 for the GC characterization are also included for comparison. I hope the combination of these results will satisfy your project's needs.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Amy Gray

Amy M. Gray
Chemist

jdp
Enclosures

Date of Report: October 12, 1994
Date Received: September 20, 1994
Project: 04.0601316.00, Mariner Square
Date Samples Extracted: October 10, 1994
Date Extracts Analyzed: October 10, 1994

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLE FOR BUNKER C

Results Reported as µg/g (ppm)

Sample ID	Bunker C	TPH as Motor Oil	InternalStandard (% Recovery)
SB-C	8,700	9,200[a]	90%
Quality Assurance			
Blank	<50	<50	89%
SB-C (Duplicate)	9,700	na	93%
SB-C (Matrix Spike) % Recovery	ai	na	94%
SB-C (Matrix Spike Duplicate) % Recovery	ai	na	92%
Spike Blank % Recovery	64%	na	92%
Spike Level	2,500	na	

[a] This sample was calculated using motor oil standards. It was analyzed and extracted on September 20, 1994.
[na] This quality assurance was not available from the GC characterization analysis run September 20, 1994.
[ai] The amount spiked was insufficient to give meaningful recovery data.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

October 24, 1994

Saul Germanas, Project Leader
McLaren Hart
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. Germanas:

Enclosed are the amended results from the additional testing of material submitted on September 20, 1994 from your 04.0601316.00, Mariner Square project. The report was amended to correct the sample identification.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Amy Gray

Amy M. Gray
Chemist

jdp
Enclosures

MH11012X

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

AMENDED 10-24-94

Date of Report: October 12, 1994
Date Received: September 20, 1994
Project: 04.0601316.00, Mariner Square
Date Samples Extracted: October 10, 1994
Date Extracts Analyzed: October 10, 1994

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLE FOR BUNKER C

Results Reported as μg/g (ppm)

Sample ID	Bunker C	TPH as Motor Oil	InternalStandard (% Recovery)
SB-C 2.0	8,700	9,200[a]	90%
Quality Assurance			
Blank	<50	<50	89%
SB-C 2.0 (Duplicate)	9,700	na	93%
SB-C 2.0 (Matrix Spike) % Recovery	ai	na	94%
SB-C 2.0 (Matrix Spike Duplicate) % Recovery	ai	na	92%
Spike Blank % Recovery	64%	na	92%
Spike Level	2,500	na	

[a] This sample was calculated using motor oil standards. It was analyzed and extracted on September 20, 1994.

[na] This quality assurance was not available from the GC characterization analysis run September 20, 1994.

[ai] The amount spiked was insufficient to give meaningful recovery data.

MBT Environmental Laboratories
3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

09 . Amg . 19
09/20/94
10:30

CHAIN OF CUSTODY RECORD

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: FRIEDMAN & BRUYA
Address: 3008-B 16TH AVE WEST
SEATTLE, WA 98119

Project Name: MARINER SQUARE
Project Number: 94.060.316.000
Project Location: (State) ALAMEDA, CA

FOR LABORATORY USE ONLY
Laboratory Project #
Storage Refrigerator ID:
Storage Freezer ID:

Sampler Name: CHRIS WARWICK
Signature: C Warwick
PPE Worn in Field: D

Relinquished By: C Warwick — Date/Time: 09-19-94/1800 — Received By or Method of Shipment/Shipment ID: FEDX — Date/Time: 09-19-94/1800
Relinquished By: — Date/Time: — Received By or Method of Shipment/Shipment ID: Kathy Miller FBL — Date/Time: 9/20/94 - 10:18
Relinquished By: — Date/Time: — Received By or Method of Shipment/Shipment ID: — Date/Time:

Sample Disposal (check one)
☑ Laboratory Standard
☐ Other

Level of QC (see Side 2): ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6A ☐ 6B ☐ 6C ☐ 6D ☐ 6E ☐ 6F ☐ 7 ☐ 8

Write in Analysis Method →

ANALYSES REQUESTED

SAMPLE INFORMATION

FOR LABORATORY USE ONLY Lab ID	Sample ID Number	Date	Time	Description: Locator	Description: Depth	Container(s): #	Container(s): Type	Matrix Type	Pres. Type	TAT	8015M-HYDROCARBON SPECIATION
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2 53099				SB-A	6.0	|	|	|	|	|	✓
3 53100				SB-B	2.0	|	|	|	|	|	✓
4 53101				SB-B	6.0	|	|	|	|	|	✓
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6 53103				SB-C	6.0	|	|	|	|	|	✓
7											
8											
9											
10											

Special Instructions/Comments:

Container Types: A-1 Liter Amber; B-Brass Tube; C-Cassette; G-Glass Jar; P-Polyethylene; O-Other; V-Voa Vial

TAT (Analytical Turn Around Time): 1 = 24 hours; 2 = 48 hours; 3 = 1 week; 4 = 2 weeks; 0 = Other

FOR LABORATORY USE ONLY Sample Condition Upon Receipt:

SEND DOCUMENTATION AND RESULTS TO (Check one):
☑ Project Manager/Office: SAM GERMANAS
☐ Client Name: MCLAREN/HART
Company: 1135 ATLANTIC AVE
Address: ALAMEDA, CA 94501
(510) 742 ...

