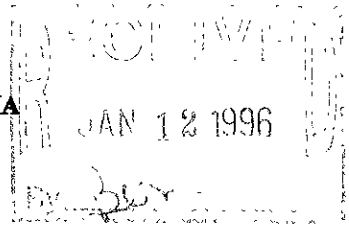
# SUPPLEMENTAL SITE INVESTIGATION

**3810 BROADWAY**
**OAKLAND, CALIFORNIA**
**JANUARY 11, 1996**

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**Project No: 04.0601879.001**



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## APPENDICES

## 1.0 INTRODUCTION

This report presents the findings of a supplemental investigation at the site ("Site") located at 3810 Broadway in Oakland, California (Figure 1). The data presented herein was collected in accordance with: 1) McLaren/Hart's August 16, 1995 "Workplan for Supplemental Site Investigation" (Workplan); 2) Workplan acceptance letter from the Alameda County Department of Environmental Health (ACDEH) dated September 14, 1995; and 3) the meeting between ACDEH and McLaren/Hart on October 12, 1995 regarding proposed monitoring well locations.

### 1.1 Purpose of Investigation

The purpose of the soil and ground water sampling and analysis was to verify ground water flow direction and to further define the potential extent of petroleum hydrocarbons in soil and ground water on-site.

### 1.2 Report Organization

This report is organized in the following format: Section 2 presents Site background information; Section 3 includes the Scope of Work performed during this investigation; Section 4 presents a detailed discussion of data collection methodology during this investigation; Section 5 identifies results of the subsurface investigation, including lithology, potentiometric surface elevation, and soil and ground water analytical results; and Section 6 presents investigation conclusions.

## 2.0 BACKGROUND

Site background information including Site history, adjacent Site description, regional geology and a discussion of previous investigation results is presented in this section.

### 2.1 Site History

The Site was owned by Texaco from 1963 to 1985. Throughout this time period, the Site was leased to various parties who utilized the facility as a retail gasoline station. Texaco sold the Site in 1985 to buyers unknown to McLaren/Hart. Mr. Gerald Friedkin, current owner of the Site, purchased the Site from the Estate of Melvin Finn in 1987.

A total of five underground storage tanks (USTs) were installed in 1963 including four 6,000-gallon USTs, and one 550-gallon UST for waste oil storage (Figure 2). It is assumed that the four larger UST's were utilized for storage of gasoline as part of the Site retail operations. These four 6,000-gallon UST's were removed from the Site in February 1980. The 550-gallon waste oil tank was removed in May 1991. Results of the soil and ground water sampling conducted at the Site by other consultants following the waste oil UST removal are discussed in greater detail in Section 2.4.

### 2.2 Site Vicinity

The Site is located in the northwestern section of the City of Oakland, within Alameda County, California (Figure 1). The surrounding area consists primarily of residential and light commercial/retail properties. A portion of the Kaiser-Permanente Hospital Complex is located at the top of a hill that borders the Site on the east. The Site is bordered to the north by residential apartments and Broadway and 38th Street to the west and south, respectively. Across Broadway are small retail shops and a retail tire center, while across 38th Street is the main portion of the Kaiser-Permanente Hospital Complex.

## 2.3 Regional Geology

The City of Oakland is located along the eastern margin of the San Francisco Bay and is within the East Bay Plain. The East Bay Plain lies within the Coast Range Geomorphic Province and is characterized by broad alluvial fan margins sloping westward towards the San Francisco Bay. The eastern side of the plain in the Oakland area is marked by the active Hayward Fault, which runs along the base of the Diablo Range escarpment.

Geologically, the Site consists primarily of artificial fill overlying unconsolidated alluvium. The alluvium generally contains fine grained sediments such as sandy silts and clays, interbedded with more transmissive well-sorted sands and silty sands. The slope of the pre-development surface was generally to the southwest. The hills bordering the Site to the east are upheld by the Franciscan Complex Cretaceous and Jurassic sandstone, shale, chert and conglomerate.

## 2.4 Previous Investigations

During removal of the 550-gallon waste-oil tank on May 17, 1991, soils containing hydrocarbons were detected and subsequently excavated and removed. Analysis of soil samples collected by Semco, the tank removal subcontractor, indicated that concentrations of total petroleum hydrocarbons as diesel (TPH/D) were present in a sidewall soil sample at 66 parts per million (ppm); concentrations of Oil and Grease (O&G) were also recorded in sidewall soil samples at a maximum concentration of 630 ppm. Additional compounds detected in the sidewall soil samples included: benzene (3 parts per billion (ppb)), xylenes (13 ppb), 1,2-dichlorobenzene (8 ppb), and methylene chloride (39 ppb). Concentrations of total petroleum hydrocarbons as gasoline (TPH/G) were not present in the sidewall soil samples above the laboratory detection limit of 1 ppm. According to Kaldveer Associates, the impacted soil was excavated and disposed of off-site.

Following receipt and review of sidewall soil sample analytical results, the ACDEH requested that one ground water monitoring well be installed in the immediate vicinity of the former waste oil tank excavation. Soil samples collected by Kaldveer Associates during the installation of well MW-1 at

10.5, 15.5, 20.5 and 25.5 feet below grade were analyzed for the presence of O&G, total recoverable petroleum hydrocarbons (TRPH), TPH/G, and benzene, toluene, ethylbenzene and xylenes (BTEX). These analytes were not present above the respective reporting limits in the samples collected from MW-1.

Ground water samples were also collected from MW-1 and analyzed for O&G, TRPH, TPH/D, total petroleum hydrocarbons as oil (TPH/O), TPH/G, BTEX, volatile organic compounds (VOCs), semi-volatile organic compounds (semi-VOCs), polychlorinated biphenyls (PCBs), pentachlorophenol (PCP), polynuclear aromatics (PNAs), creosote, and the metals cadmium, chromium, lead, nickel and zinc. Results indicated the presence of O&G (1 ppm), TPH/O (0.4 ppm), TPH/G (0.3 ppm), TPH/D (1.7 ppm), benzene (4.1 ppb), xylenes (20 ppb), 1,2-dichlorobenzene (0.7 ppb), 1,2-dichloroethane (0.7 ppb), methylene chloride (2 ppb), and low concentrations of the metals nickel and zinc.

The ACDEH required that an additional monitoring well be constructed to better define the lateral extent of contaminants in soil and ground water. Monitoring well MW-2 was installed by Kaldveer Associates in February 1992, and soil and ground water samples were collected. Only one soil sample, collected at 30 feet below grade (immediately above first encountered ground water), was submitted for analysis of O&G, TRPH, TPH/G, and BTEX. These analytes were not present above their respective reporting limits.

Ground water samples collected from wells MW-1 and newly installed well MW-2 were analyzed in February 1992 for O&G, TRPH, TPH/D, TPH/G, BTEX, VOCs, and soluble and total nickel. Analysis of ground water samples from well MW-1 indicated the presence of TPH/G (0.08 ppm), TPH/D (0.67 ppm), benzene (0.7 ppb), toluene (0.5 ppb), and xylenes (2 ppb). Ground water samples from well MW-2 contained O&G (1.0 ppm), TRPH (0.9 ppm), TPH/G (4.0 ppm), benzene (470 ppb), toluene (560 ppb), ethylbenzene (160 ppb), xylenes (540 ppb), 1,2-dichloroethane (2 ppb) and low concentrations of total and soluble nickel.

## 3.0 SCOPE OF WORK

As part of the supplemental Site investigation, soil and/or ground water samples were collected from six soil borings (B-1 through B-6) on September 11 and September 12, 1995. The objective of the work was to provide sufficient data to evaluate the extent of hydrocarbon-impacted soil and ground water on-site. Based on the information provided by the soil borings, two ground water monitoring wells (MW-3 and MW-4) were installed, and soil samples collected on October 26, 1995. The two new monitoring wells and the two existing monitoring wells (MW-1 and MW-2) were developed on October 30, 1995 and three of the four wells were sampled on November 3, 1995. Free product was observed in the fourth well, and a sample of the free product was obtained and sent to a special laboratory for fingerprinting analysis.

## 4.0 METHODOLOGY

The methodologies used for data collection during the supplemental Site investigation performed by McLaren/Hart are discussed below.

### 4.1 Depth to Ground Water Measurements

Depth to ground water measurements were collected using an electronic water level indicator with measurements documented to the nearest one hundredth of a foot. Observations for floating product were performed using a transparent Polyvinyl Chloride (PVC) bailer.

### 4.2 Soil and Grab Ground Water Sampling

Soil and grab ground water sampling (B-1 through B-6) was performed using a direct push drill rig. The direct push rig uses an enviro-core sampling system that consists of sampling rods that are hydraulically driven to the desired sampling depth. The sampling rods are lined with 1.5-inch diameter by 6-inch long stainless steel or polyethylene sampling tubes advanced in 1.0 to 3.0 foot increments. The sampling rod is then extracted and the sampling tubes are used to either identify soil lithology or to secure a soil sample for analysis.

All soil samples were logged continuously from the surface to the termination depth using the Unified Soil Classification System. Results of the soil lithologic evaluation are included on the soil drilling logs presented in Appendix A.

After the targeted water-bearing zone had been penetrated, the drive casing was removed from the borehole and replaced with slotted PVC pipe. Ground water samples were then collected with a 3/4-inch-diameter stainless steel bailer from inside the temporary casing. The bailer was steam cleaned between each sampling location to avoid cross-contamination. All ground water samples were decanted into 40-milliliter glass vials with Teflon septum, labeled, and placed into a cooler containing ice.

A portion of soil recovered from the soil sample interval was placed into a plastic bag where headspace readings were collected using a photo-ionization detector (PID). The headspace readings are documented on the soil drilling logs included in Appendix A. The PID was calibrated daily using isobutylene gas. Sample selection for analysis was determined by visual observation, significant lithologic changes, and PID readings. If the sample was selected for analysis, the tube containing the sample was capped with Teflon tape and polyethylene end caps, and sealed with duct tape. All soil samples were labeled and placed into a cooler containing ice. After completion of soil and grab ground water sampling, the temporary PVC casing was removed and all borings were backfilled with portland cement to the original surface level.

### 4.3 Monitoring Well Installation

Monitoring wells MW-3 and MW-4 were installed using hollow stem auger drilling equipment on a truck-mounted rig. Each borehole was drilled utilizing an 8-inch outside diameter auger to approximately 5 to 10 feet into the water bearing zone. Continuous soil sampling of the well borings were conducted using a California-Modified Split Spoon. The split spoon was driven into the soil by a 140-pound weight dropped from a height of 30-inches, with the number of blows-per-foot recorded. Sampling methodology and rationale was followed as explained in Section 4.1. Specific well design was determined in the field based on the lithology encountered during drilling. Well construction was performed in accordance with industry standards and under supervision of a California-certified engineering geologist. Copies of the Alameda County well installation permits issued prior to initial field work are included in Appendix A. Well construction details for all Site monitoring wells are presented in Table 1.

### 4.4 Monitoring Well Development

Monitoring wells MW-3 and MW-4 were developed at least 24 hours after well installation was completed. Monitoring wells MW-1 and MW-2, installed prior to McLaren/Hart's investigation, had been inactive for some period of time and were re-developed along with MW-3 and MW-4. The

wells were developed by a combination of surging, bailing and pumping. Surging with a sealed plunger was performed over the entire screen length to increase the hydraulic communication between the monitoring well, filter pack and surrounding soils. After surging, the water was bailed to remove fine-grained sediments and pumped until at least 10 casing-volumes of water were recovered or turbidity was measured at less than 100 Nephelometric Turbidity Units (NTU). During well development, physical parameters including temperature, electrical conductivity (EC), pH and turbidity were monitored after removal of each casing volume. Data collected during well development are compiled on the Well Development Data Sheets included in Appendix B.

### 4.5 Monitoring Well Sampling

Ground water samples were collected with a 2-inch diameter disposable bailer with bottom-emptying low flow disposable port. Ground water was purged from each monitoring well prior to sample collection using a peristaltic pump. The quantity of water within a casing volume for a given well was calculated in the field prior to sampling. For each casing volume purged, EC, pH, temperature and turbidity were monitored and recorded on the Sampling Event Data Sheets included in Appendix B. Purging of each monitoring well continued until:

- a minimum of four casing volumes had been purged from each well; and

- turbidity was below 100 NTUs and pH, temperature and EC values had stabilized to within 0.15 pH units, 1.0 F, and 5% EC, respectively, between two consecutive purge volumes.

A free product sample was collected using a disposable polyethylene bailer. The sample was decanted into two unpreserved 20-milliliter glass vials with Teflon septum. The free product sample was labeled, placed in a cooler containing ice, and shipped to Friedman & Bruya, Inc. in Seattle, Washington, under proper chain of custody procedures, for fingerprinting analysis.

## 4.6 Decontamination Procedures

All drilling equipment was steam cleaned prior to entering the Site to remove any residual materials. This cleaning process was repeated between borings to eliminate the possibility of cross-contamination between sampling events. Disposable sampling equipment was used to collect ground water samples from monitoring wells and, therefore, no decontamination was required for monitoring well sampling.

## 4.7 Sample Analysis

All soil and ground water samples were labeled and shipped to MBT Environmental Laboratories in Rancho Cordova, California for analysis following chain-of-custody and EPA-recommended sample preservation techniques. MBT Environmental Laboratories is a division of McLaren/Hart, and is licensed by the State of California as a hazardous waste and drinking water laboratory.

Analyses for BTEX analyses were performed by USEPA Method 8020 while TPH/G analyses were performed in accordance with USEPA Leaking Underground Fuel Tank (LUFT) protocols. TPH/D and total petroleum hydrocarbons as motor oil (TPH/MO) analyses were performed by USEPA Method 8015 Modified. A fuel fingerprint analysis was performed on the free product sample collected from monitoring well MW-2. In addition, the product sample was analyzed for organic lead by USEPA Method 6010.

## 4.8 Soil and Ground Water Disposal

All soil and ground water generated during drilling well development, well sampling and equipment decontamination was placed into 55-gallon drums and stored on-site. Soil and ground water disposal will occur following completion of the Site assessment.

## 5.0 SOIL INVESTIGATION RESULTS

Findings of the supplemental Site investigation, including lithology encountered and soil and grab ground water analytical results are presented in this section. Soil and grab ground water sample locations are shown on Figure 2. Geologic cross-sections A-A' and B-B', presented as Figures 7 and 8, respectively, depict subsurface materials encountered during drilling and the inferred subsurface structure between the borings. The cross-section traces are shown on Figure 6.

### 5.1 Lithology

As discussed previously, borings installed during this investigation were continuously sampled for lithologic description. Detailed lithology encountered during drilling varied dependent on location, but generally consisted of unconsolidated fill material overlying fine grained sediments such as sandy silts and clays, interbedded with more transmissive well-sorted sands and silty sands.

The unsaturated soils above the water-bearing zones are generally clay rich. However, sandier stringers appear to be present, particularly in the 16-20 ft below ground surface range. Vadose soils at MW-3 are much sandier than elsewhere on the Site, indicating a transition in the depositional environment, perhaps to stream channel/levee from overbank/flood plain.

Water-bearing zones were encountered at two different depths during the investigation. Given the limited hydrogeologic information available, it is unknown whether the saturated materials encountered at these different depths represent two separate zones or the same zone (i.e., hydraulically connected). In order to simplify discussions, the interval in which MW-3 is screened and the interval in which MW-1, MW-2, and MW-4 are screened will be referred to as the first and second zones, respectively. The first zone was encountered at approximate depths ranging between 19 and 24.5 bgs, as illustrated in Figure 7 and 8. This laterally discontinuous zone was generally less than one foot thick and in most cases, did not yield a sufficient amount of ground water to collect samples. However, due to the thickness of this saturated zone encountered in MW-3 (4.5 feet) and PID readings at this depth indicating the presence of VOCs, (see Appendix A) MW-3 was screened in this upper zone. The thickening of this first zone appeared to be limited to the portion of the site adjacent to MW-3.

The second zone was encountered at approximate depths ranging between 28 feet and 35.5 feet bgs with an approximate thickness of 4 feet. As shown in the cross-sections A-A' and B-B', data suggests that this zone is laterally continuous throughout the Site. MW-1, MW-2 and MW-4 are screened within this zone. As indicated above, there is insufficient data available at this time to determine whether the two zones encountered are hydraulically connected.

## 5.2 Ground Water Surface Elevations

Depth to ground water measurements were collected from MW-1 through MW-4 on November 3, 1995. Potentiometric surface elevations calculated from the depth to water measurements are presented in Table 2. Potentiometric surface elevation contours generated from the data in Table 2 are shown on Figure 3, and indicate a north-easterly ground water flow direction. As discussed previously, MW-3 was installed in a water-bearing zone shallower than that encountered in MW-1, MW-2 and MW-4 (Table 1). The hydraulic connection of this shallower zone to the deeper zone is not known. The direction of ground water flow indicated on Figure 3 would provide justification for the presence of free product observed in MW-2, downgradient from the calculated flow direction (see Section 5.4). However, the flow direction expected due to topography and pre-development slope of the alluvial fans is opposite the calculated flow direction. Therefore, the calculated flow direction is suspect.

## 5.3 Soil Analytical Results

Soil analytical results from the supplemental Site investigation are presented in Table 3. Soil samples were collected from six on-site soil borings and two monitoring wells and analyzed for TPH/G and BTEX compounds. Soil samples from B-3 and the 26.5 foot soil sample from B-4 were also analyzed for TPH/D and TPH/MO.

As presented in Table 3, TPH/D was not detected at or above laboratory reporting limits in the soil sample collected from either B-3 or B-4. TPH/MO was not detected in B-4 but was present in B-3 at a concentration of 1.3 ppm.

TPH/G was detected in twelve of the seventeen soil samples collected on-site. The highest level of TPH/G was detected in monitoring well MW-3, located in the vicinity of the former pump islands; 65,000 ppm was detected at a depth of 8.5 feet. TPH/G concentrations in soil in monitoring well MW-3, however, dropped to only 1.4 ppm at a depth of 15.5 feet. The next highest observed levels of TPH/G were observed in boring SB-5 at a concentration of 4,800 ppm.

BTEX compounds were generally detected in soil samples with elevated TPH/G concentrations. In general, monitoring well MW-3 contained the highest concentrations of petroleum-related hydrocarbons detected on-site. Benzene was detected at concentrations ranging from 88 ppm in MW-3 to below laboratory reporting limits in boring B-3. Samples with significant levels of TPH/G contained BTEX concentrations where the relative amounts of xylenes and toluene were greater than those of the more volatile benzene and ethylbenzene compounds. Since the more volatile components evaporate faster during the weathering process leaving relatively higher concentrations of the less volatile compounds behind, this suggests that some time has elapsed since release occurred.

### 5.4 Ground Water Analytical Results

As described in Section 4.2, ground water samples were collected from six soil borings using a temporary slotted PVC well casing installed after the targeted water bearing zone had been reached. Additionally, ground water samples from three on-site monitoring wells were collected. Grab and monitoring well ground water samples collected were submitted for analysis of TPH/G and BTEX compounds. The grab ground water sample collected from B-2, located downgradient from MW-3, was also analyzed for TPH/D and TPH/MO. Table 4 presents ground water analytical results from this investigation.

TPH/D was not detected at or above the laboratory reporting limit in ground water collected from boring B-2 while TPH/MO was present at a concentration of 340 ppb. TPH/G concentrations in ground water ranged from below laboratory reporting limits in monitoring wells MW-1 and MW-4 to 190,000 ppb in boring B-1. Elevated concentrations of BTEX compounds were generally detected at the same locations containing elevated TPH/G concentrations. Benzene was present at

concentrations ranging from below the laboratory reporting limit in MW-1 and MW-4 to 24,000 ppb in boring B-1.

During re-development of monitoring well MW-2, free product was observed and as a result, a ground water sample was not collected. A sample of the free product, however, was collected for fingerprint characterization and analysis of organic lead. Results of the analyses indicate that the product contains leaded gasoline and is most likely ten or more years old (Appendix D). Results of the organic lead analysis indicate a concentration of 270 ppm which is typical for regular leaded gasolines manufactured between 1975 and 1982. The lead concentration, however, might have been altered during the weathering process. Since lead is relatively persistent in the environment, it may concentrate over time resulting in higher lead levels at the time sampling. This opens up the possibility that the sample may have been released after 1982. However, it is not expected that the product age is much younger than ten years old, because lead levels dropped sharply around 1985 in expectation of an EPA mandated phaseout. Friedman & Bruya also noted trace levels of a middle distillate such as diesel or heating oil; identification was tentative due to its very low concentration relative to the gasoline.

## 6.0 CONCLUSIONS

Six soil borings are installed on-site on September 11 and September 12, 1995 to define the extent of soil contamination in the vadose zone. Soil and/or grab ground water samples were collected from each of these borings and analyzed for petroleum-related compounds. Two monitoring wells, MW-3 and MW-4, are installed on October 26, 1995 to further define the extent of impacted ground water as well as to determine the direction of ground water flow at the Site. MW-3 is installed in a transmissive zone shallower than the zone in which MW-1, MW-2 and MW-4 are screened and the hydraulic connection between the zones is unknown.

Soil samples collected from the six soil borings and two monitoring wells indicate the presence of TPH/G in the vicinity of the former pump islands and northeast side of the former tank farm at concentrations as high as 65,000 ppm (MW-3, 8.5 feet bgs). Benzene is also present in soil at concentrations as high as 88 ppm (MW-3, 8.5 feet bgs).

Ground water samples collected from five soil borings and three monitoring wells indicate the presence of elevated levels of TPH/G at concentrations as high as 190,000 ppb, and benzene at concentrations as high as 24,000 ppb (B-1). In addition, free product is noted in monitoring well MW-2. Fingerprint analysis of the product submitted to Friedman & Bruya, Inc. determined the product to be primarily leaded gasoline, dated the product most likely to be ten years old or older, and placed the release between 1975 and 1985.

# FIGURES

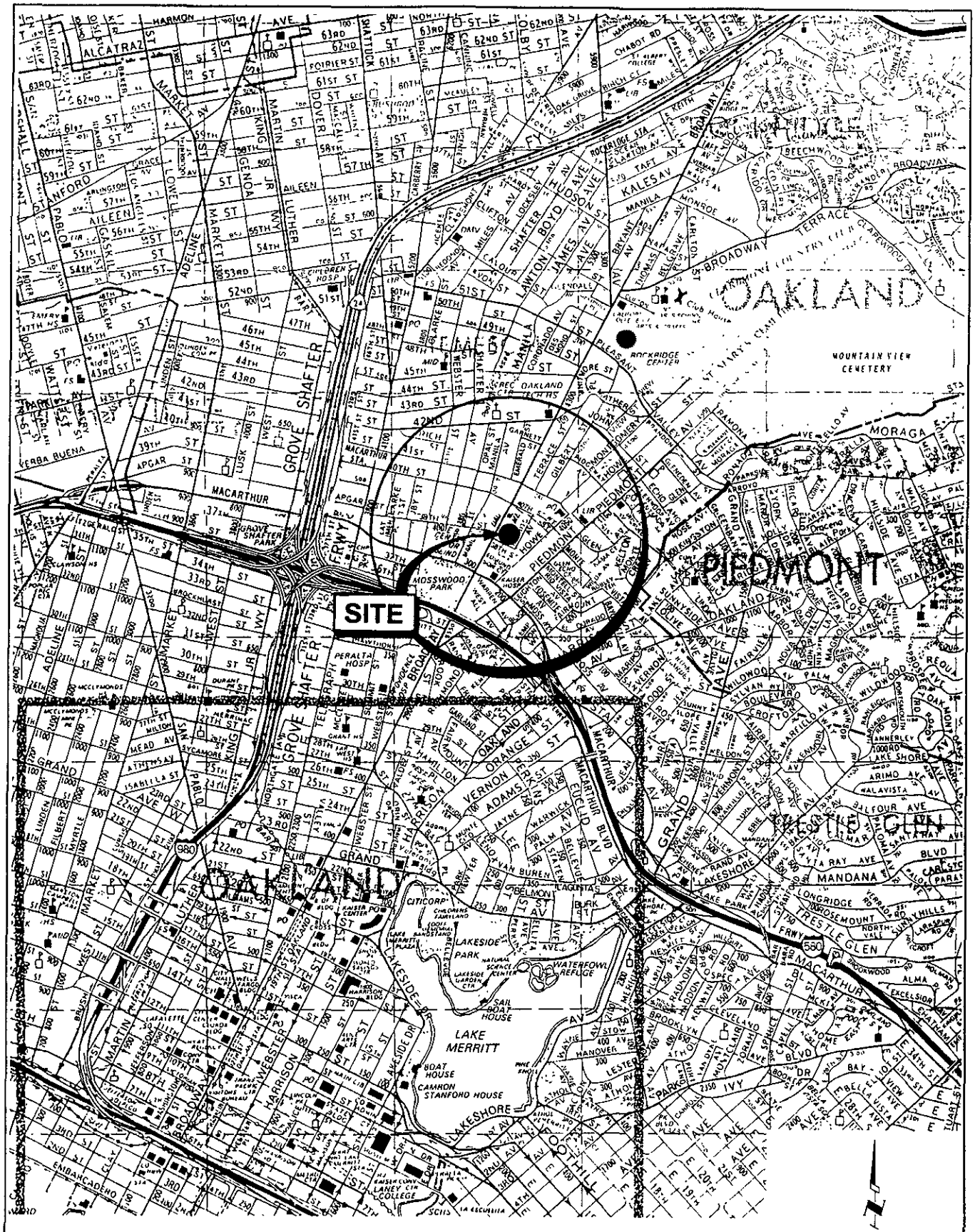


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FIGURE 1

**SITE LOCATION MAP**
**3810 BROADWAY, OAKLAND, CALIFORNIA**

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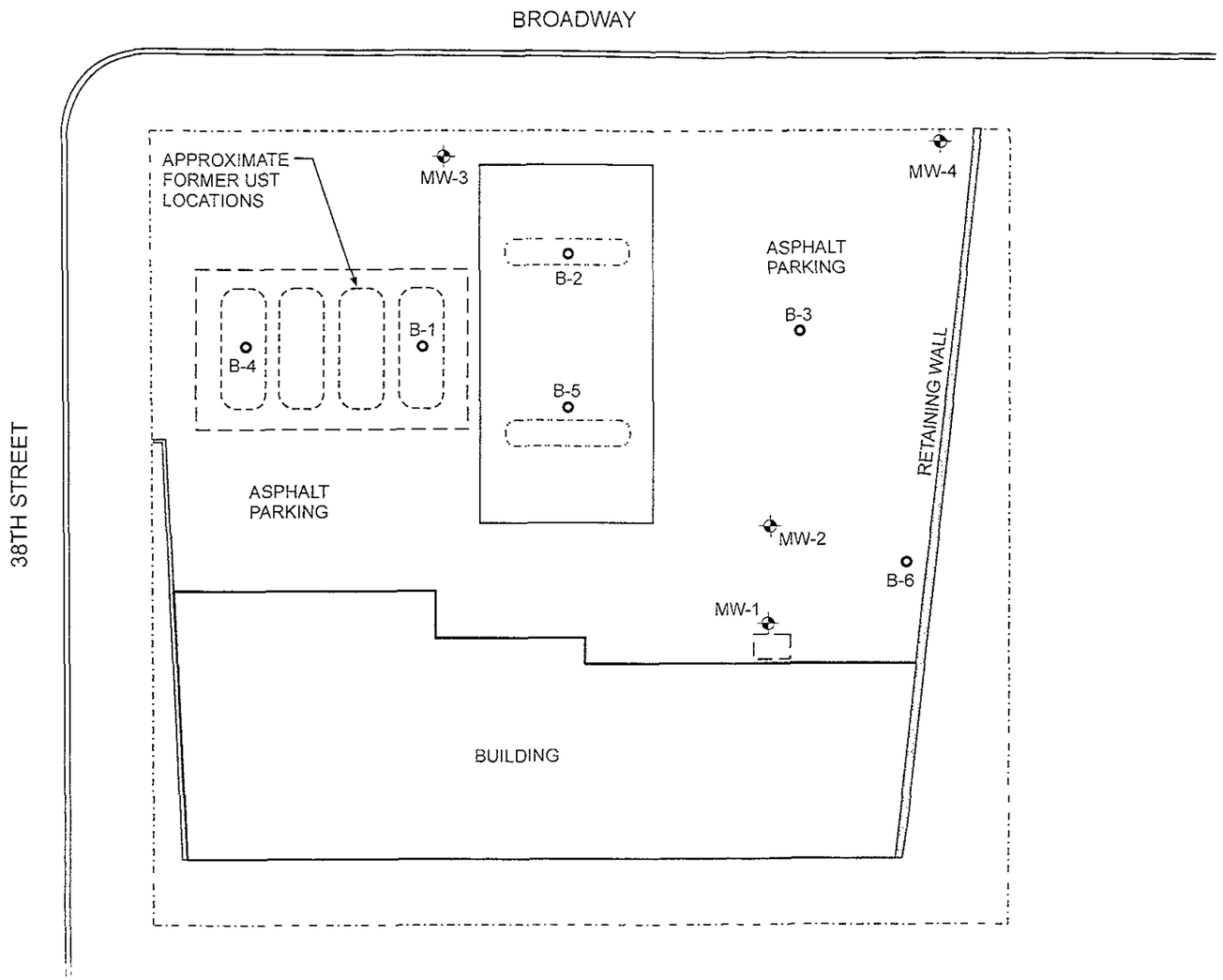


LEGEND

- MW-2 — MONITORING WELL
- B-6 — SOIL BORING LOCATION
- APPROXIMATE TANK EXCAVATION AREA
- PROPERTY LINE
- APPROXIMATE FORMER PUMP ISLAND LOCATION

N

0 10 20

APPROX SCALE (FEET)

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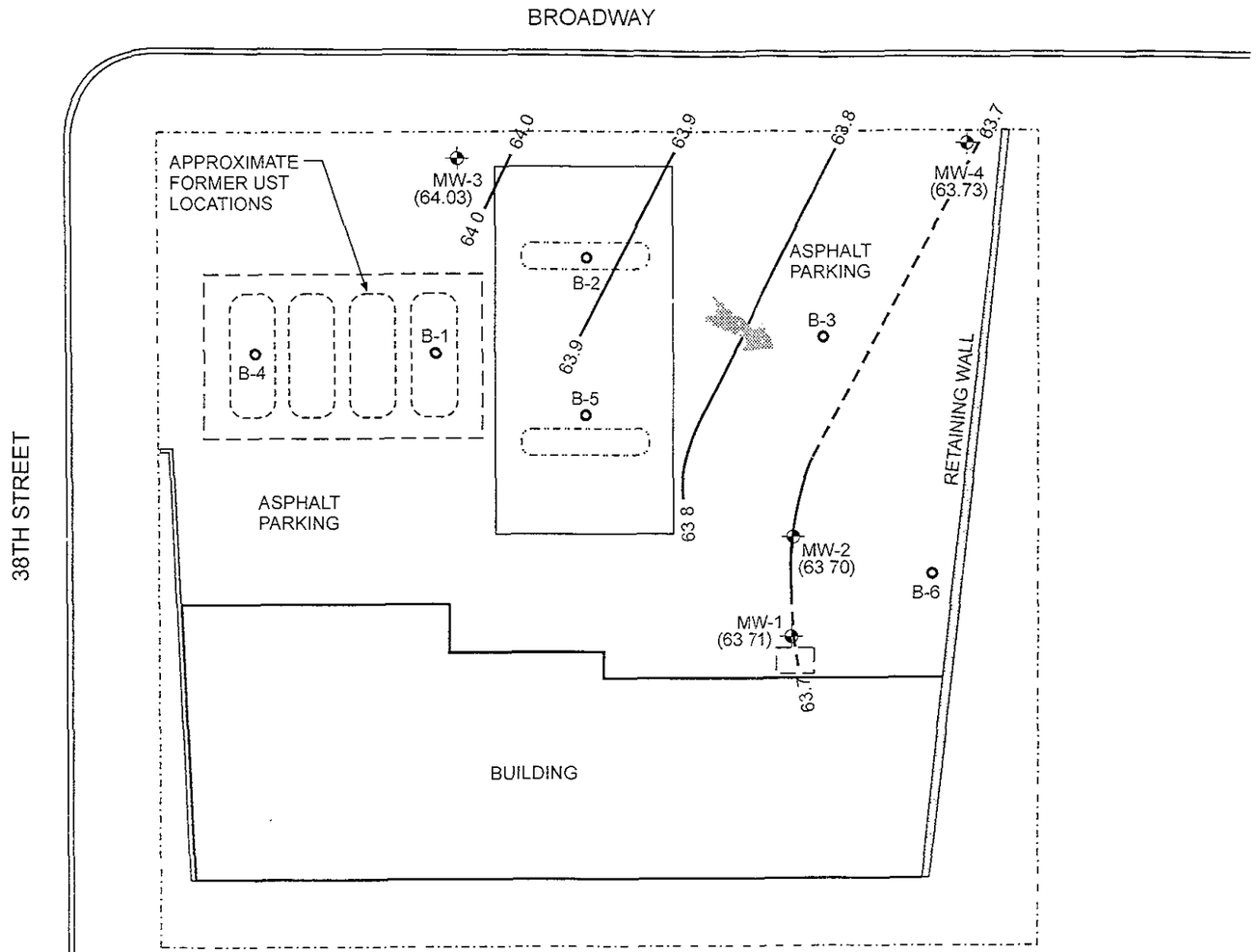
FIGURE 2

SITE PLAN MAP

3810 BROADWAY, OAKLAND, CALIFORNIA




LEGEND

- MW-2 — MONITORING WELL
- B-6 — SOIL BORING LOCATION
- APPROXIMATE TANK EXCAVATION AREA
- PROPERTY LINE
- APPROXIMATE FORMER PUMP ISLAND LOCATION
- INFERRED DIRECTION OF GROUND WATER FLOW

N

0 10 20

APPROX SCALE (FEET)

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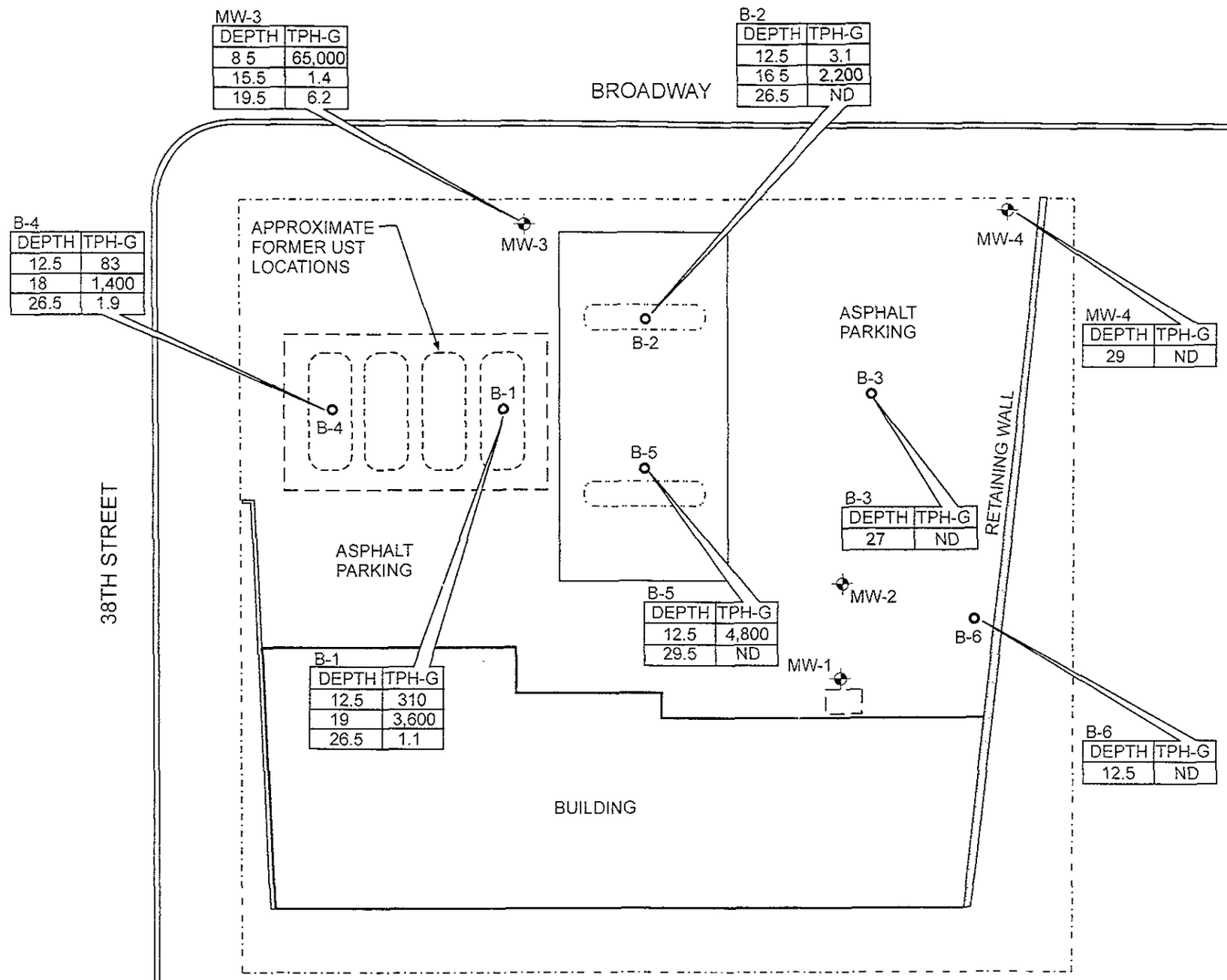
FIGURE 3

POTENTIOMETRIC SURFACE ELEVATION CONTOURS
NOVEMBER 3 1995
3810 BROADWAY, OAKLAND, CALIFORNIA




LEGEND

- MW-2 ⌖ MONITORING WELL
- B-6 o SOIL BORING LOCATION
- APPROXIMATE TANK EXCAVATION AREA
- PROPERTY LINE
- APPROXIMATE FORMER PUMP ISLAND LOCATION
- (ND) NOT DETECTED

NOTE: COMPLETE SOIL ANALYTICAL RESULTS PRESENTED IN TABLE 3.

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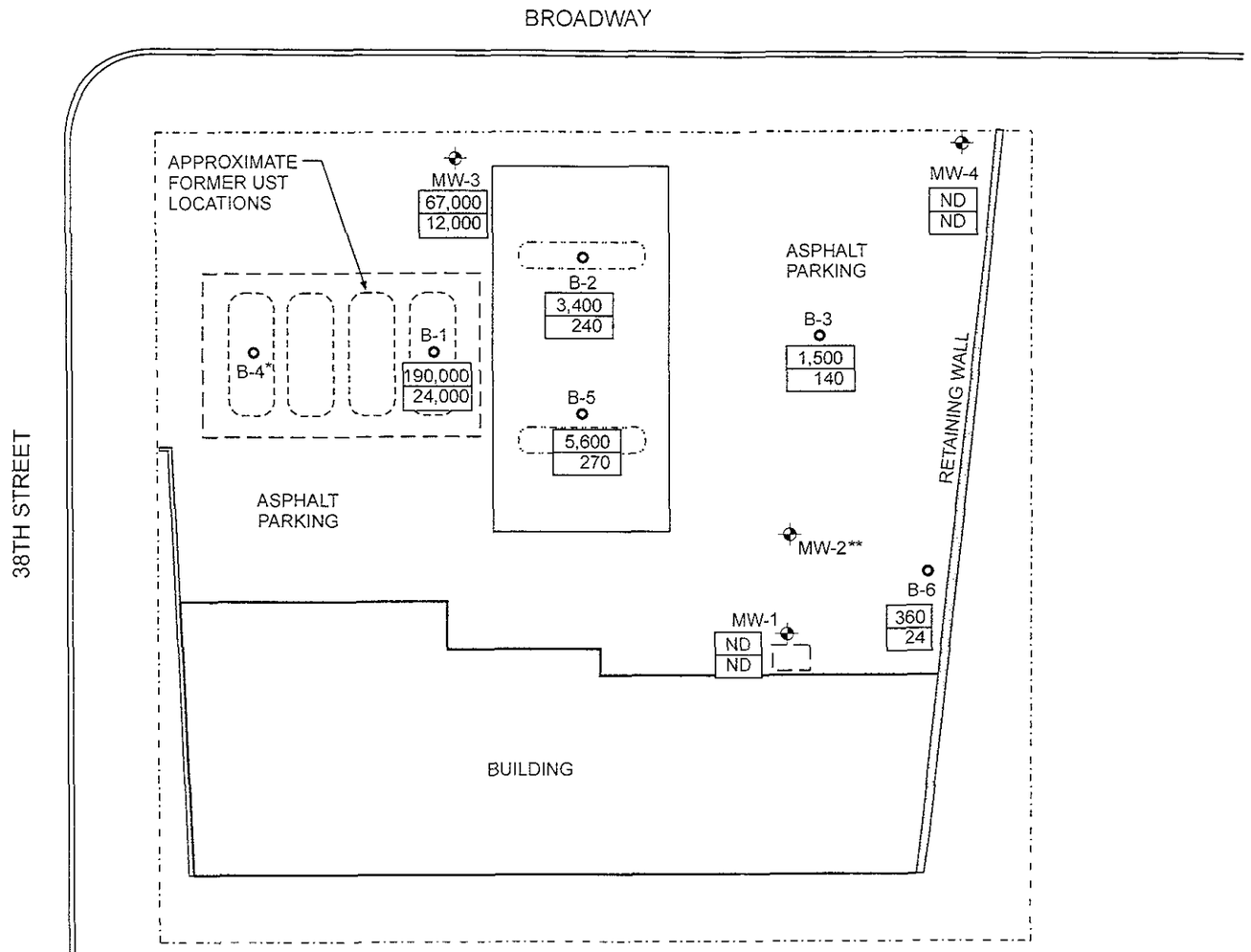
FIGURE 4

TPH-G CONCENTRATIONS IN SOIL (PPM)
SEPTEMBER 11,12 AND OCTOBER 26, 1995
3810 BROADWAY OAKLAND, CALIFORNIA




LEGEND

- MW-2 ⊕ MONITORING WELL
- B-6 ○ SOIL BORING LOCATION
- APPROXIMATE TANK EXCAVATION AREA
- PROPERTY LINE
- APPROXIMATE FORMER PUMP ISLAND LOCATION
- 5,600 / 270 TPH-G CONCENTRATION (PPB) / BENZENE CONCENTRATION (PPB)
- * NO GROUND WATER SAMPLE WAS OBTAINED FROM B-4
- (ND) NOT DETECTED
- ** NOT SAMPLED DUE TO PRESENCE OF FREE PRODUCT

NOTE: COMPLETE GROUND WATER ANALYTICAL RESULTS PRESENTED IN TABLE 4.

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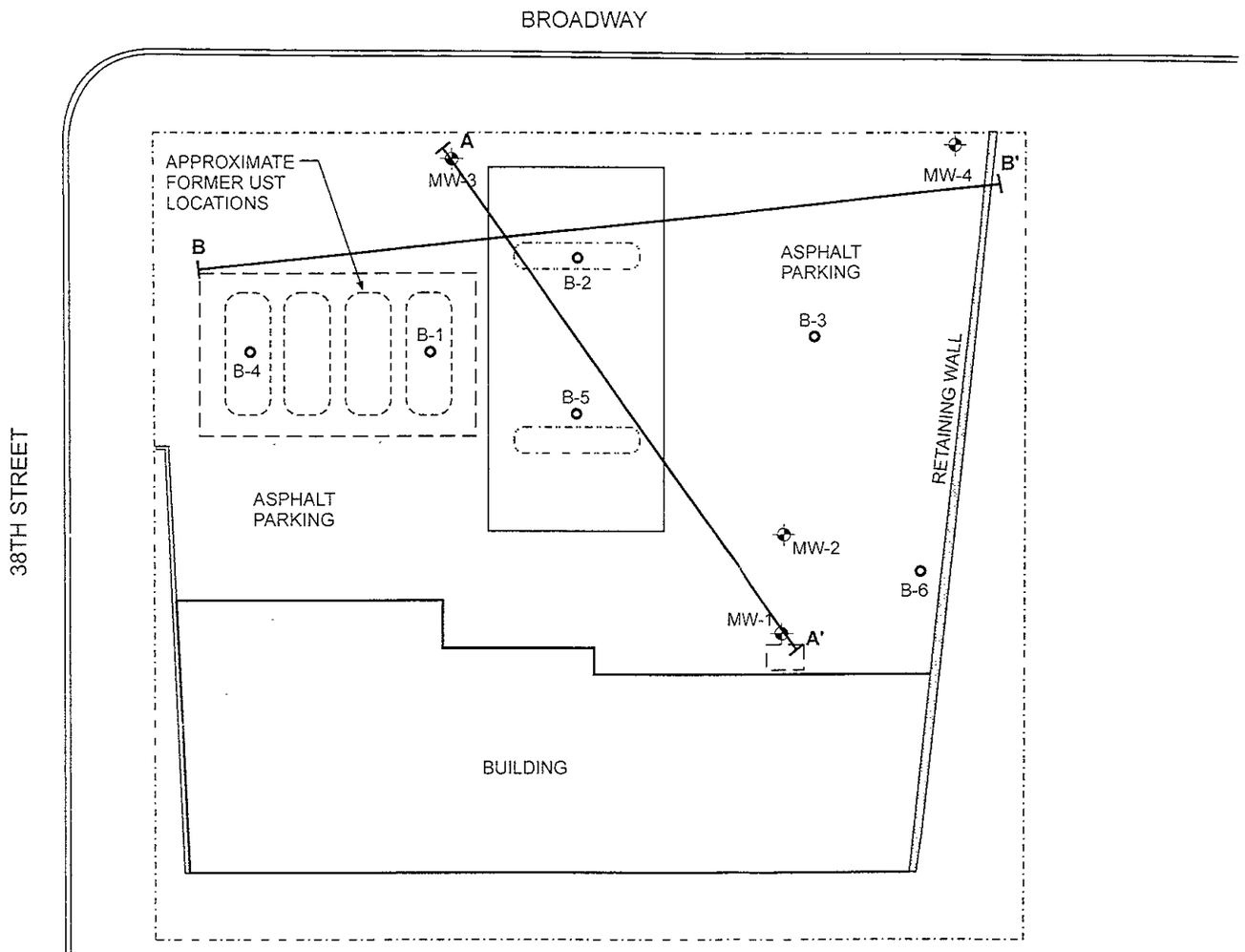
FIGURE 5
TPH-G CONCENTRATIONS IN GROUND WATER (PPB)
SEPTEMBER 11,12, OCTOBER 26, AND NOVEMBER 3, 1995
3810 BROADWAY, OAKLAND, CALIFORNIA




LEGEND

- MW-2 — MONITORING WELL
- B-6 — SOIL BORING LOCATION
- APPROXIMATE TANK EXCAVATION AREA
- PROPERTY LINE
- APPROXIMATE FORMER PUMP ISLAND LOCATION
- A — A' TRACE OF GEOLOGIC CROSS-SECTIONS

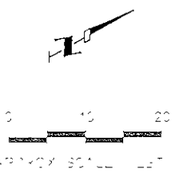



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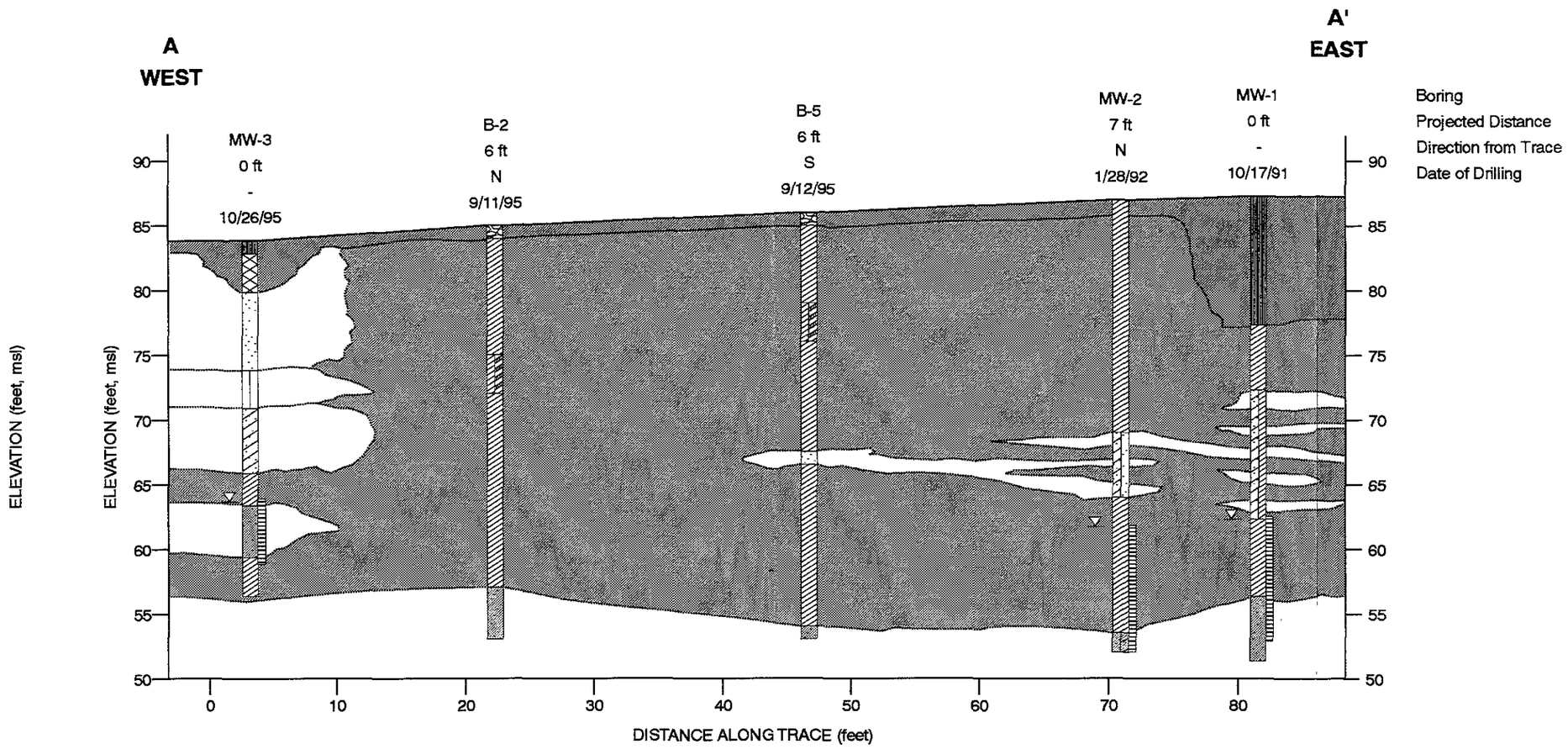
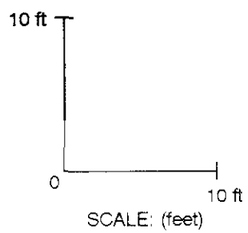
FIGURE 6
SITE PLAN MAP SHOWING GEOLOGIC CROSS-SECTION TRACES
3810 BROADWAY, OAKLAND, CALIFORNIA




LEGEND

- ROADBASE/FILL
- SAND
- SILT
- CLAY

Static Water Level (11/03/95)


UNIFIED SOIL CLASSIFICATION SYSTEM

| | | |
|---|---|---|
| GW | SW | ML |
| GP | SP | CL |
| GM | SM | CH |
| GC | SC | RB |

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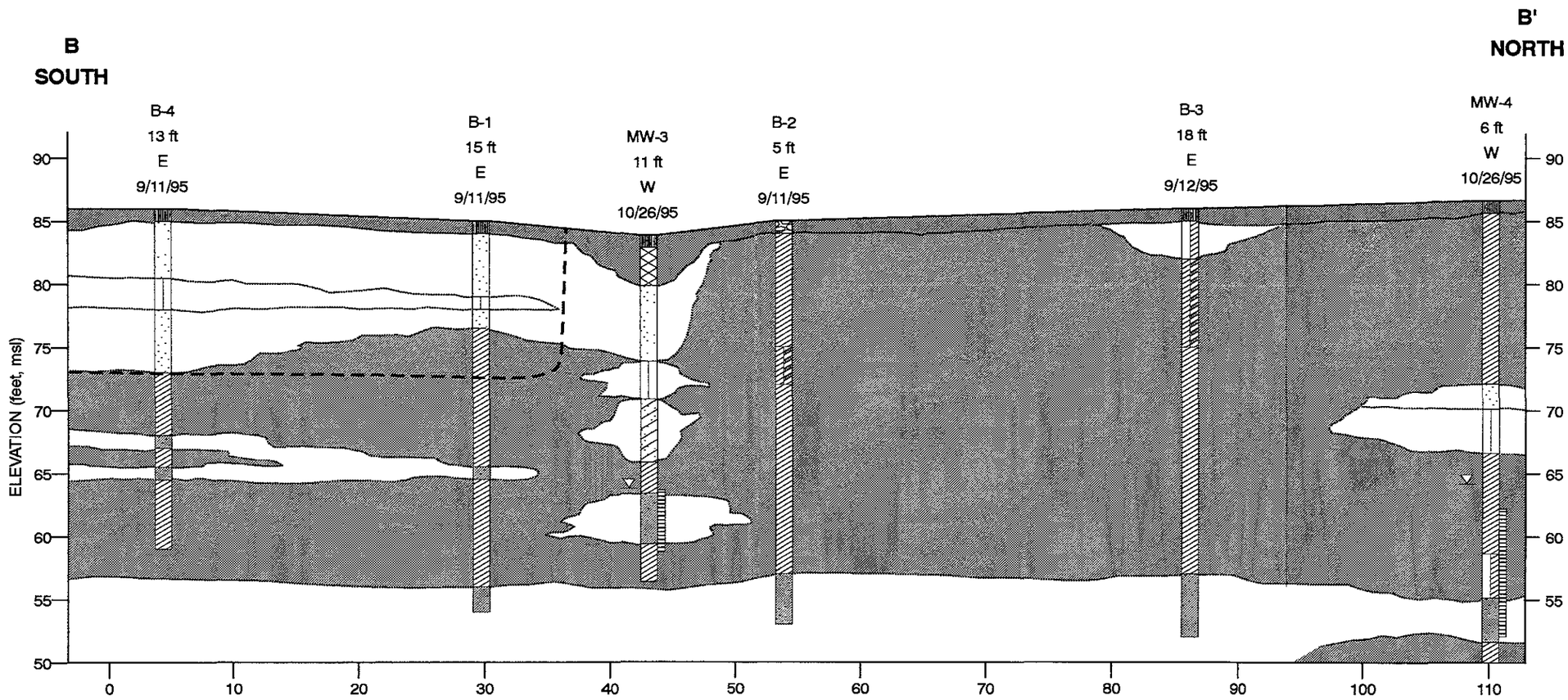
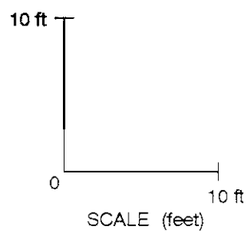
FIGURE 7

**CROSS-SECTION A-A'**
**3810 BROADWAY, OAKLAND**

04 0601879.001 003\xsects cdr 01-11-96




LEGEND

- ROADBASE/FILL
- SAND
- SILT
- CLAY

Approximate Extent of UST Excavation Backfill

Static Water Level (11/03/95)

Monitoring Well Screened Interval

Saturated Conditions Specified on Drilling Log

UNIFIED SOIL CLASSIFICATION SYSTEM

| | | |
|---|---|---|
| GW | SW | ML |
| GP | SP | CL |
| GM | SM | CH |
| GC | SC | RB |

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

FIGURE 8

**CROSS-SECTION B-B'**
**3810 BROADWAY, OAKLAND**

04 0601879 001 003\xsects cdr 01-11-96

# TABLES

**TABLE 1**
**MONITORING WELL CONSTRUCTION DETAILS**
**FRIEDKIN PROPERTY - 3810 BROADWAY**
**OAKLAND CALIFORNIA**

| Location | Elevation Top of Casing (ft., msl) | Well Diameter (inches) | Screened Interval from Surface (ft) |
|---|---|---|---|
| MW-1 | 86.69 | 2 | 24.0-34.0* |
| MW-2 | 85.96 | 2 | 25.0-35.0* |
| MW-3 | 83.43 | 2 | 20.0-25.0 |
| MW-4 | 83.62 | 2 | 25.5-35.5 |

ft., msl = feet mean sea level
* = screened interval information obtained from Kaldveer reports (Kaldveer, 1991 and Kaldveer, 1992)

**TABLE 2**
**POTENTIOMETRIC SURFACE ELEVATIONS**
**NOVEMBER 3, 1995**
**3810 BROADWAY, OAKLAND, CALIFORNIA**

| Well No. | Top of Casing (ft., msl) | Depth to Water | Potentiometric Surface Elevation (ft., msl ) Nov-95 |
|---|---|---|---|
| MW-1 | 86.69 | 22.98 | 63.71 |
| MW-2 | 85.96 | 22.26 | 63.70 |
| MW-3 | 83.43 | 19.40 | 64.03 |
| MW-4 | 83.62 | 19.89 | 63.73 |

ft., msl- Feet mean sea level.



S:\PROJECTS\FRIEDKIN\3810BROA\11_95TB2.XLS

TABLE 3
SOIL ANALYTICAL RESULTS
3810 Broadway, Oakland, California

| Sample Location | Sample Date | Depth | TPH-G (ppm) | TPH-D (ppm) | TPH-MO (ppm) | Benzene (ppm) | Toluene (ppm) | Ethylbenzene (ppm) | Xylenes (ppm) |
|---|---|---|---|---|---|---|---|---|---|
| **B-1** | 9/11/95 | 12.5 | 310 | --- | --- | 0.15 | 0.29 | 6.2 | 31.2 |
| | | 19 | 3,600 | --- | --- | 33 | 310 | 67 | 361 |
| | | 26.5 | 1.1 | --- | --- | 0.27 | 0.06 | 0.018 | 0.023 |
| **B-2** | 9/11/95 | 12.5 | 3.1 | --- | --- | 0.69 | 0.11 | 0.69 | 0.103 |
| | | 16.5 | 2,200 | --- | --- | 15 | 120 | 37 | 445 |
| | | 26.5 | <1 | --- | --- | <0.005 | 0.011 | <0.005 | <0.005 |
| **B-3** | 9/12/95 | 27 | <1 | <1 | 1.3 | <0.005 | <0.005 | <0.005 | <0.005 |
| **B-4** | 9/11/95 | 12.5 | 83 | --- | --- | 0.06 | <0.050 | 1.2 | 7.2 |
| | | 18 | 1,400 | --- | --- | 3.8 | 44 | 18 | 101 |
| | | 26.5 | 1.9 | <20 | <20 | 0.52 | 0.078 | 0.039 | 0.07 |
| **B-5** | 9/12/95 | 12.5 | 4,800 | --- | --- | 48 | 390 | 93 | 466 |
| | | 29.5 | <1 | --- | --- | 0.055 | 0.009 | <0.005 | <0.005 |
| **B-6** | 9/12/95 | 12.5 | <1 | --- | --- | <0.005 | 0.009 | <0.005 | <0.005 |
| **MW-3** | 10/26/95 | 8.5 | 65,000 | --- | --- | 88 | 550 | 140 | 690 |
| | | 15.5 | 1.4 | --- | --- | <0.005 | 0.027 | 0.0064 | 0.0265 |
| | | 19.5 | 6.2 | --- | --- | 1.3 | 1.5 | 0.11 | 0.43 |
| **MW-4** | 10/26/95 | 29 | <1 | --- | --- | <0.005 | <0.005 | <0.005 | <0.005 |

TPH-G = Total petroleum hydrocarbons quantitated against gasoline by DHS/LUFT method.

TPH-D = Total petroleum hydrocarbons quantitated against diesel by EPA Method 8015 Modified.

TPH-MO = Total petroleum hydrocarbons quantitated against motor oil by EPA Method 8015 Modified.

ppm = Parts per million.

--- = Not analyzed.

< = Compound not detected at or above the specified laboratory reporting limit.

TABLE 4
GROUNDWATER ANALYTICAL RESULTS
3810 Broadway, Oakland, California

| Sample Location | Sample Date | TPH-G (ppb) | TPH-D (ppb) | TPH-MO (ppb) | Benzene (ppb) | Toluene (ppb) | Ethylbenzene (ppb) | Xylenes (ppb) |
|---|---|---|---|---|---|---|---|---|
| B-1 | 9/11/95 | 190,000 | --- | --- | 24,000 | 47,000 | 2,900 | 15,300 |
| B-2 | 9/11/95 | 3,400 | <110 | 340 | 240 | 540 | 120 | 540 |
| B-3 | 9/12/95 | 1,500 | --- | --- | 140 | 66 | 130 | 670 |
| B-5 | 9/12/95 | 5,600 | --- | --- | 270 | 540 | 110 | 420 |
| B-6 | 9/12/95 | 360 | --- | --- | 24 | 26 | 16 | 44 |
| MW-1 | 11/3/95 | <50 | --- | --- | <0.3 | <0.3 | 0.36 | <0.3 |
| MW-2 | * | --- | --- | --- | --- | --- | --- | --- |
| MW-3 | 11/3/95 | 67,000 | --- | --- | 12,000 | 15,000 | 980 | 4,700 |
| MW-4 | 11/3/95 | <50 | --- | --- | <0.3 | <0.3 | <0.3 | <0.3 |

TPH-G = Total petroleum hydrocarbons quantified against gasoline by DHS/LUFT method.
TPH-D = Total petroleum hydrocarbons quantified against diesel by EPA Method 8015 Modified.
TPH-MO = Total petroleum hydrocarbons quantified against motor oil by EPA Method 8015 Modified.
ppb = Parts per billion.
--- = Not analyzed.
< = Compound not detected at or above the specified laboratory reporting limit.
*= Not sampled due to the pressence of free product in well.

# APPENDIX A

## WELL INSTALLATION PERMITS
## AND
## SOIL BORING & MONITORING WELL DRILLING LOGS

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 FRIEDKIN PROPERTY
3810 BROADWAY
OAKLAND, CA

CLIENT
Name MR. GERALD FRIEDKIN
Address 300 GRAND AVE Phone (510) 465-7500
City OAKLAND, CA Zip

APPLICANT
Name MCLAREN/HART ENVIRONMENTAL 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 DIRECT PUSH

DRILLER'S LICENSE NO. GREGG DRILLING C-57: 485165
PRECISION SAMPLING C-57: 636387

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 35 ft.
Surface Seal Depth 18 ft. Number 2

GEOTECHNICAL PROJECTS
Number of Borings 6 Maximum
Hole Diameter 2 in. Depth 30 ft.

ESTIMATED STARTING DATE 09-06-95
ESTIMATED COMPLETION DATE 09-21-95

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

APPLICANT'S SIGNATURE [signature] Date 8-23-95

FOR OFFICE USE

PERMIT NUMBER 95581
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 within 90 days of approval date.

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

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

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

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 12 Sep 95
Wyman Hong

51991

# SOIL DRILLING LOG

McLaren Hart

SB/MW #: B-1
# D- 17352
Page 1 of 2
Geologist: C. Warwick

SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.
TOC ELEVATION NA (MSL) DATE(S) 9/11/95 TOTAL DEPTH 31.0'
MONITORING DEVICE PID SCREENED INTERVAL NA
SAMPLING METHOD Direct Push SUBCONTRACTOR & EQPT Precision/XD
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ▽ =First Water
MEMO

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction Details |
|---|---|---|---|---|---|---|---|
| | | | | 0 - 1' ASPHALT and ROADBASE | RB | | |
| | | | 0.0 | 1 - 6' SILTY SAND: (0,80,20,0); dark reddish gray (5YR4/2); loose; fine grained sand; poorly graded; dry. | SM | | |
| 2.5 | | | | | | | |
| | | | 0.0 | | | | |
| 5.0 | | | | | | | 2" Borehole |
| | | | | 6 - 7' SANDY SILT: (10,30,40,20); brown (10YR5/3); slight plasticity; slightly stiff; fine grained sand; moist. | ML | | |
| | | | 0.0 | 7 - 8.5' SILTY SAND: (0,80,20,0); dark reddish gray (5YR4/2); loose; fine grained sand; poorly graded; dry. | SM | | |
| 7.5 | | | | | | | |
| | | | | 8.5 - 19.5' SILTY CLAY with SAND: (0,20,50,30): grayish brown (10YR5/2); low to medium plasticity; slightly stiff to stiff; fine grained sand; moist. | CL | | |
| 10.0 | | | 425 | | | | Portland Cement |
| 12.5 | | 52401 | 210 | | | | |
| 15.0 | | | | | | | |

See Following Page...

FRIED,1i6/96 AUGNBPS

STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 9/96 BRADLEY D. WRIGHT

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

Senior Geoscientist
TITLE

# SOIL DRILLING LOG

McLaren Hart

SB/MW #: B-1
# D- 17352
Page 2 of 2
Geologist: C. Warwick

C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction Details |
|---|---|---|---|---|---|---|---|
| 15.0 | | | 214 | SILTY CLAY with SAND continued. | | | |
| 17.5 | | | | | | | |
| | | 52402 | | | | | |
| ▽ | | | 127 | 19.5 - 20.5' SILTY SAND: (0,70,20,10); grayish brown (10YR5/2); fine grained sand; poorly graded; saturated. | SM | | |
| 20.0 | | | | 20.5 - 29' SILTY CLAY with SAND: (0,20,50,30); light olive brown (2.5Y5/4); medium plasticity; stiff to hard; fine grained sand; slightly moist. | CL | | 2" Borehole |
| | | | 107 | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | 68 | | | | Portland Cement |
| | | 52405 | | | | | |
| 27.5 | | | | | | | |
| | | | | 29 - 31'SILTY SAND: (0,70,20,10); brown (10YR5/3); loose to medium dense; fine grained sand; poorly graded; saturated. | SM | | |
| 30.0 | | | | | | | 31.0 |

FRIED,1KNS AUGNBPS

Bruce Wright

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

Senior Geoscientist
TITLE

STATE OF CALIFORNIA
REGISTERED GEOLOGIST
#6276
Exp. 9/96
BRADLEY D. WRIGHT
REGISTERED GEOLOGIST

# SOIL DRILLING LOG

McLaren Hart

SB/MW #: B-2
# D- 23500
Page 1 of 2
Geologist: C. Warwick

C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.
TOC ELEVATION NA (MSL) DATE(S) 9/11/95 TOTAL DEPTH 32.0'
MONITORING DEVICE PID SCREENED INTERVAL NA
SAMPLING METHOD Direct Push SUBCONTRACTOR & EQPT Precision/XD
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ▽ =First Water
MEMO

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction *Details* |
|---|---|---|---|---|---|---|---|
| | | | | 0 - 1' CONCRETE | CC | | |
| | | | 0.0 | 1 - 10' SANDY CLAY: (5,35,30,30); grayish brown (2.5Y5/2); medium plasticity; stiff; fine to coarse grained sand; fine to coarse gravel; well graded; slightly moist. | CL | | |
| 2.5 | | | | 3 - 3.5' SILTY SAND (SM)lens. | | | |
| | | | 0.0 | | | | |
| 5.0 | | | | | | | 2" Borehole |
| | | | 0.0 | | | | |
| 7.5 | | | | @ 9 - 10' Increase in coarse sand and fine gravel. | | | |
| 10.0 | | | 420 | 10 - 13' SANDY CLAY: (0,30,30,40); light yellowish brown (2.5YR6/4); medium to high plasticity; stiff; fine grained sand; slightly moist. | CL CH | | Portland Cement |
| 12.5 | | 51496 | | | | | |
| | | | 395 | 13 - 28.2' SANDY CLAY: (0,30,40,30); light yellowish brown (2.5YR6/4); low plasticity; stiff to hard: fine grained sand; slightly moist. | CL | | |
| | | | | @ 14.5 - 15' SAND (SP) lens; fine to medium sand; slightly | | | |
| 15.0 | | | | See Following Page... | | | |

FRIED,1/16/96,AUGNBPS

STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 Exp. 9/96 BRADLEY D. WRIGHT REGISTERED GEOLOGIST

Brad Wright
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

Senior Geoscientist
TITLE

# SOIL DRILLING LOG

McLaren Hart

SB/MW #: B-2
# D- 23500
Page 2 of 2
Geologist: C. Warwick

SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction Details |
|---|---|---|---|---|---|---|---|
| 15.0 | | | | moist. | | | |
| | | 51497 | 153 | @ 16.5 - 17' SAND (SP) lens; slightly moist. | | | |
| 17.5 | | | | | | | |
| | | | 76 | | | | |
| 20.0 | | | | | | | 2" Borehole |
| | | | 0.0 | | | | |
| 22.5 | | | | | | | |
| | | | 0.0 | | | | Portland Cement |
| 25.0 | | 51498 | | | | | |
| 27.5 | | | | 28.2 - 32' SILTY SAND: (0,70,20,10); brown (10YR5/3); loose to medium dense; fine grained sand; poorly graded; saturated. | SM | | |
| 30.0 | | | | | | | |
| | | | | | | | 32.0 |

STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 EXP. 9/30/ CERTIFIED ENGINEERING GEOLOGIST

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

Senior Geoscientist
TITLE

# SOIL DRILLING LOG

SB/MW #: B-3
# D- 17355
Page 1 of 3
Geologist: C. Warwick

C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.
TOC ELEVATION NA (MSL) DATE(S) 9/12/95 TOTAL DEPTH 34.0'
MONITORING DEVICE PID SCREENED INTERVAL NA
SAMPLING METHOD Direct Push SUBCONTRACTOR & EQPT Precision/XD
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ▽ =First Water
MEMO

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction Details |
|---|---|---|---|---|---|---|---|
| | | | | 0 - 1' ASPHALT and ROADBASE | RB | | |
| | | | 0.0 | 1 - 4' SANDY SILT; (0,40,40,20); yellowish brown (10YR5/4); low plasticity; slightly stiff to stiff; fine to coarse grained sand; moist. | ML CL | | |
| 2.5 | | | | | | | |
| | | | 0.0 | 4 - 11' SANDY CLAY: (0,30,30,40); yellowish brown (10YR5/4); medium to high plasticity; stiff to hard; fine grained sand; slightly moist. | CL CH | | |
| 5.0 | | | | | | | 2" Borehole |
| | | | 0.0 | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | 2.3 | | | | Portland Cement |
| | | | | 11 - 29' SILTY CLAY with SAND; (0,20,50,30); brown (10YR5/3); low to medium plasticity; stiff to hard; fine grained sand; slightly moist. | CL | | |
| 12.5 | | 52409 | | | | | |
| | | | 0.0 | | | | |
| 15.0 | | | | | | | |

★ See Following Page...

STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 BRADLEY D. WARD

FIELD SUPERVISOR AND REVIEWER

Senior Geologist
TITLE

# SOIL DRILLING LOG

McLaren Hart

SB/MW #: B-3
# D- 17355
Page 2 of 3
Geologist: C. Warwick

C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction Details |
|---|---|---|---|---|---|---|---|
| 15.0 | | | 2.3 | SILTY CLAY with SAND continued. | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | 2" Borehole |
| 22.5 | | | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | 52410-11 | 3.9 | | | | |
| ▽ | | | | 29 - 31.5' SILTY SAND: (0,80,20,0); brown (10YR5/3); loose to medium dense; fine grained sand; poorly graded; saturated. | SM | | |
| 30.0 | | | | | | | Portland Cement |
| 32.5 | | | | | | | |

See Following Page...

STATE OF CALIFORNIA REGISTERED GEOLOGIST BRADLEY D. WRIGHT #6276 REGISTERED GEOLOGIST

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

Senior Geoscientist
TITLE

# SOIL DRILLING LOG

SB/MW #: B-3
# D- 17355
Page 3 of 3
Geologist: C. Warwick

C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction Details |
|---|---|---|---|---|---|---|---|
| 32.5 | | | | | | | 34.0 |

STATE OF CALIFORNIA REGISTERED GEOLOGIST #6270 BRADLEY D. WRIGHT CERTIFIED GEOLOGIST

Brad Wright
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

Senior Geologist
TITLE

# SOIL DRILLING LOG

McLaren Hart

SB/MW #: B-4
# D- 23499
Page 1 of 2
Geologist: C. Warwick

C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.
TOC ELEVATION NA (MSL) DATE(S) 9/12/95 TOTAL DEPTH 27.0'
MONITORING DEVICE PID SCREENED INTERVAL NA
SAMPLING METHOD Direct Push SUBCONTRACTOR & EQPT Precision/XD
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ▽ =First Water
MEMO

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction Details |
|---|---|---|---|---|---|---|---|
| | | | | 0 - 1' ASPHALT and ROADBASE | RB | | |
| | | | 0.0 | 1 - 5.5' SILTY SAND; (0,80,20,0); dark reddish gray (5YR4/2); loose; fine grained sand; poorly graded; dry. | SM | | |
| 2.5 | | | | | | | |
| | | | 0.0 | | | | |
| 5.0 | | | | | | | 2" Borehole |
| | | | | 5.5 - 8' SANDY SILT: (0,25,60,15); low plasticity; slightly stiff; fine grained sand; moist. | ML | | |
| | | | 0.0 | | | | |
| 7.5 | | | | | | | |
| | | | | 8 - 13' SILTY SAND: (0,55,30,15); yellowish brown (10YR5/4); medium dense; fine to coarse grained sand; well graded; slightly moist. | SM | | |
| 10.0 | | | 282 | | | | Portland Cement |
| 12.5 | | 51494 | | | | | |
| | | | 484 | 13 - 18' SILTY CLAY with SAND: (0,20,50,30); grayish brown (10YR5/2); low to medium plasticity; slightly stiff; fine grained sand; moist. | CL | | |

See Following Page...

STATE OF CALIFORNIA REGISTERED GEOLOGIST #6270 Exp. 12/31/96 CERTIFIED ENGINEERING GEOLOGIST

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

Title: Geoscientist

# SOIL DRILLING LOG

McLaren Hart

SB/MW #: B-4
# D- 23499
Page 2 of 2
Geologist: C. Warwick

C Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction Details |
|---|---|---|---|---|---|---|---|
| 15.0 | | | 68 | SILTY CLAY with SAND continued. | | | |
| 17.5 | | 51495 | | 18 - 19' SILTY SAND: (0,70,20,10); loose to medium dense; fine grained sand; poorly graded; saturated. | SM | | |
| | | | | 19 - 20.5' SILTY CLAY with SAND: (0,20,50,30); grayish brown (10YR5/2); low to medium plasticity; slightly stiff; fine grained sand; moist. | CL | | |
| 20.0 | | | | | | | 2" Borehole |
| | | | | 20.5 - 21.5' SILTY SAND: (0,55,30,15); loose to medium dense; fine grained sand; poorly graded; saturated. | SM | | |
| | | | 0.0 | 21.5 - 27' SILTY CLAY with SAND : (0,20,50,30); brown (10YR5/3); low to medium plasticity; stiff to hard; fine grained sand; slightly moist. | CL | | |
| 22.5 | | | | | | | Portland Cement |
| 25.0 | | 52403-04 | 0.0 | @ 27' Refusal | | | 27.0 |

STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 BRADLEY D. WRIGHT REGISTERED GEOLOGIST

FRED,TBNS,AUG99 Exp: 9/30

SIGNATURE OF REVIEWER AND SUPERVISOR

Senior Geologist
TITLE

# SOIL DRILLING LOG

McLaren Hart

SB/MW #: B-5
# D- 17354
Page 1 of 2
Geologist: C. Warwick

C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.
TOC ELEVATION NA (MSL) DATE(S) 9/12/95 TOTAL DEPTH 33.0'
MONITORING DEVICE PID SCREENED INTERVAL NA
SAMPLING METHOD Direct Push SUBCONTRACTOR & EQPT Precision/XD
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ▽ =First Water
MEMO

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction Details |
|---|---|---|---|---|---|---|---|
| | | | | 0 - 1' CONCRETE | CC | | |
| | | | 580 | 1 - 7' SANDY CLAY: (5,40,35,20); medium plasticity; slightly stiff to stiff; fine to coarse grained sand; fine grained gravel; slightly moist. | CL | | |
| 2.5 | | | | | | | |
| | | | 488 | | | | |
| 5.0 | | | | | | | 2" Borehole |
| | | | 388 | 7 - 10' SILTY CLAY with SAND: (0,25,35,40); reddish yellow (7.5YR6/6); medium to high plasticity; slightly stiff to stiff; fine grained sand; moist. | CL CH | | |
| 7.5 | | | | | | | |
| 10.0 | | | 840 | 10 - 18.5' SILTY CLAY with SAND: (0,20,50,30); light yellowish brown (10YR6/4); low to medium plasticity; stiff; fine grained sand; slightly moist. | CL | | Portland Cement |
| 12.5 | | 52406 | | | | | |
| | | | 355 | | | | |
| 15.0 | | | | | | | |

See Following Page...

FRIED, MYLA/GNBPS #6276
Exp. 9/96

STATE OF CALIFORNIA REGISTERED GEOLOGIST TIMOTHY D. WRIGHT REGISTERED GEOLOGIST

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
Senior Geoscientist
TITLE

# SOIL DRILLING LOG

SB/MW #: B-5
# D- 17354
Page 2 of 2
Geologist: C. Warwick

C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction Details |
|---|---|---|---|---|---|---|---|
| 16.0 | | | 90 | @ 16 - 17' Increase in sand. | | | |
| 17.5 | | | | SILTY CLAY with SAND continued. | | | |
| | | | | 18.5 - 19.5' SILTY SAND : (0,70,20,10); brown (10YR5/3); medium dense to dense; fine to medium sand: moderately graded; slightly moist. | SM | | |
| 20.0 | | | | 19.5 - 32' SILTY CLAY with SAND: (0,20,50,30); light yellowish brown (10YR6/4); low to medium plasticity; stiff; fine grained sand; moist. | CL | | 2" Borehole |
| 22.5 | | | | | | | |
| | | | 16 | | | | |
| 25.0 | | | | | | | Portland Cement |
| | | | 0.0 | | | | |
| 27.5 | | | | | | | |
| 30.0 | | 52407-08 | | | | | |
| 32.5 | | | | 32 - 33' SILTY SAND: (0,80,20,0); brown (10YR5/3); loose to medium dense; fine grained sand; poorly graded; saturated. | SM | | 33.0 |

STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 Exp. 9/14 BRADLEY J. BRIGHT REGISTERED GEOLOGIST

FRIED,16(1).MOV

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

Senior Geologist
TITLE

# SOIL DRILLING LOG

McLaren Hart

SB/MW #: B-6
# D- 17356
Page 1 of 2
Geologist: C. Warwick

C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.
TOC ELEVATION NA (MSL) DATE(S) 9/12/95 TOTAL DEPTH 29.0'
MONITORING DEVICE PID SCREENED INTERVAL NA
SAMPLING METHOD Direct Push SUBCONTRACTOR & EQPT Precision/XD
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ▽ =First Water
MEMO

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction Details |
|---|---|---|---|---|---|---|---|
| | | | | 0 - 1' ASPHALT and ROADBASE | RB | | |
| | | | 0.0 | 1 - 3' SILTY SAND: (5,50,30,15); yellowish brown (10YR5/6); dense; moderately graded; fine to coarse grained sand; fine grained gravel; slightly moist. | SM | | |
| 2.5 | | | | | | | |
| | | | | 3 - 5' CLAYEY SILT with SAND: (0,20,50,30); light yellowish brown (10YR6/4); low plasticity; slightly stiff to stiff; slightly moist. | ML | | |
| | | | 0.0 | | | | |
| 5.0 | | | | 5 - 27' SANDY CLAY: (0,35,30,35); yellowish brown (10YR5/6); medium plasticity; stiff to hard; fine to coarse grained sand; moderately graded; slightly moist. | CL | | 2" Borehole |
| | | | 0.0 | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | 3.4 | | | | Portland Cement |
| 12.5 | | 52412 | | | | | |
| | | | 3.4 | | | | |
| 15.0 | | | | | | | |

See Following Page...

STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 BRADLEY D. WRIGHT REGISTERED GEOLOGIST

FRIED,1/6/96,BORREPS Exp. 9/96

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
Senior Geologist
TITLE

# SOIL DRILLING LOG

McLaren Hart

SB/MW #: B-6
# D- 17356
Page 2 of 2
Geologist: C. Warwick

C Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.

| Depth Below Surface (ft.) | Sampler Interval/ Recovery | Sample ID # | PID reading (ppm) | Soil Description Color, Texture, Moisture, Etc. | Unified Classification | Graphic Log | Borehole Abandonment/ Well Construction Details |
|---|---|---|---|---|---|---|---|
| 15.0 | | | 0.0 | SANDY CLAY continued. | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | 2" Borehole |
| 22.5 | | | 0.0 | | | | |
| 25.0 | | | | | | | Portland Cement |
| | | 52413-14 | 0.0 | | | | |
| 27.5 | | | | 27 - 29' SILTY SAND: (0,80,20,0); brown (10YR5/3); loose to medium dense; fine grained sand; poorly graded; saturated. | SM | | 29.0 |

STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 Exp 1/31/14 CERTIFIED ENGINEERING GEOLOGIST

FRIED,JHSA,AUSNRPS

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

Senior Geologist
TITLE

# SOIL DRILLING LOG

McLaren Hart

SB/MW #: MW-3
# D- 17357
Page 1 of 2
Geologist: C. Warwick

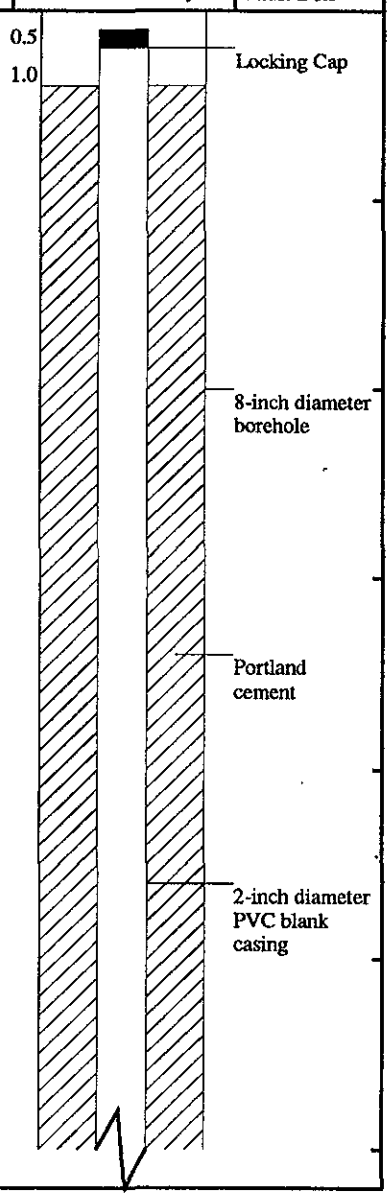
C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.
TOC ELEVATION 86.43 (MSL) DATE(S) 10/26/95 TOTAL DEPTH 27.5'
MONITORING DEVICE OVM SCREENED INTERVAL 20' - 25'
SAMPLING METHOD Cal. Mod. Split Spoon SUBCONTRACTOR & EQPT Gregg/M-11
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ▽ =First Water ▼ =Static Water (10/30/95)
MEMO Hand augered to 2.5'.

| 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 - 1' ASPHALT and ROADBASE | RB | |
| | | | | | | 1 - 4' SANDY FILL | FL | |
| 2.5 | 7-12-16 | 28 | | | 10.2 | | | |
| | 7-14-14 | 28 | | | 15.0 | 4 - 10' SILTY SAND: (0,50,30,20); brown (7.5Y5/4); loose to medium dense; fine grained sand; poorly graded; slightly moist. | SM | |
| 5.0 | 10-12-17 | 29 | | | 32.0 | | | |
| | 8-17-20 | 37 | | | 64.0 | | | |
| 7.5 | 11-15-20 | 35 | | 52416 | 498 | | | |
| 10.0 | 15-27-24 | 51 | | | 102 | 10 - 13' SANDY SILT: (0,30,50,20); reddish yellow (7.5Y6/6); low plasticity; slightly stiff to stiff; fine grained sand; slightly moist. | ML | |
| | 7-14-19 | 33 | | | 33 | | | |
| 12.5 | 7-11-20 | 31 | | | 34 | 13 - 18' SILTY SAND: (0,60,20,20); brown (7.5Y5/4); medium dense; fine to medium grained sand; moderately graded; moist. | SC | |

See Following Page...

Borehole Abandonment/ Well Construction Details




STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 BRADLEY D. WRIGHT Exp. 6-30-97 PROFESSIONAL GEOLOGIST

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

TITLE

# SOIL DRILLING LOG

McLaren Hart

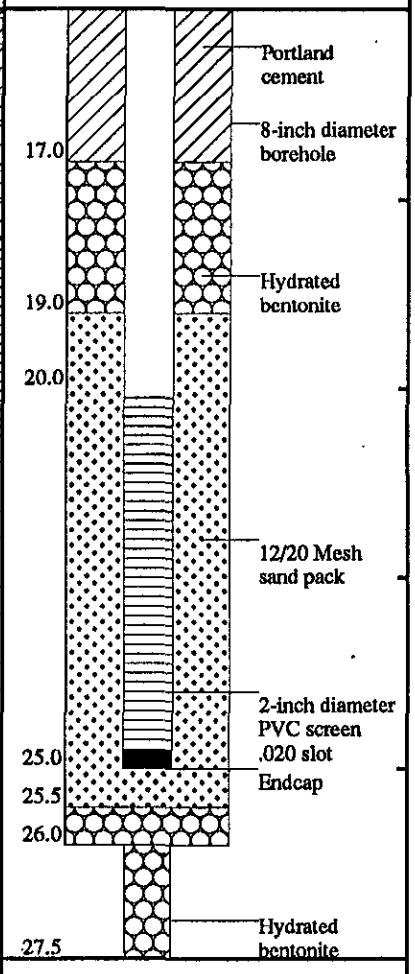
SB/MW #: MW-3
# D- 17357
Page 2 of 2
Geologist: C. Warwick

C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.

| 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 |
|---|---|---|---|---|---|---|---|---|
| 15.0 | 6-10-14 | 24 | | 52417 | 412 | SILTY SAND continued. | | |
| | 11-10-12 | 22 | | | 105 | | | |
| 17.5 | | | | | | | | |
| | 10-17-18 | 35 | | 52418 | 60 | 18 - 20' SANDY CLAY: (0,30,40,30); light yellowish brown (10YR6/4); low to medium plasticity; stiff; fine grained sand; moist. | CL | |
| ▼ | | | | | | | | |
| ▽ 20.0 | 4-6-10 | 16 | | | 40 | @ 20' Sand (SP) lens, saturated. | | |
| | | | | | | 20.5 - 24.5' SILTY SAND: (0,50,30,20); medium dense; fine to medium grained sand; moderately graded; very moist to saturated. @ 20.5' Increasing fine, well-rounded gravel from 20.5' to 21'. | SM | |
| | 6-10-15 | 25 | | | 54 | | | |
| 22.5 | | | | | | | | |
| | 12-12-16 | 28 | | | 27 | | | |
| | 11-6-16 | 22 | | | 21 | 24.5 - 27.5' SANDY CLAY: (0,30,30,40); brown (7.5YR5/4); medium plasticity; stiff to hard; fine grained sand; slightly moist. | CL | |
| 25.0 | | | | | | | | |
| | 6-12-6 | 18 | | | 0.0 | | | |
| 27.5 | | | | | | | | |

Borehole Abandonment/ Well Construction Details




STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 BRADLEY D. WHITE REGISTERED GEOLOGIST

SIGNATURE, FIELD SUPERVISOR AND REVIEWER

TITLE

# SOIL DRILLING LOG

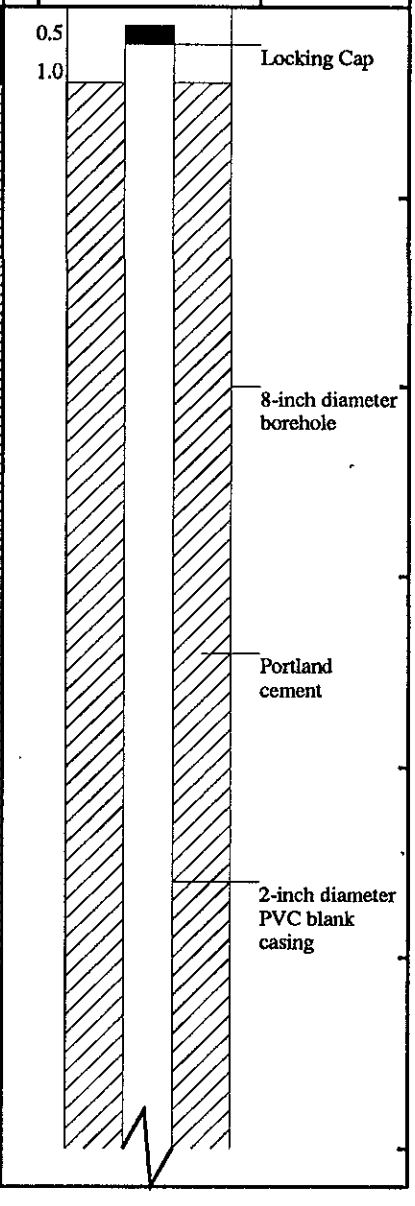
McLaren Hart

SB/MW #: MW-4
# D- 17359
Page 1 of 3
Geologist: C. Warwick

C. Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.
TOC ELEVATION 86.62 (MSL) DATE(S) 10/26/95 TOTAL DEPTH 37.0'
MONITORING DEVICE OVM SCREENED INTERVAL 25.5-35.5
SAMPLING METHOD Cal. Mod. split spoon SUBCONTRACTOR & EQPT Gregg/M-11
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO ▽ =First Water ▼ =Static Water (10/30/95)
MEMO Hand augered to 2'.

| 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 - 1' ASPHALT and ROADBASE | RB | |
| | | | | | | 1 - 14.5' SANDY CLAY: (0,40,35,25); brown (7.5Y5/4); medium plasticity; slightly stiff; fine grained sand; slightly moist. | CL | |
| 2.5 | 8-10-14 | 24 | | | 0.0 | | | |
| | 4-16-15 | 31 | | | 0.0 | | | |
| 5.0 | 9-12-18 | 30 | | | 0.0 | | | |
| | 6-10-15 | 25 | | | 0.0 | | | |
| 7.5 | | | | | | @ 7.5 - 9.5' Decreasing sand content. | | |
| | 7-14-16 | 30 | | | 0.0 | | | |
| | | | | | | @ 9.5 - 10' Increasing medium grained sand. | | |
| 10.0 | 6-10-13 | 23 | | | 0.0 | | | |
| | 7-12-14 | 26 | | | 0.0 | | | |
| 12.5 | | | | | | | | |
| | 5-8-11 | 19 | | | 0.0 | | | |
| | | | | | | 14.5 - 16.5' SILTY SAND: (0,55,30,15); | SM | |
| 15.0 | | | | | | See Following Page... | | |




STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 Exp. BRADLEY D. WHITE REGISTERED GEOLOGIST

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
Senior Geologist
TITLE

# SOIL DRILLING LOG

SB/MW #: MW-4
# D- 17359
Page 2 of 3
Geologist: C. Warwick

C. Warwick
SIGNATURE OF GEOLOGIST

McLaren Hart

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| 15.0 | 6-10-11 | 21 | | | 0.0 | reddish yellow (5YR6/6); loose to medium dense; fine to medium grained sand; moderately graded; moist to very moist. | | | Portland cement |
| | 7-8-11 | 19 | | | 0.0 | 16.5 - 20' SANDY SILT with CLAY: (0,40,35,25); brown (7.5YR5/4); low plasticity; slightly stiff; fine grained sand; moist. | ML | | 8-inch diameter borehole |
| 17.5 ▽ | 5-7-12 | 19 | | | 0.0 | @ 17.5 - 18' Sand (SC) lens; saturated. | | | |
| | 8-8-14 | 22 | | | 0.0 | | | | |
| 20.0 ▼ | | | | | | 20 - 28' SANDY CLAY: (0,30,40,30); yellowish red (5YR5/6); medium plasticity; stiff to hard; fine grained sand; slightly moist. | CL | | 2-inch diameter PVC blank casing |
| | 5-8-12 | 20 | | | 0.0 | | | | |
| 22.5 | 6-6-11 | 18 | | | 0.0 | | | | 22.5 Hydrated bentonite |
| | 7-10-14 | 24 | | | 0.0 | | | | 24.5 |
| 25.0 | 6-12-15 | 27 | | | 0.0 | | | | 25.5 |
| | 10-9-13 | 22 | | | 0.0 | | | | 12/20 Mesh sand pack |
| 27.5 | 7-10-12 | 22 | | 52415 | 0.0 | 28 - 31.5' SANDY SILT: (0,45,35,20); yellowish red (5YR5/6); low plasticity; slightly stiff; fine grained sand; moist. | ML CL | | 2-inch diameter PVC screen .020 slot |
| 30.0 | 10-12-16 | 28 | | | 0.0 | | | | |
| | | | | | 0.0 | 31.5 - 35' SILTY SAND: (0,70,20,10); yellowish red (5YR5/6); loose to medium dense; fine to medium grained sand; | SM | | |
| 32.5 | | | | | | See Following Page... | | | |

STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 Exp. 11-17 BARCLEY D. WILLIAMS REGISTERED GEOLOGIST

FRIED.LOG/95AUGPS

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

Senior Geologist
TITLE

# SOIL DRILLING LOG

McLaren Hart

SB/MW #: MW-4
# D- 17359
Page 3 of 3
Geologist: C. Warwick

C Warwick
SIGNATURE OF GEOLOGIST

PROJECT Friedkin/Becker LOCATION 3810 Broadway, Oakland, Ca.

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| 32.5 | | | | | | moderately graded; very moist. | | | |
| | 8-9-10 | 19 | | | 0.0 | | | | |
| | 7-10-16 | 26 | | | 0.0 | @ 34.5 - 35' Decreasing silt and clay content; saturated. | | | |
| 35.0 | | | | | | 35 - 37' SANDY CLAY: (0,30,40,30); yellowish red (5YR5/6); medium plasticity; stiff; fine grained sand; moist. | CL | | |
| | | 29 | | | 0.0 | | | | 35.5 36.0 37.0 |

2-inch diameter PVC screen .020 slot
12/20 Mesh sand pack
Endcap
Hydrated bentonite

STATE OF CALIFORNIA REGISTERED GEOLOGIST #6276 BARKLEY D. WRIGHT REGISTERED GEOLOGIST

FIELD TRANSLOGGER: [illegible]

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

Senior Geoscientist
TITLE

# APPENDIX B

# WELL DEVELOPMENT AND SAMPLING EVENT DATA SHEETS

McLaren Hart

# HYDRODATA

DATE: 11/03/95

PROJECT: Friedkin Becker EVENT: _____ SAMPLER: Steve

| NO. | WELL OR LOCATION | DATE MO | DATE DA | DATE YR | TIME HR | TIME MIN | MEASUREMENT | CODE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | MW-4 | 11 | 03 | 95 | 09 | 15 | 19.89 | | |
| 2 | MW-1 | " | " | " | 09 | 18 | 22.98 | | |
| 3 | MW-3 | " | " | " | 09 | 20 | 19.40 | | |
| 4 | MW-2 | " | " | " | 09 | 24 | 22.26 | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 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.

Note flooding of vault box, odor, access problems.

McLaren Hart

# HYDRODATA

DATE: 10/30/95

PROJECT: Friedkin / Becker EVENT: INITIAL SAMPLER: Shane

| NO. | WELL OR LOCATION | DATE MO | DA | YR | TIME HR | MIN | MEASUREMENT | CODE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | MW-3 | 10 | 30 | 95 | 09 | 45 | 19.19 | SWL | ovm - well 891 ppm<br>ovm - head space 0.0 ppm |
| 2 | MW-4 | | | | 09 | 54 | 19.84 | | ovm - well 0.0 ppm<br>ovm - head 0.0 " |
| 3 | MW-1 | | | | 09 | 57 | 22.93 | | ovm - well 0.0 ppm<br>ovm - head 0.0 " |
| 4 | MW-2 | ↓ | ↓ | ↓ | 10 | 01 | 22.22 | ↓ | ovm - well 767 ppm<br>ovm - head 0.0 ppm |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 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.

Note flooding of vault box, odor, access problems.

²Negative pressure (Vacuum) psi = approx. -(1/2 x mmHg)

McLaren Hart

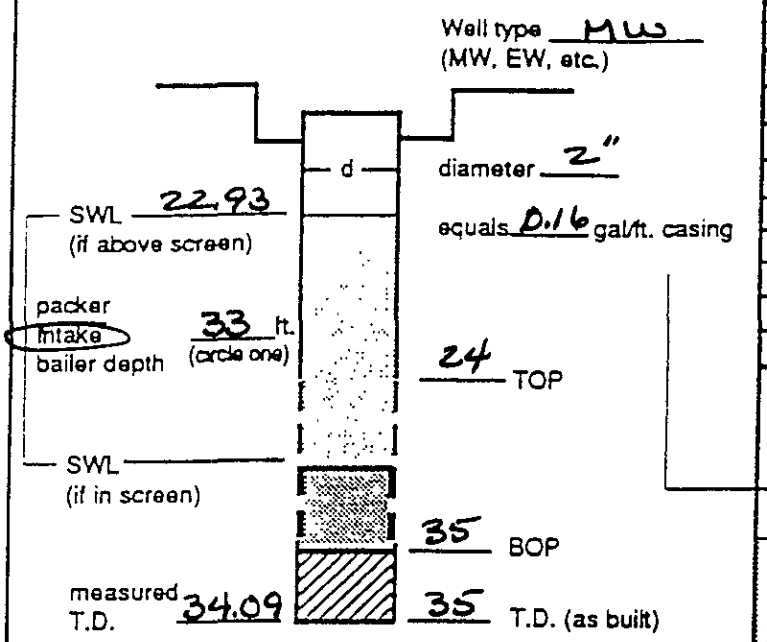
# WELL DEVELOPMENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-1

PROJECT FRIEDKIN BECKER SAMPLER STEVE DATE 10/30/95

## Well / Hydrologic statistics




| Action | Time | Pump rate | IWL (low yield) |
|---|---|---|---|
| Start pump / Begin | 1456 | 1.5 GPM | |
| | | ↓ | |
| | 1506 | 0.56PM | 32.82 |
| | | | |
| | 1528 | | 32.5 |
| | | | |
| | | | |
| Stop | 1544 | | |
| Sampled | | | |
| (Final IWL) | 1549 | | 26.50 |

**Purge calculation**

0.16 gal/ft. * 12.07 ft. = 1.93 gals x 10 = 20 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 34

Actual volumes purged ~~16~~ 17

Well yield ⊕ (see below) MY

Equipment Used / Sampling Method / Description of Event/Comments:
SURGED WELL: 10 REPS / 3' INC.
BAILED:
2" SUBMERSIBLE PUMP TO PURGE

| Gallons purged * | TEMP °C / (F) (circle one) | EC (µs / cm) | Ph | TURBIDITY (NTU) | | |
|---|---|---|---|---|---|---|
| 1. 2 | 61.9 | 1670 | 6.58 | > 200.0 | | |
| 2. 4 | 61.0 | 1690 | 6.60 | > 200.0 | | |
| 3. 6 | | | | | | |
| 4. 8 | | | | | | |
| 5. 10 | 61.5 | 1730 | 6.62 | > 200.0 | | |
| 6. 12 | | | | | | |
| 7. 14 | 62.9 | 1760 | 6.68 | > 200.0 | | |
| 8. 16 | | | | | | |
| 9. 18 | 62.0 | 1750 | 6.69 | > 200.0 | | |
| 10. 20 | | | | | | |
| 11. 22 | | | | | | |
| 12. 24 | 62.2 | 1750 | 6.69 | > 200.0 | | |

* 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. /LY - Minimal recharge - unable to purge 3 volumes.

McLaren Hart

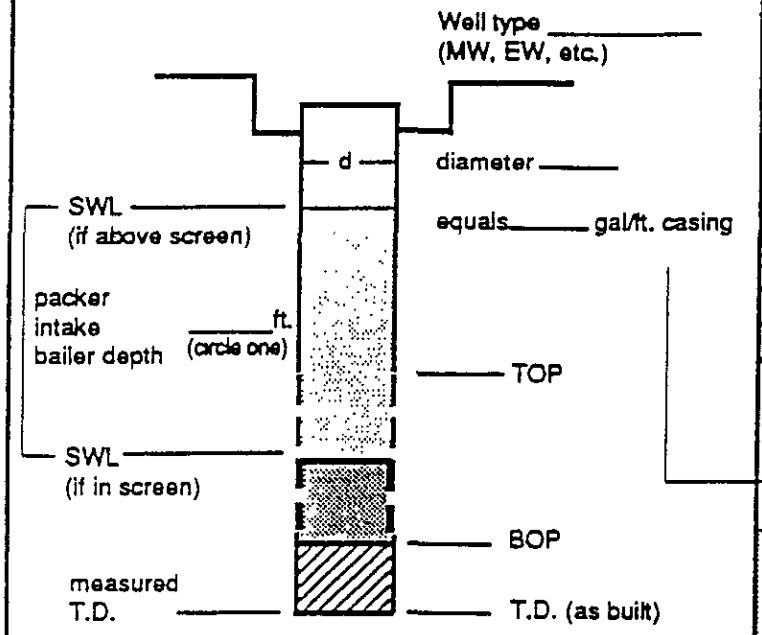
# WELL DEVELOPMENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-1 (CONT)

PROJECT FRIEDKIN BECKER SAMPLER STEVE DATE 10/30/95

## Well / Hydrologic statistics




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

**Purge calculation**

gal/ft. * ft. = gals x 10 = 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

Actual volumes purged

Well yield ⊕ (see below)

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

| Gallons purged * | TEMP °C / °F (circle one) | EC (µs / cm) | Ph | TURBIDITY (NTU) | | |
|---|---|---|---|---|---|---|
| 1. 26 | 62.6 | 1770 | 6.72 | >200.0 | | |
| 2. 28 | | | | | | |
| 3. 30 | 62.0 | 1770 | 6.76 | 149.8 | | |
| 4. 32 | 62.0 | 1770 | 6.82 | 88.9 | | |
| 5. 34 | 62.2 | 1770 | 6.68 | 16.27 | | |
| 6. | | | | | | |
| 7. | | | | | | |
| 8. | | | | | | |
| 9. | | | | | | |
| 10. | | | | | | |
| 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

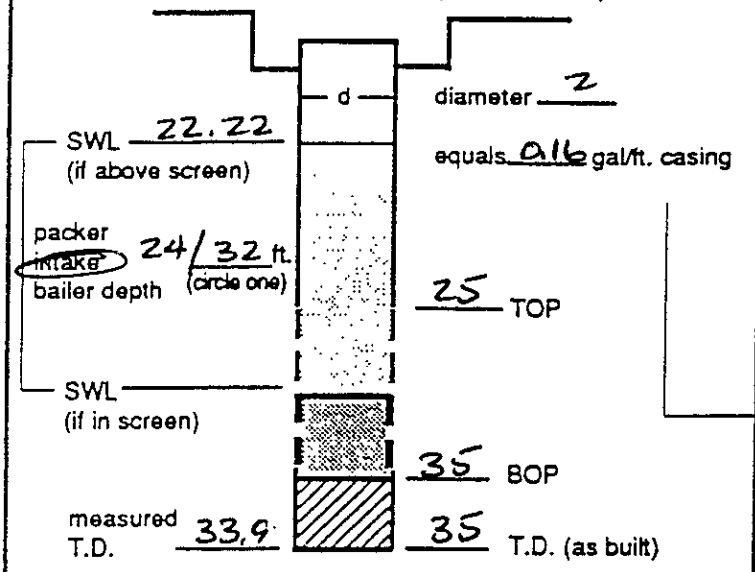
(fill out completely)

WELL OR LOCATION MW-2

PROJECT FRIEDKIN-BECKER SAMPLER STEVE DATE 10/30/95

## Well / Hydrologic statistics

Well type MW (MW, EW, etc.)




| Action | Time | Pump rate | IWL (low yield) |
|---|---|---|---|
| Start pump / Begin | 1641 | 0.5 GPM | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Stop | 1659 | | |
| Sampled | | | |
| (Final IWL) | | | |

### Purge calculation

0.16 gal/ft. * 12.78 ft. = 2.5 gals x 10 = 25 gals.

(0.16 gal/ft.: SWL to BOP or packer to BOP; 2.5: one volume; 25: purge volume-10 casings)

### Head purge calculation (Airlift only)

_____ gal/ft. * _____ ft. = _____ gals.

packer to SWL

Actual gallons purged 6

Actual volumes purged 2.4

Well yield ⊕ (see below) –

Equipment Used / Sampling Method / Description of Event/Comments:
SURGED BELL: 10 REPS / 5' INC.
2" SUBMERSIBLE PUMP TO PURGE.
FREE PRODUCT PUMPED AFTER 6 GALLONS / STOPPED PURGING.

| Gallons purged * | TEMP °C (°F) (circle one) | EC (µs / cm) | Ph | TURBIDITY (NTU) | | |
|---|---|---|---|---|---|---|
| 1. 2 | 61.2 | 1170 | 6.80 | >200.0 | | |
| 2. 4 | 61.8 | 1150 | 6.68 | >200.0 | | |
| 3. 6 | 60.9 | 1110 | 6.72 | >200.0 | | |
| 4. | | | | | | |
| 5. | | | | | | |
| 6. | | | | | | |
| 7. | | | | | | |
| 8. | | | | | | |
| 9. | | | | | | |
| 10. | | | | | | |
| 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

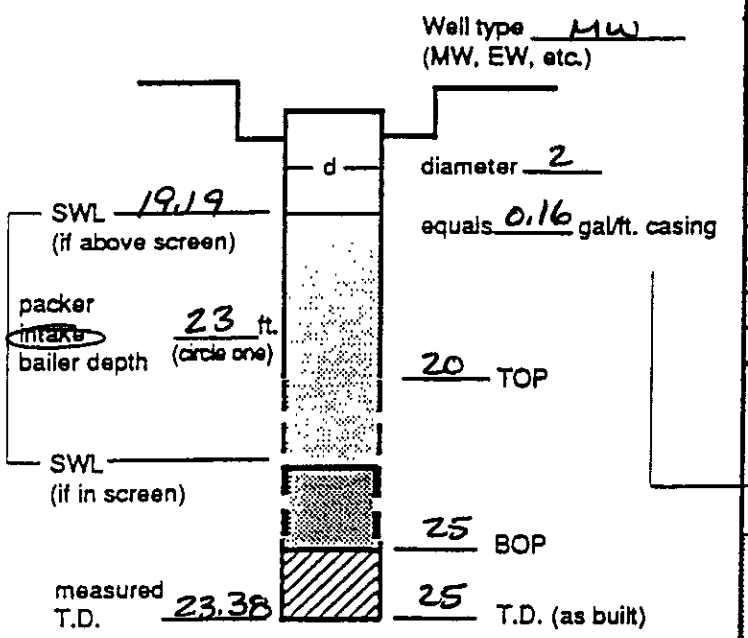
# WELL DEVELOPMENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-3

PROJECT FRIEDKIN-BECKER SAMPLER STEVE DATE 10/30/95

## Well / Hydrologic statistics




| Action | Time | Pump rate | IWL (low yield) |
|---|---|---|---|
| Start pump / Begin | 1048 | 0.4 GPM | |
| | 1051 | | 22.18 |
| | 1053 | | 22.45 |
| | 1058 | | 22.30 |
| | 1108 | | 22.29 |
| | 1127 | | 22.65 |
| | | | |
| Stop | 1129 | | 22.65 |
| Sampled | | | |
| (Final IWL) | | | |

### Purge calculation

0.16 gal/ft. * 5.81 ft. = 1 gals x 10 = 10 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 21

Actual volumes purged 21

Well yield ⊕ (see below) MY

Equipment Used / Sampling Method / Description of Event/Comments:
SURGED WELL: 10 REPS OVERSCREEN
BAILED 5 GALLONS: HEAVY SILT/CLAY
CENTRIFUGAL PUMP TO PURGE

| Gallons purged * | TEMP °C / °F (circle one) | EC (µs / cm) | Ph | TURBIDITY (NTU) | | |
|---|---|---|---|---|---|---|
| 1. 1 | 81.1 | 1290 | 6.75 | 99.7 | | |
| 2. 2 | 83.1 | 1240 | 6.73 | >200.0 | | |
| 3. 3 | 82.2 | 1150 | 6.58 | >200.0 | | |
| 4. 4 | 85.3 | 1130 | 6.68 | >200.0 | | |
| 5. 5 | 88.7 | 1110 | 6.62 | >200.0 | | |
| 6. 6 | 87.2 | 1110 | 6.64 | >200.0 | | |
| 7. 7 | 87.7 | 1060 | 6.62 | >200.0 | | |
| 8. 8 | 90.5 | 790 | 6.62 | 115.2 | | |
| 9. 9 | 89.9 | 770 | 6.50 | 70.1 | | |
| 10. 10 | 88.3 | 830 | 6.48 | >200.0 | | |
| 11. 11 | 85.9 | 780 | 6.51 | >200.0 | | |
| 12. 12 | 88.3 | 820 | 6.56 | >200.0 | | |

* 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

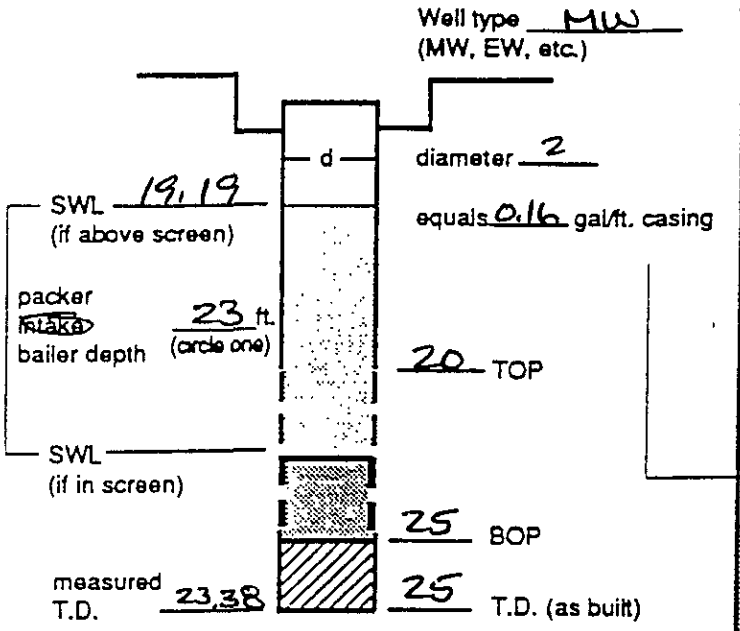
# WELL DEVELOPMENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-3(cont)

PROJECT FRIEDKIN-BECKER SAMPLER STEVE DATE 10/30/95

## Well / Hydrologic statistics




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

### Purge calculation

____ gal/ft. * ____ ft. = ____ gals x 10 = ____ 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 ____

Actual volumes purged ____

Well yield ⊕ ____
(see below)

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

| Gallons purged * | TEMP °C (F) (circle one) | EC (µs / cm) | Ph | TURBIDITY (NTU) | | |
|---|---|---|---|---|---|---|
| 1. 13 | 85.9 | 780 | 6.56 | >200.0 | | |
| 2. 14 | 86.2 | 770 | 6.58 | >200.0 | | |
| 3. 15 | 86.7 | 780 | 6.62 | 53.7 | | |
| 4. 16 | 86.8 | 770 | 6.56 | 34.9 | | |
| 5. | | | | | | |
| 6. | | | | | | |
| 7. | | | | | | |
| 8. | | | | | | |
| 9. | | | | | | |
| 10. | | | | | | |
| 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.

# WELL DEVELOPMENT DATA SHEET

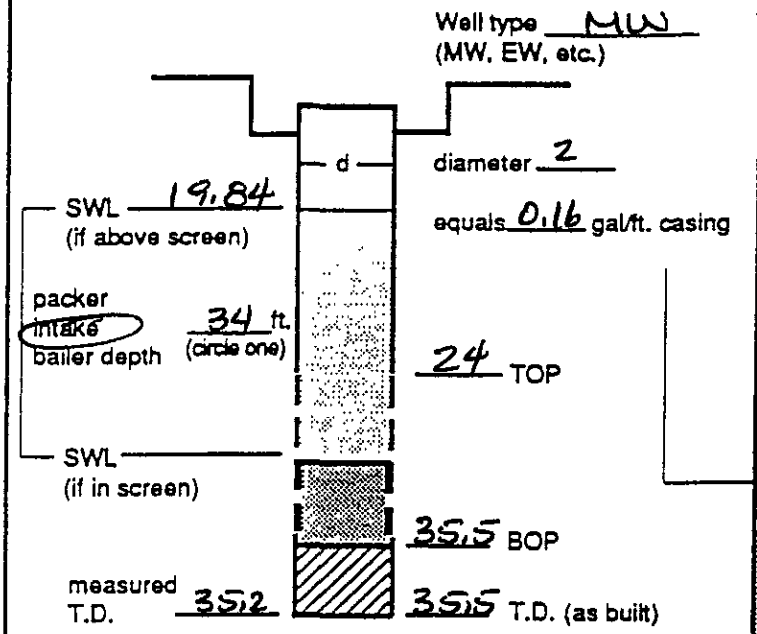
(fill out completely)

Mclaren Hart

WELL OR LOCATION MW-4

PROJECT FRIEDKIN-BECKER SAMPLER STEVE DATE 10/30/95

## Well / Hydrologic statistics




| Action | Time | Pump rate | IWL (low yield) |
|---|---|---|---|
| Start pump / Begin | 1215 | 4 GPM | |
| | 1218 | 2 GPM | 25.72 |
| | 1222 | ↓ | 28.90 |
| | 1225 | ↓ | 30.88 |
| (STOP) | 1227 | ↓ | |
| (START) | 1335 | 1 GPM | 20.34 |
| | | ↓ | |
| Stop | 1350 | ↓ | 27.79 |
| Sampled | | | |
| (Final IWL) | | | |

### Purge calculation

0.16 gal/ft. * 15.66 ft. = 2.5 gals x 10 = 25 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 45

Actual volumes purged 18

Well yield ⊕ MY
(see below)

Equipment Used / Sampling Method / Description of Event/Comments:
SURGED WELL: 10 REPS @ 5'/INC
2" SUBMERSIBLE PUMP TO PURGE. SWITCHED TO CENTRIFUGAL PUMP TO PURGE @ 1227 (30 GAL)

| Gallons purged * | TEMP °C (°F) (circle one) | EC (µs / cm) | Ph | TURBIDITY (NTU) | | |
|---|---|---|---|---|---|---|
| 1. 2 | 64.2 | 800 | 7.70 | > 200.0 | | |
| 2. 5 | 64.8 | 760 | 7.41 | > 200.0 | | |
| 3. 7 | | | | | | |
| 4. 10 | 64.8 | 670 | 7.24 | > 200.0 | | |
| 5. 12 | | | | | | |
| 6. 15 | 64.8 | 710 | 7.15 | > 200.0 | | |
| 7. 17 | 64.6 | 640 | 7.14 | > 200.0 | | |
| 8. 20 | 67.1 | 630 | 7.14 | > 200.0 | | |
| 9. 22 | 72.3 | 410 | 7.12 | > 200.0 | | |
| 10. 25 | 75.8 | 410 | 7.11 | > 200.0 | | |
| 11. 27 | 72.0 | 410 | 7.11 | 172.5 | | |
| 12. 30 | 77.8 | 400 | 7.10 | 141.0 | | |

* 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.

# WELL DEVELOPMENT DATA SHEET

(fill out completely)

McLaren Hart

WELL OR LOCATION MW-4 (cont)

PROJECT FRIEDKIN-BECKER SAMPLER STEVE DATE 10/30/95

## Well / Hydrologic statistics

Well type MW (MW, EW, etc.)

d — diameter 2

equals 0.16 gal/ft. casing

SWL 19.84 (if above screen)

packer / ~~intake~~ bailer depth 34 ft. (circle one)

24 TOP

SWL (if in screen)

35.5 BOP

measured T.D. 35.2

35.5 T.D. (as built)

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

### Purge calculation

0.16 gal/ft. * 15.66 ft. = 2.5 gals x 10 = 25 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 _____

Actual volumes purged _____

Well yield ⊕ (see below) _____

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

| Gallons purged * | TEMP °C / (F) (circle one) | EC (µs / cm) | Ph | TURBIDITY (NTU) | | |
|---|---|---|---|---|---|---|
| 1. 32 | | | | | | |
| 2. 35 | 78.9 | 370 | 7.32 | 125.2 | | |
| 3. 37 | 79.2 | 380 | 7.25 | 88.9 | | |
| 4. 40 | 80.3 | 390 | 7.17 | 101.9 | | |
| 5. 42 | 82.4 | 390 | 7.17 | 102.5 | | |
| 6. 45 | 79.4 | 410 | 7.11 | 48.5 | | |
| 7. | | | | | | |
| 8. | | | | | | |
| 9. | | | | | | |
| 10. | | | | | | |
| 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.

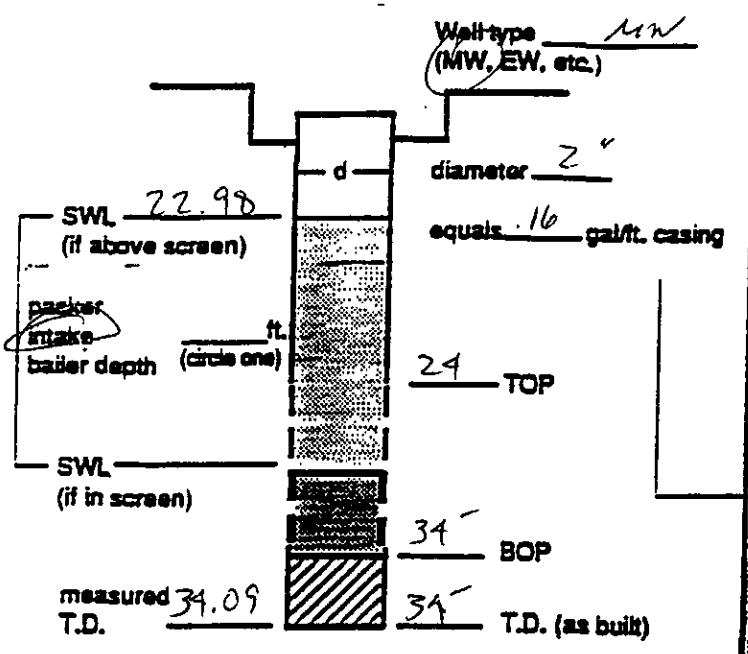
# McLaren Hart — SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-1

PROJECT Friedkin Becker EVENT _____ SAMPLER Steve DATE 11/03/95

## Well / Hydrologic statistics




| Action | Time | Pump rate | IWL (low yield) |
|---|---|---|---|
| Start pump / Begin | 1030 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Stop | 1146 | | 23.93 |
| Sampled | 1150 | | — |
| (Final IWL) | 1200 | | 23.28 |

**Purge calculation**

.16 gal/ft. * 11.02 ft. = 1.76 gals x 3 = 7.05 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:

peristaltic pump w/ disposable bailer

Actual gallons purged 7.5

Actual volumes purged _____

Well yield ⊕ (see below) _____

COC # 16396

| Sample I.D. | Analysis | Lab |
|---|---|---|
| 500901-4 | BTEX | MBT |
| | TPH-G | ↓ |
| | | |
| | | |
| | | |

Additional comments:

| Gallons purged * | TEMP °C / °F (circle one) | EC (µs / cm) | PH | TURBIDITY (NTU) | | |
|---|---|---|---|---|---|---|
| 1. 1.5 | 60.2 | 1631 | 6.910 | 6.73 | | |
| 2. 3.0 | 60.1 | 1695 | 6.98 | 4.82 | | |
| 3. 4.5 | 60.1 | 1690 | 6.93 | 3.21 | | |
| 4. 6.0 | 59.7 | 1687 | 6.91 | 1.98 | | |
| 5. Sample | | | | 2.46 | | |

* 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.

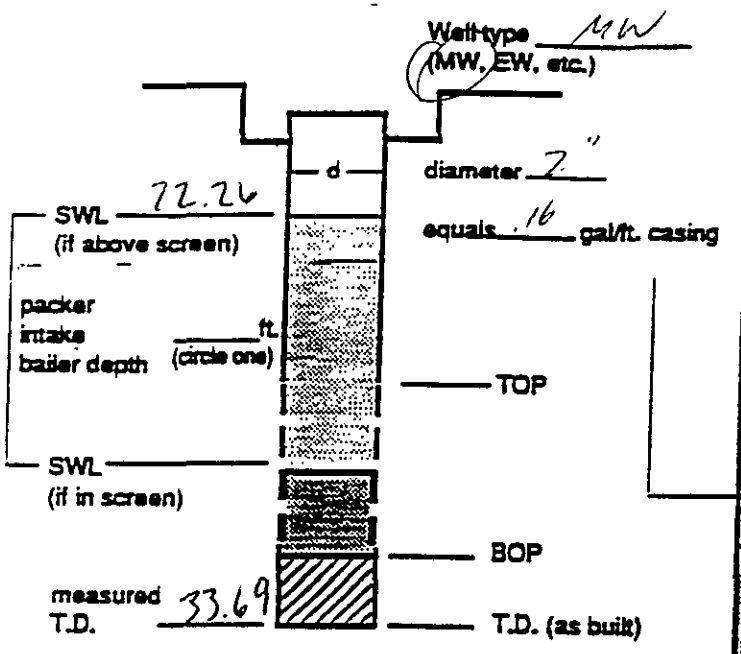
# McLaren Hart — SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-2

PROJECT Friedkin Becker EVENT _____ SAMPLER Steve DATE 11/03/95

## Well / Hydrologic statistics




| Action | Time | Pump rate | IWL (low yield) |
|---|---|---|---|
| Start pump / Begin | 1100 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| 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:

2. Centrifugal – purged 1.0 gal
1. peristaltic – purged 1.5 gal
3. bailer – bailed 3.0 gal

Actual gallons purged 5.5

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.

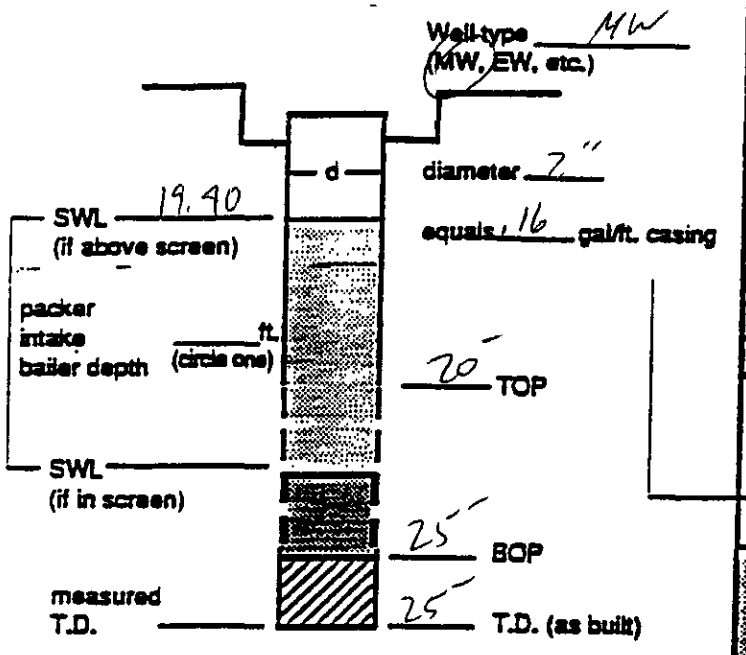
# McLaren Hart — SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-3

PROJECT Friedkin/Becker EVENT _____ SAMPLER Steve DATE 11/03/95

## Well / Hydrologic statistics




| Action | Time | Pump rate | IWL (low yield) |
|---|---|---|---|
| Start pump / Begin | 0934 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Stop | 1003 | | 19.77 |
| Sampled | 1009 | | — |
| (Final IWL) | 1014 | | 19.54 |

**Purge calculation**

.16 gal/ft. * 5.6 ft. = .90 gals x 3/4 = 3.58 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:

Peristaltic pump w/ disposable bailer

Actual gallons purged 4.0

Actual volumes purged _____

Well yield ⊕ _____
(see below)

COC # 16396

| Sample I.D. | Analysis | Lab |
|---|---|---|
| 500591-4 | TPH-G | MAT |
| | BTEX | " |
| | | |
| | | |
| | | |

Additional comments:

| Gallons purged * | TEMP °C / °F (circle one) | EC (µs / cm) | PH | TURBIDITY (NTU) | | |
|---|---|---|---|---|---|---|
| 1. .50 | 60.3 | 2530 | 6.85 | 12.32 | | |
| 2. 1.50 | 60.3 | 2200 | 6.88 | 6.39 | | |
| 3. 2.50 | 59.5 | 2050 | 6.93 | 3.21 | | |
| 4. 3.50 | 59.7 | 2010 | 6.89 | 1.81 | | |
| 5. Sample | | | | 1.70 | | |

* 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.

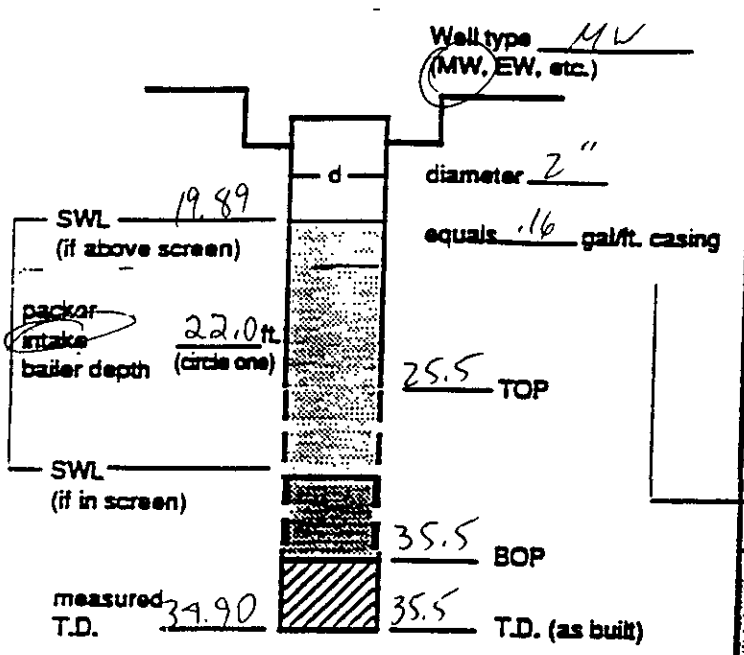
# McLaren Hart — SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-4

PROJECT Friedkin Parker EVENT _____ SAMPLER Steve DATE 11/03/95

## Well / Hydrologic statistics




| Action | Time | Pump rate | IWL (low yield) |
|---|---|---|---|
| Start pump / Begin | 0944 | 0.58 gpm | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Stop | 1102 | ↓ | 21.23 |
| Sampled | 1105 | | — |
| (Final IWL) | 1110 | | 20.14 |

**Purge calculation**

.16 gal/ft. * 15.61 ft. = 2.50 gals x 4 = 10.00 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:

peristaltic pump w/ disposable bailer

Actual gallons purged 10.5

Actual volumes purged 4.2

Well yield ⊕ (see below) HY-MY

COC # 16396

| Sample I.D. | Analysis | Lab |
|---|---|---|
| 500595-8 | TPH-G | KBF |
| | BTEX | |
| | | |
| | | |
| | | |

Additional comments:

| Gallons purged * | TEMP °C / °F (circle one) | EC (µs / cm) | PH | TURBIDITY (NTU) | | |
|---|---|---|---|---|---|---|
| 1. 2 | 58.9 | 892 | 7.34 | 6.87 | | |
| 2. 4.5 | 60.5 | 842 | 7.38 | 3.11 | | |
| 3. 7.0 | 60.3 | 785 | 7.29 | 1.74 | | |
| 4. 9.5 | 60.4 | 799 | 7.23 | 2.03 | | |
| 5. Sample | | | | 1.93 | | |

* 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 C

## LABORATORY ANALYTICAL DATA SHEETS;
## AND
## CHAIN-OF-CUSTODY RECORDS - GROUNDWATER AND SOIL SAMPLES

MBT Environmental
Laboratories

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

Date: September 25, 1995
LP #: 12580

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

Dear Mr. Germanas:

Enclosed are the laboratory results for the three samples submitted to MBT Environmental Laboratories on September 16, 1995, for the project *3810 Broadway*.

The report consists of the following sections:

1. Cover Page
2. Copy of Chain-of-Custody
3. General Narrative
4. Analytical and Quality Control 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,

for

Kevin Hanlon
Project Coordinator

# ANALYTICAL REPORT

## LABORATORY PROJECT (LP) NUMBER 12580

## 3810 BROADWAY

The analyses performed by MBT Environmental Laboratories in this report comply with the requirements under the following certification/approval:

| | | |
|---|---|---|
| | ARIZONA: | Hazardous Waste, #AZ0468<br>Waste Water, # AZ0468<br>Drinking Water, #AZ0468 |
| ✓ | CALIFORNIA: | Hazardous Waste, #1417<br>Waste Water, # 1417<br>Drinking Water, #1417 |
| | CONNECTICUT: | Waste Water, #PH0799 |
| | FLORIDA: | Environmental Water,<br>#E87298<br>CQAPP #930105 |
| | KANSAS: | Hazardous Waste, #E-1167<br>Waste Water, #E-192<br>Drinking Water, #E-192 |
| | NEW HAMPSHIRE: | Waste Water, #253195-B<br>Drinking Water, #253195-A |
| | NEW JERSEY: | Waste Water, #44818 |
| | NEW YORK: | Hazardous Waste, #11241<br>Waste Water, #11241<br>CLP, #11241 |
| | OKLAHOMA: | Hazardous Waste, #9318<br>Waste Water, #9318 |
| | SOUTH CAROLINA: | Hazardous Waste, #87013<br>Waste Water, #87013 |
| | TENNESSEE: | Underground Storage Tank |
| | UTAH: | Hazardous Waste, #E-165<br>Waste Water, #E-165<br>Drinking Water, #E-165 |
| | WASHINGTON: | Hazardous Waste, #C048 |
| | WISCONSIN: | Hazardous Waste, #999940920<br>Waste Water, #999940920 |
| | USACOE: | Hazardous Waste<br>Waste Water |
| | AFCEE | |

(CN12580)

MBT Environmental Laboratories

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

# CHAIN OF CUSTODY RECORD 12994

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

**Project Name:** 3810 BROADWAY
**Project Number:** 04.0601879.001.002
**Project Location: (State)** OAKLAND, CA

**FOR LABORATORY USE ONLY**
**Laboratory Project #:** 12580 **Storage ID:** 12-B
**Sample Condition Upon Receipt: Temp:** 3 °C **Geiger:**
**Custody Seals Present? Yes/No Intact? Yes/No Samples Intact? (Yes)/No**

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 [ ] A

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 | BTEX/TPH-G |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 12580-001 | 52402 | 9-11-95 | 1630 | B-1 | 19 | 1 | B | SOIL | — | 3 | X |
| 2 -002 | 51497 | 9-11-95 | 1350 | B-2 | 16.5 | ↓ | ↓ | ↓ | ↓ | ↓ | X |
| 3 -003 | 51495 | 9-11-95 | 1038 | B-4 | 18 | ↓ | ↓ | ↓ | ↓ | ↓ | X |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |

**SEND REPORT TO:**
Company Name SAUL DERHAMUS
Client Name ALAMEDA
Address W/H
Phone ____ Fax ____

**BILL TO (if different):**
Company Name ____
Address ____
PO # ____
Phone ____ Fax ____

**Special Instructions/Comments** ____

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

| | Date/Time | Received By or Method of Shipment/Shipment I.D. | Date/Time |
|---|---|---|---|
| Relinquished By: [signature] | 09-15-95/1700 | COURIER | 09-15-95/1700 |
| Relinquished By: EXPRESS IT | Date/Time | Received By or Method of Shipment/Shipment I.D. [signature] | Date/Time 9/16/95 1010 |
| Relinquished By: | Date/Time | Received By or Method of Shipment/Shipment I.D. | Date/Time |

**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
Semivos
Metals
Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
TSS
Turbidity

* Specify Total or Dissolved

## GENERAL NARRATIVE

**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.

Percent recoveries for laboratory control samples and matrix spikes have been calculated using unrounded concentration values. Therefore, percent recoveries reported may differ slightly from those obtained from the rounded concentration values which appear on the report.

The surrogate recoveries for the analytes flagged on the data sheet were diluted out for the following samples: 12580-1, 12580-2, and 12580-3.

The following samples were analyzed at a dilution to bring target analytes within linear working range: 12580-1, 12580-2, and 12580-3.

**Abbreviations and Definitions:**

| | |
|---|---|
| MB | *Method Blank* - An aliquot of a blank matrix carried throughout the entire analytical process |
| LCS | *Laboratory Control Sample* - A blank to which known quantities of specific analytes are added prior to sample preparation and analysis to assess the accuracy of the method |
| MS/MSD | *Matrix Spike/Matrix Spike Duplicate* - Duplicate samples to which known quantities of specific analytes are added prior to sample preparation and analysis to assess the extent of matrix bias or interference on analyte recovery |
| RPD | *Relative Percent Difference* - The measurement of precision between duplicate analyses |
| BRL | *Below Reporting Limit* |
| NS | *Not Specified* |
| NA | *Not Applicable* |

**Flags:**

Organics -

| | |
|---|---|
| J | Estimated value below the reporting limit and at or above the method detection limit. |
| B | Analyte found in the associated blank, as well as in the sample. |

(CN12580)

Inorganics -

B Estimated value below the reporting limit and at or above the method detection limit.

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-1 19
Sample Number: 52402
Date/Time Received: 09/16/95 10:10
Date Prepared: 09/18/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12580
Project Number: 040601879001002
Lab ID: 12580-1/23682-8298
Date/Time Sampled: 09/11/95 16:30
Matrix: Soil ( S )
Batch Number: 3275-950918
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 33000 | 5000 | 1000 | 09/19/95 |
| Toluene | 310000 | 5000 | 1000 | 09/19/95 |
| Ethyl benzene | 67000 | 5000 | 1000 | 09/19/95 |
| 1,2-Xylene | 89000 | 5000 | 1000 | 09/19/95 |
| 1,3-Xylene | 200000 | 5000 | 1000 | 09/19/95 |
| 1,4-Xylene | 72000 | 5000 | 1000 | 09/19/95 |
| TPH - Gasoline | 3600000 | 1000000 | 1000 | 09/19/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 0 * | 51 - 102 |
| Bromofluorobenzene(FID) | 0 * | 51 - 102 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 9-25-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/25/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-2 16.5
Sample Number: 51497
Date/Time Received: 09/16/95 10:10
Date Prepared: 09/18/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12580
Project Number: 040601879001002
Lab ID: 12580-2/23683-8298
Date/Time Sampled: 09/11/95 12:50
Matrix: Soil ( S )
Batch Number: 3275-950918
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 15000 | 5000 | 1000 | 09/19/95 |
| Toluene | 120000 | 5000 | 1000 | 09/19/95 |
| Ethyl benzene | 37000 | 5000 | 1000 | 09/19/95 |
| 1,2-Xylene | 45000 | 5000 | 1000 | 09/19/95 |
| 1,3-Xylene | 9900 | 5000 | 1000 | 09/19/95 |
| 1,4-Xylene | 39000 | 5000 | 1000 | 09/19/95 |
| TPH - Gasoline | 2200000 | 1000000 | 1000 | 09/19/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 0 * | 51 - 102 |
| Bromofluorobenzene(FID) | 0 * | 51 - 102 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 9-25-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/25/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-4 18
Sample Number: 51495
Date/Time Received: 09/16/95 10:10
Date Prepared: 09/18/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12580
Project Number: 040601879001002
Lab ID: 12580-3/23684-8298
Date/Time Sampled: 09/11/95 10:38
Matrix: Soil ( S )
Batch Number: 3275-950918
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 3800 | 500 | 100 | 09/19/95 |
| Toluene | 44000 | 5000 | 1000 | 09/19/95 |
| Ethyl benzene | 18000 | 5000 | 1000 | 09/19/95 |
| 1,2-Xylene | 27000 | 5000 | 1000 | 09/19/95 |
| 1,3-Xylene | 49000 | 5000 | 1000 | 09/19/95 |
| 1,4-Xylene | 25000 | 5000 | 1000 | 09/19/95 |
| TPH - Gasoline | 1400000 | 100000 | 100 | 09/19/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 0 * | 51 - 102 |
| Bromofluorobenzene(FID) | 0 * | 51 - 102 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 9-25-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/25/95

# METHOD BLANK

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 09/18/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

Lab ID: 24336-MB /8298
Matrix: Soil
Batch Number: 3275-950918

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Date Analyzed |
|---|---|---|---|
| Benzene | BRL | 5.0 | 09/18/95 |
| Toluene | BRL | 5.0 | 09/18/95 |
| Ethyl benzene | BRL | 5.0 | 09/18/95 |
| 1,2-Xylene | BRL | 5.0 | 09/18/95 |
| 1,3-Xylene | BRL | 5.0 | 09/18/95 |
| 1,4-Xylene | BRL | 5.0 | 09/18/95 |
| TPH - Gasoline | BRL | 1000 | 09/18/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 92 | 51 - 102 |
| Bromofluorobenzene(FID) | 98 | 51 - 102 |

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

Approved by: _____ Date: 9-25 95

MBT Environmental Laboratories

Master Builders Technologies

# LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 09/18/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL
LCS Date Analyzed: 09/18/95

Lab ID: 24337-LCS /8298
Matrix: Soil Units: ug/Kg (ppb)
Batch Number: 3275-950918
LCSD Date Analyzed: NA

| Analyte | (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 |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 250 | 280 | 114 | NA | NA | NA | 70-124 | ≤25 |
| Ethyl benzene | 0 | 250 | 280 | 110 | NA | NA | NA | 67-128 | ≤25 |
| TPH - Gasoline | 0 | 2500 | 2900 | 110 | NA | NA | NA | 75-125 | ≤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

| Surrogate | (h) Surr. Spike Conc. | (i) Sample + Surr. Spike Conc. | (j) Surr. Spike Rec % | (k) Sample Dup. + Surr. Spike Conc. | (l) Surr. Spike Dup. Rec % | Acceptance Limits |
|---|---|---|---|---|---|---|
| Bromofluorobenzene(PID) | 200 | 180 | 92 | NA | NA | 51-102 |
| Bromofluorobenzene(FID) | 200 | 194 | 97 | NA | NA | 51-102 |

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

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

Approved by: _____ Date: 9-25-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/25/95

MBT Environmental
Laboratories

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

Date: November 13, 1995
LP #: 12880

Chris Warwick
McLaren/Hart Environmental Engineering
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. Warwick:

Enclosed are the laboratory results for the samples submitted to MBT Environmental Laboratories on October 27, 1995, for the project *MBT*.

The report consists of the following sections:

1. Cover Page
2. Copy of Chain-of-Custody
3. General Narrative
4. Analytical and Quality Control 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,

Kevin Hanlon
Project Coordinator

# ANALYTICAL REPORT

# LABORATORY PROJECT (LP) NUMBER 12880

## MBT

The analyses performed by MBT Environmental Laboratories in this report comply with the requirements under the following certification/approval:

| | | |
|---|---|---|
| | ARIZONA: | Hazardous Waste, #AZ0468<br>Waste Water, # AZ0468<br>Drinking Water, #AZ0468 |
| ✓ | CALIFORNIA: | Hazardous Waste, #1417<br>Waste Water, # 1417<br>Drinking Water, #1417<br>Mobile Lab, #2070 |
| | CONNECTICUT: | Waste Water, #PH0799 |
| | FLORIDA: | Environmental Water,<br>#E87298<br>COAPP #930105 |
| | KANSAS: | Hazardous Waste, #E-1167<br>Waste Water, #E-192<br>Drinking Water, #E-192 |
| | NEW HAMPSHIRE: | Waste Water, #253195-B<br>Drinking Water, #253195-A |
| | NEW JERSEY: | Waste Water, #44818 |
| | NEW YORK: | Hazardous Waste, #11241<br>Waste Water, #11241<br>CLP, #11241 |
| | OKLAHOMA: | Hazardous Waste, #9318<br>Waste Water, #9318 |
| | SOUTH CAROLINA: | Hazardous Waste, #87013<br>Waste Water, #87013 |
| | TENNESSEE: | Underground Storage Tank |
| | UTAH: | Hazardous Waste, #E-165<br>Waste Water, #E-165<br>Drinking Water, #E-165 |
| | WASHINGTON: | Hazardous Waste, #C048 |
| | WISCONSIN: | Hazardous Waste, #999940920<br>Waste Water, #999940920 |
| | USACOE: | Hazardous Waste<br>Waste Water |
| | AFCEE | |

(CN12880)

MBT Environmental Laboratories

## GENERAL NARRATIVE

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.

Percent recoveries for laboratory control samples and matrix spikes have been calculated using unrounded concentration values. Therefore, percent recoveries reported may differ slightly from those obtained from the rounded concentration values which appear on the report.

EPA 8020 BTEX - TPH/G BY LUFT:

The surrogate recoveries for the analytes flagged on the data sheet were diluted out for the following sample: 12880-2

The surrogate recoveries for the analytes flagged on the data sheet were beyond acceptance limits for the following sample: 12880-1, 12880-MB, 12880-LCS

The surrogate recoveries for the analytes flagged on the data sheet were beyond acceptance limits due to the presence of a suspect interferant for the following sample: 12880-4

**Abbreviations and Definitions:**

| | |
|---|---|
| MB | *Method Blank* - An aliquot of a blank matrix carried throughout the entire analytical process |
| LCS | *Laboratory Control Sample* - A blank to which known quantities of specific analytes are added prior to sample preparation and analysis to assess the accuracy of the method |
| MS/MSD | *Matrix Spike/Matrix Spike Duplicate* - Duplicate samples to which known quantities of specific analytes are added prior to sample preparation and analysis to assess the extent of matrix bias or interference on analyte recovery |
| RPD | *Relative Percent Difference* - The measurement of precision between duplicate analyses |
| BRL | *Below Reporting Limit* |
| NS | *Not Specified* |
| NA | *Not Applicable* |

Flags:

Organics -

| | |
|---|---|
| J | Estimated value below the reporting limit and at or above the method detection limit. |
| B | Analyte found in the associated blank, as well as in the sample. |

Inorganics -

| | |
|---|---|
| B | Estimated value below the reporting limit and at or above the method detection limit. |

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: Mclaren/Hart
Project Name: MBT
Sample Description: MW-3 8.5'
Sample Number: 52416
Date/Time Received: 10/27/95 09:00
Date Prepared: 11/03/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL
Analyst: TL

SDG #: 12880
Project Number: 040601879001002
Lab ID: 12880-2/28958-7531
Date/Time Sampled: 10/26/95 08:31
Matrix: Soil ( SO )
Batch Number: 4124-951103
% Moisture: NA
Instrument/Column: vgc03/DB-WAX
Data File: 95305c17-0

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 88000 | 5000 | 1000 | 11/01/95 |
| Toluene | 550000 | 5000 | 1000 | 11/01/95 |
| Ethyl benzene | 140000 | 5000 | 1000 | 11/01/95 |
| 1,2-Xylene | 180000 | 5000 | 1000 | 11/01/95 |
| 1,3-Xylene | 360000 | 5000 | 1000 | 11/01/95 |
| 1,4-Xylene | 150000 | 5000 | 1000 | 11/01/95 |
| TPH - Gasoline | 65000000 | 1000000 | 1000 | 11/01/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 0 * | 51 - 102 |
| Bromofluorobenzene(FID) | 0 * | 51 - 102 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 11-10-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 11/10/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: Mclaren/Hart
Project Name: MBT
Sample Description: MW-3 15.5'
Sample Number: 52417
Date/Time Received: 10/27/95 09:00
Date Prepared: 11/03/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL
Analyst: TL

SDG #: 12880
Project Number: 040601879001002
Lab ID: 12880-3/28959-7531
Date/Time Sampled: 10/26/95 08:57
Matrix: Soil ( SO )
Batch Number: 4124-951103
% Moisture: NA
Instrument/Column: vgc04/DB-WAX
Data File: 95307d20-0

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | BRL | 5.0 | 1 | 11/03/95 |
| Toluene | 27 | 5.0 | 1 | 11/03/95 |
| Ethyl benzene | 6.4 | 5.0 | 1 | 11/03/95 |
| 1,2-Xylene | 18 | 5.0 | 1 | 11/03/95 |
| 1,3-Xylene | 8.5 | 5.0 | 1 | 11/03/95 |
| 1,4-Xylene | BRL | 5.0 | 1 | 11/03/95 |
| TPH - Gasoline | 1400 | 1000 | 1 | 11/03/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 82 | 51 - 102 |
| Bromofluorobenzene(FID) | 85 | 51 - 102 |

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

Approved by: _____ Date: 11-10-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 11/10/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: Mclaren/Hart
Project Name: MBT
Sample Description: MW-3 19.5'
Sample Number: 52418
Date/Time Received: 10/27/95 09:00
Date Prepared: 11/03/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL
Analyst: TL

SDG #: 12880
Project Number: 040601879001002
Lab ID: 12880-4/28960-7531
Date/Time Sampled: 10/26/95 09:48
Matrix: Soil ( SO )
Batch Number: 4124-951103
% Moisture: NA
Instrument/Column: vgc04/DB-WAX
Data File: 95307d22-0

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 1300 | 10 | 2 | 11/03/95 |
| Toluene | 1500 | 10 | 2 | 11/03/95 |
| Ethyl benzene | 110 | 10 | 2 | 11/03/95 |
| 1,2-Xylene | 170 | 10 | 2 | 11/03/95 |
| 1,3-Xylene | 180 | 10 | 2 | 11/03/95 |
| 1,4-Xylene | 80 | 10 | 2 | 11/03/95 |
| TPH - Gasoline | 6200 | 2000 | 2 | 11/03/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 34 * | 51 - 102 |
| Bromofluorobenzene(FID) | 37 * | 51 - 102 |

Qualifier Legend:
* - Values outside QC limits

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# METHOD BLANK

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 11/03/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

Analyst: TL

Lab ID: 30464-MB /7531
Matrix: Soil
Batch Number: 4124-951103
Instrument/Column: vgc04/DB-WAX
Data File: 95305c28-0

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Date Analyzed |
|---|---|---|---|
| Benzene | BRL | 5.0 | 11/01/95 |
| Toluene | BRL | 5.0 | 11/01/95 |
| Ethyl benzene | BRL | 5.0 | 11/01/95 |
| 1,2-Xylene | BRL | 5.0 | 11/01/95 |
| 1,3-Xylene | BRL | 5.0 | 11/01/95 |
| 1,4-Xylene | BRL | 5.0 | 11/01/95 |
| TPH - Gasoline | BRL | 1000 | 11/01/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 54 | 51 - 102 |
| Bromofluorobenzene(FID) | 105 * | 51 - 102 |

Qualifier Legend:
* - Values beyond QC limits

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# LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 11/03/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL
LCS Date Analyzed: 11/01/95

Analyst: TL

Lab ID: 30465-LCS /7531
Matrix: Soil Units: ug/Kg (ppb)
Batch Number: 4124-951103
LCSD Date Analyzed: NA
Instrument/Column: vgc04/DB-WAX
Data File: 95305c27-0

| Analyte | (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 |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 250 | 230 | 92 | NA | NA | NA | 70-124 | ≤25 |
| Ethyl benzene | 0 | 250 | 240 | 98 | NA | NA | NA | 67-128 | ≤25 |
| TPH - Gasoline | 0 | 2500 | 2500 | 99 | NA | NA | NA | 75-125 | ≤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

| Surrogate | (h) Surr. Spike Conc. | (i) Sample + Surr. Spike Conc. | (j) Surr. Spike Rec % | (k) Sample Dup. + Surr. Spike Conc. | (l) Surr. Spike Dup. Rec % | Acceptance Limits |
|---|---|---|---|---|---|---|
| Bromofluorobenzene(PID) | 200 | 100 | 52 | NA | NA | 51-102 |
| Bromofluorobenzene(FID) | 200 | 200 | 101 | NA | NA | 51-102 |

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

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# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: Mclaren/Hart
Project Name: MBT
Sample Description: MW-4 29'
Sample Number: 52415
Date/Time Received: 10/27/95 09:00
Date Prepared: 10/31/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL
Analyst: TL

SDG #: 12880
Project Number: 040601879001002
Lab ID: 12880-1/28957-7531
Date/Time Sampled: 10/26/95 15:18
Matrix: Soil ( S )
Batch Number: 4027-951031
% Moisture: NA
Instrument/Column: vgc03/DB-WAX
Data File: 95305c16-0

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | BRL | 5.0 | 1 | 11/01/95 |
| Toluene | BRL | 5.0 | 1 | 11/01/95 |
| Ethyl benzene | BRL | 5.0 | 1 | 11/01/95 |
| 1,2-Xylene | BRL | 5.0 | 1 | 11/01/95 |
| 1,3-Xylene | BRL | 5.0 | 1 | 11/01/95 |
| 1,4-Xylene | BRL | 5.0 | 1 | 11/01/95 |
| TPH - Gasoline | BRL | 1000 | 1 | 11/01/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 54 * | 60 - 111 |
| Bromofluorobenzene(FID) | 81 | 60 - 111 |

Qualifier Legend:
* - Values outside QC limits

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# METHOD BLANK

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 10/31/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

Analyst: TL

Lab ID: 29673-MB /7531
Matrix: Soil
Batch Number: 4027-951031
Instrument/Column: vgc03/DB-WAX
Data File: 95305c28-0

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Date Analyzed |
|---|---|---|---|
| Benzene | BRL | 5.0 | 11/01/95 |
| Toluene | BRL | 5.0 | 11/01/95 |
| Ethyl benzene | BRL | 5.0 | 11/01/95 |
| 1,2-Xylene | BRL | 5.0 | 11/01/95 |
| 1,3-Xylene | BRL | 5.0 | 11/01/95 |
| 1,4-Xylene | BRL | 5.0 | 11/01/95 |
| TPH - Gasoline | BRL | 1000 | 11/01/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 54 * | 60 - 111 |
| Bromofluorobenzene(FID) | 105 | 60 - 111 |

Qualifier Legend:
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# LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 10/31/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL
LCS Date Analyzed: 11/01/95

Analyst: TL

Lab ID: 29672-LCS /7531
Matrix: Soil Units: ug/Kg (ppb)
Batch Number: 4027-951031
LCSD Date Analyzed: NA
Instrument/Column: vgc03/DB-WAX
Data File: 95305c27-0

| Analyte | (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 |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 250 | 230 | 92 | NA | NA | NA | 70-124 | ≤25 |
| Ethyl benzene | 0 | 250 | 240 | 98 | NA | NA | NA | 67-128 | ≤25 |
| TPH - Gasoline | 0 | 2500 | 2500 | 99 | NA | NA | NA | 75-125 | ≤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

| Surrogate | (h) Surr. Spike Conc. | (i) Sample + Surr. Spike Conc. | (j) Surr. Spike Rec % | (k) Sample Dup. + Surr. Spike Conc. | (l) Surr. Spike Dup. Rec % | Acceptance Limits |
|---|---|---|---|---|---|---|
| Bromofluorobenzene(PID) | 200 | 100 | 52* | NA | NA | 60-111 |
| Bromofluorobenzene(FID) | 200 | 200 | 101 | NA | NA | 60-111 |

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

Qualifier Legend:
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MBT Environmental
Laboratories

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

Date: November 14, 1995
LP #: 12938

Chris Warwick
McLaren/Hart Environmental Engineering
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. Warwick:

Enclosed are the laboratory results for the samples submitted to MBT Environmental Laboratories on November 4, 1995, for the project *Friedkin Becker*.

The report consists of the following sections:

1. Cover Page
2. Copy of Chain-of-Custody
3. General Narrative
4. Analytical and Quality Control 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,

Kevin Hanlon
Project Coordinator

# ANALYTICAL REPORT

# LABORATORY PROJECT (LP) NUMBER 12938

## FRIEDKIN BECKER

The analyses performed by MBT Environmental Laboratories in this report comply with the requirements under the following certification/approval:

| | | |
|---|---|---|
| | ARIZONA: | Hazardous Waste, #AZ0468<br>Waste Water, # AZ0468<br>Drinking Water, #AZ0468 |
| ✓ | CALIFORNIA: | Hazardous Waste, #1417<br>Waste Water, # 1417<br>Drinking Water, #1417<br>Mobile Lab, #2070 |
| | CONNECTICUT: | Waste Water, #PH0799 |
| | FLORIDA: | Environmental Water,<br>#E87298<br>CQAPP #930105 |
| | KANSAS: | Hazardous Waste, #E-1167<br>Waste Water, #E-192<br>Drinking Water, #E-192 |
| | NEW HAMPSHIRE: | Waste Water, #253195-B<br>Drinking Water, #253195-A |
| | NEW JERSEY: | Waste Water, #44818 |
| | NEW YORK: | Hazardous Waste, #11241<br>Waste Water, #11241<br>CLP, #11241 |
| | OKLAHOMA: | Hazardous Waste, #9318<br>Waste Water, #9318 |
| | SOUTH CAROLINA: | Hazardous Waste, #87013<br>Waste Water, #87013 |
| | TENNESSEE: | Underground Storage Tank |
| | UTAH: | Hazardous Waste, #E-165<br>Waste Water, #E-165<br>Drinking Water, #E-165 |
| | WASHINGTON: | Hazardous Waste, #C048 |
| | WISCONSIN: | Hazardous Waste, #999940920<br>Waste Water, #999940920 |
| | USACOE: | Hazardous Waste<br>Waste Water |
| | AFCEE | |

(CN/////)

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## GENERAL NARRATIVE

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.

Percent recoveries for laboratory control samples and matrix spikes have been calculated using unrounded concentration values. Therefore, percent recoveries reported may differ slightly from those obtained from the rounded concentration values which appear on the report.

The following sample was analyzed at a dilution to bring target analytes within linear working range: 12938-1.

The surrogate recoveries for the analytes flagged on the data sheet were beyond acceptance limits for the following sample: LCSW-Gas.

**Abbreviations and Definitions:**

| | |
|---|---|
| MB | *Method Blank* - An aliquot of a blank matrix carried throughout the entire analytical process |
| LCS | *Laboratory Control Sample* - A blank to which known quantities of specific analytes are added prior to sample preparation and analysis to assess the accuracy of the method |
| MS/MSD | *Matrix Spike/Matrix Spike Duplicate* - Duplicate samples to which known quantities of specific analytes are added prior to sample preparation and analysis to assess the extent of matrix bias or interference on analyte recovery |
| RPD | *Relative Percent Difference* - The measurement of precision between duplicate analyses |
| BRL | *Below Reporting Limit* |
| NS | *Not Specified* |
| NA | *Not Applicable* |

**Flags:**

Organics -

| | |
|---|---|
| J | Estimated value below the reporting limit and at or above the method detection limit. |
| B | Analyte found in the associated blank, as well as in the sample. |

Inorganics -

| | |
|---|---|
| B | Estimated value below the reporting limit and at or above the method detection limit. |

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: Mclaren/Hart
Project Name: Friedkin Becker
Sample Description: MW-3
Sample Number: 500591-4
Date/Time Received: 11/04/95 10:00
Date Prepared: NA
Initial Wt./Volume: NA
Final Volume: NA

SDG #: 12938
Project Number: 0406018790010002
Lab ID: 12938-1/30098-7531
Date/Time Sampled: 11/03/95 10:09
Matrix: Water ( W )
Batch Number: 4136

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 12000 | 300 | 1000 | 11/08/95 |
| Toluene | 15000 | 300 | 1000 | 11/08/95 |
| Ethyl benzene | 980 | 300 | 1000 | 11/08/95 |
| 1,2-Xylene | 2100 | 300 | 1000 | 11/08/95 |
| 1,3-Xylene | 1800 | 300 | 1000 | 11/08/95 |
| 1,4-Xylene | 800 | 300 | 1000 | 11/08/95 |
| TPH - Gasoline | 67000 | 50000 | 1000 | 11/08/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 90 | 80 - 120 |
| Orthochlorotoluene (FID) | 114 | 80 - 120 |

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

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# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: Mclaren/Hart
Project Name: Friedkin Becker
Sample Description: MW-4
Sample Number: 500595-8
Date/Time Received: 11/04/95 10:00
Date Prepared: NA
Initial Wt./Volume: NA
Final Volume: NA

SDG #: 12938
Project Number: 0406018790010002
Lab ID: 12938-2/30099-7531
Date/Time Sampled: 11/03/95 11:05
Matrix: Water ( W )
Batch Number: 4136

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | BRL | 0.30 | 1 | 11/08/95 |
| Toluene | BRL | 0.30 | 1 | 11/08/95 |
| Ethyl benzene | BRL | 0.30 | 1 | 11/08/95 |
| 1,2-Xylene | BRL | 0.30 | 1 | 11/08/95 |
| 1,3-Xylene | BRL | 0.30 | 1 | 11/08/95 |
| 1,4-Xylene | BRL | 0.30 | 1 | 11/08/95 |
| TPH - Gasoline | BRL | 50 | 1 | 11/08/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 90 | 80 - 120 |
| Orthochlorotoluene (FID) | 97 | 80 - 120 |

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# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: Mclaren/Hart
Project Name: Friedkin Becker
Sample Description: MW-1
Sample Number: 500901-4
Date/Time Received: 11/04/95 10:00
Date Prepared: NA
Initial Wt./Volume: NA
Final Volume: NA

SDG #: 12938
Project Number: 0406018790010002
Lab ID: 12938-3/30100-7531
Date/Time Sampled: 11/03/95 11:50
Matrix: Water ( W )
Batch Number: 4136

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | BRL | 0.30 | 1 | 11/08/95 |
| Toluene | BRL | 0.30 | 1 | 11/08/95 |
| Ethyl benzene | 0.36 | 0.30 | 1 | 11/08/95 |
| 1,2-Xylene | BRL | 0.30 | 1 | 11/08/95 |
| 1,3-Xylene | BRL | 0.30 | 1 | 11/08/95 |
| 1,4-Xylene | BRL | 0.30 | 1 | 11/08/95 |
| TPH - Gasoline | BRL | 50 | 1 | 11/08/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 95 | 80 - 120 |
| Orthochlorotoluene (FID) | 108 | 80 - 120 |

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# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: Mclaren/Hart
Project Name: Friedkin Becker
Sample Description: Trip Blank
Sample Number: 500905-8
Date/Time Received: 11/04/95 10:00
Date Prepared: NA
Initial Wt./Volume: NA
Final Volume: NA

SDG #: 12938
Project Number: 0406018790010002
Lab ID: 12938-4/30101-7531
Date/Time Sampled: 11/03/95 07:00
Matrix: Water ( W )
Batch Number: 4136

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | BRL | 0.30 | 1 | 11/07/95 |
| Toluene | BRL | 0.30 | 1 | 11/07/95 |
| Ethyl benzene | BRL | 0.30 | 1 | 11/07/95 |
| 1,2-Xylene | BRL | 0.30 | 1 | 11/07/95 |
| 1,3-Xylene | BRL | 0.30 | 1 | 11/07/95 |
| 1,4-Xylene | BRL | 0.30 | 1 | 11/07/95 |
| TPH - Gasoline | BRL | 50 | 1 | 11/07/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 90 | 80 - 120 |
| Orthochlorotoluene (FID) | 106 | 80 - 120 |

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# METHOD BLANK

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: NA

Lab ID: 30566-MB /7531
Matrix: Water
Batch Number: 4136-

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Date Analyzed |
|---|---|---|---|
| Benzene | BRL | 0.30 | 11/17/95 |
| Toluene | BRL | 0.30 | 11/17/95 |
| Ethyl benzene | BRL | 0.30 | 11/17/95 |
| 1,2-Xylene | BRL | 0.30 | 11/17/95 |
| 1,3-Xylene | BRL | 0.30 | 11/17/95 |
| 1,4-Xylene | BRL | 0.30 | 11/17/95 |
| TPH - Gasoline | BRL | 50 | 11/17/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 88 | 80 - 120 |
| Orthochlorotoluene (FID) | 104 | 80 - 120 |

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# METHOD BLANK

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: NA

Lab ID: 30567-MB /7531
Matrix: Water
Batch Number: 4136-

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Date Analyzed |
|---|---|---|---|
| Benzene | BRL | 0.30 | 11/08/95 |
| Toluene | BRL | 0.30 | 11/08/95 |
| Ethyl benzene | BRL | 0.30 | 11/08/95 |
| 1,2-Xylene | BRL | 0.30 | 11/08/95 |
| 1,3-Xylene | BRL | 0.30 | 11/08/95 |
| 1,4-Xylene | BRL | 0.30 | 11/08/95 |
| TPH - Gasoline | BRL | 50 | 11/08/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 95 | 80 - 120 |
| Orthochlorotoluene (FID) | 96 | 80 - 120 |

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# LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: NA

Lab ID: 30563-LCS /7531
Matrix: Water
Units: ug/L (ppb)
Batch Number: 4136

LCS Date Analyzed: 11/08/95

LCSD Date Analyzed: NA

| Analyte | (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 |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 10 | 12 | 122 | NA | NA | NA | 72-134 | ≤20 |
| Ethyl benzene | 0 | 10 | 11 | 110 | NA | NA | NA | 72-128 | ≤20 |
| TPH - Gasoline | 0 | 100 | 99 | 99* | NA | NA | NA | 100-127 | ≤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

| Surrogate | (h) Surr. Spike Conc. | (i) Sample + Surr. Spike Conc. | (j) Surr. Spike Rec % | (k) Sample Dup. + Surr. Spike Conc. | (l) Surr. Spike Dup. Rec % | Acceptance Limits |
|---|---|---|---|---|---|---|
| Orthochlorotoluene (PID) | 4.0 | 3.8 | 94 | NA | NA | 80-120 |
| Orthochlorotoluene (FID) | 4.0 | 6.6 | 166* | NA | NA | 80-120 |

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

Qualifier Legend:
* - Value beyond QC limits

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# LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICAT

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: NA

Lab ID: 30564-LCS /7531
Matrix: Water Units: ug/L (ppb)
Batch Number: 4136

LCS Date Analyzed: 11/08/95

LCSD Date Analyzed: NA

| Analyte | (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 |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 10 | 12 | 122 | NA | NA | NA | 72-134 | ≤20 |
| Ethyl benzene | 0 | 10 | 11 | 107 | NA | NA | NA | 72-128 | ≤20 |
| TPH - Gasoline | 0 | 100 | 100 | 103 | NA | NA | NA | 100-127 | ≤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

| Surrogate | (h) Surr. Spike Conc. | (i) Sample + Surr. Spike Conc. | (j) Surr. Spike Rec % | (k) Sample Dup. + Surr. Spike Conc. | (l) Surr. Spike Dup. Rec % | Acceptance Limits |
|---|---|---|---|---|---|---|
| Orthochlorotoluene (PID) | 4.0 | 3.7 | 93 | NA | NA | 80-120 |
| Orthochlorotoluene (FID) | 4.0 | 6.5 | 162* | NA | NA | 80-120 |

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

Qualifier Legend:
* - Value beyond QC limits

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

Approved by: _____ Date: 11-13-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 11/13/95

[redacted]BT E[redacted]nmen[redacted] 308[redacted] Car[redacted]ve
Laboratories
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

# CHAIN OF CUSTODY RECORD 16396

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

**Project Name:** Friedkin Decker
**Project Number:** 04.0601879001.002
**Project Location: (State)** Oakland, CA

**FOR LABORATORY USE ONLY**
**Laboratory Project #:** 12938 **Storage ID:** 8
**Sample Condition Upon Receipt: Temp:** 2 °C **Geiger:**
**Custody Seals Present?** Yes/(No) **Intact?** Yes/No **Samples Intact?** (Yes)/No
Air bubbles: 4-004

**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 [ ] A

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 | 8020 (BTEX) | TPH-G by DHS LUFT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 12938-1 | 500591-9 | 11/03/95 | 1009 | MW-3 | — | 4 | V | H2O | HCl | Stan | X | X |
| 2 -2 | 500595-8 | | 1105 | MW-4 | — | | | | | | | |
| 3 -3 | 500901-9 | | 1150 | MW-1 | — | | | | | | | |
| 4 -4 | 500905-8 | | 0700 | Trip Blank | — | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |

**SEND REPORT TO:**
Company Name McLaren/Hart
Client Name Chris Warwick
Address 1635 Atlantic Ave.
Alameda, CA 94501
Phone (510) 749-5639 Fax

**BILL TO (if different):**
Company Name
Address
PO #
Phone Fax

**Special Instructions/Comments**
Standard TAT - 2 1 weeks
KH 11/9

**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
Semivos
Metals
Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
TSS
Turbidity
* Specify Total or Dissolved

| | Signature | | Date/Time |
|---|---|---|---|
| Sampler Name: Steven Carson | | PPE Worn in Field | |
| Relinquished By: | | Received By or Method of Shipment/Shipment I.D. | Date/Time |
| Relinquished By: | 11/3/95 1240 | Received By or Method of Shipment/Shipment I.D. | 11/3/95 1240 |
| Relinquished By: | 11/5/95 1600 | Received By or Method of Shipment/Shipment I.D. EXPRESS-11 | 11/5/95 1600 |
| | Date/Time | Received By or Method of Shipment/Shipment I.D. | Date/Time 11/4/95 1000 |

MBT Environmental
Laboratories

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

Date: September 28, 1995
LP #: 12586

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

Dear Mr. Germanas:

Enclosed is the revised laboratory report for the samples submitted to MBT Environmental Laboratories on September 13, 1995, for the project *3810 Broadway*.

The revision includes acomplete set of revised 8020 BTEX and TPH/G by LUFT results. The previously reported units of mg/Kg (ppm) have been corrected to ug/Kg (ppb).

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,

Kevin Hanlon
Project Coordinator

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-4 12.5
Sample Number: 51494
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-1/23850-8298
Date/Time Sampled: 09/11/95 10:30
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 60 | 50 | 10 | 09/20/95 |
| Toluene | BRL | 50 | 10 | 09/20/95 |
| Ethyl benzene | 1200 | 50 | 10 | 09/20/95 |
| 1,2-Xylene | 1600 | 50 | 10 | 09/20/95 |
| 1,3-Xylene | 3700 | 50 | 10 | 09/20/95 |
| 1,4-Xylene | 1900 | 50 | 10 | 09/20/95 |
| TPH - Gasoline | 83000 | 10000 | 10 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 0 * | 51 - 102 |
| Bromofluorobenzene(FID) | 0 * | 51 - 102 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 9-27-95

MBT Environmental Laboratories

Master Builders Technologies

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# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-4 26.5
Sample Number: 52403
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-2/23858-8298
Date/Time Sampled: 09/12/95 09:15
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 520 | 5.0 | 1 | 09/19/95 |
| Toluene | 78 | 5.0 | 1 | 09/19/95 |
| Ethyl benzene | 39 | 5.0 | 1 | 09/19/95 |
| 1,2-Xylene | 24 | 5.0 | 1 | 09/19/95 |
| 1,3-Xylene | 26 | 5.0 | 1 | 09/19/95 |
| 1,4-Xylene | 20 | 5.0 | 1 | 09/19/95 |
| TPH - Gasoline | 1900 | 1000 | 1 | 09/19/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 78 | 51 - 102