Common Analytical Methods
413.2 Long Method
413.2 Short Method
418.1 Long Method
418.1 Short Method
420.1
502.2
503E
503.1
524.2
601
602
604
608
610
624
625
8010
8015
8015 Mod
8020
8021
8040
8080
8100
8150
8240
8270
8310
Acidity
Alkalinity
BTEX
Chloride
CLP (see Side 2)
COD
Color
Conductivity
Corrosivity
Cyanide
Flashpoint
Fluoride
General Mineral
Hex. Chromium
Ion Balance
Metals (write specific metal & method #)
Metals 6010
Metals PP
Metals Title 22
TTLC Level
STLC Level
(see Side 2)
Nitrate
Nitrite
Odor
Org. Lead
Org. Mercury
Percent Moisture
Percent Solid
Perchlorate
pH
Phosphates
Phosphorus
Sulfate
Sulfides
TCLP:
VOA
Semivoa
Metals
Pesticide
TDS
Total Hardness
Total Solids
TPHD
TPHG

WESTERN ATLAS

Core Laboratories

September 28,1994

Western Atlas
International, Inc.
3430 Unicorn Road
Bakersfield, CA 93308
Tel 805-392-8600
Fax 805-392-0824

Sol Germanus
McLaren/Hart
1135 Atlantic Ave
Alameda, CA 94501

Subject: Transmittal of Geotechnical Analysis Data
Mariner Square
Project #: 04.0601316.000
CL File No. : 094219

Dear Mr. Germanus:

Soil core samples were submitted to our Bakersfield laboratory for geotechnical analysis. The analysis requested included total permeability to air, total porosity, fluid saturation, and intrinsic permeability. Accompanying this letter, please find the results of this study.

Horizontal permeability to air, total porosity, fluid saturation and bulk density were determined as described in API RP-40, API Recommended Practice for Core-Analysis Procedure, 1960. Intrinsic permeability was determined by ASTM method D-4525. Please note that intrinsic permeability was not determined for sample 52473 (SB-A). The permeability of that sample was very high so that the corresponding pressure differential across the sample was very low, we were unable to vary the pressure differential across the sample enough to generate dependable data. At permeabilities of this magnitude, the intrinsic permeability is essentially equal to the specific permeability to air.

We appreciate this opportunity to be of service to you and to McLaren/Hart. Should you have any questions, or if we may be of further help in the future, please do not hesitate to contact us.

Very truly yours,

Jeffry L. Smith

Jeffry L. Smith
Laboratory Supervisor - Rock Properties

JLS:nw
1 original report: Addressee

WESTERN ATLAS

Core Laboratories

MCLAREN/HART

GEOTECHNICAL ANALYSIS RESULTS

PROJECT NAME : MARINER SQUARE
PROJECT # : 04.0601316.000
ALAMEDA, CALIFORNIA

CL FILE #094219

PERFORMED BY:
CORE LABORATORIES
3430 UNICORN ROAD
BAKERSFIELD, CA 93308
(805) 392-8600

FINAL REPORT PRESENTED
SEPTEMBER 28, 1994

Western Atlas International
A Litton/Dresser Company

CORE LABORATORIES

McLAREN/HART
M/H Project Name : Mariner Square
M/H Project # : 04.0601316.000
Project Location : Alameda, CA

FILE # 94219

GEOTECHNICAL ANALYSIS RESULTS

SAMPLE	LOCATOR	DEPTH ft	INTRINSIC PERMEABILITY md	SPECIFIC PERMEABILITY Kair md	POROSITY (TOTAL) %	WATER CONTENT (PV) %	DRY BULK DENSITY[1] gm/cc	NATURAL BULK DENSITY[2] gm/cc	DESCRIPTION
52473	SB-A	3.5	--[3]	15127	38.4	30.0	1.66	1.77	Sand gray vf-mgr sl slty mica
52474	SB-6	3.5	7800	7919	30.2	50.0	1.69	1.84	Sand dk gray vf-fgr sl slty

[1] Dry bulk density = (Dry Sample Mass)/(Sample Bulk Volume)

[2] Natural bulk density = (Fresh Sample Mass)/(Sample Bulk Volume)

[3] At very high permeabilities the intrinsic permeability is very difficult to determine accurately. This is due to the very low pressure differentials across the samples during measurements, however, the intrinsic permeability closely approaches the specific permeability at very low pressure differentials.

Sequoia Analytical

680 Chesapeake Drive Redwood City, CA 94063 (415) 364-9600 FAX (415) 364-9233
1900 Bates Avenue, Suite L Concord, CA 94520 (510) 686-9600 FAX (510) 686-9689
819 Striker Avenue, Suite 8 Sacramento, CA 95834 (916) 921-9600 FAX (916) 921-0100

McLaren-Hart
1135 Atlantic Avenue
Alameda, CA 94501

Attention: Saul Germanas

Client Proj. ID: Mariner Square, Alameda

Lab Proj. ID: 9409C12

Sampled: 09/15/94
Received: 09/22/94
Analyzed: see below

Reported: 09/26/94

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9409C12-01 Sample Desc : **SOLID, 52475**				
Heterotrophic Plate Count	**cfu/mg**	**09/24/94**	**1.0**	**20,000**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager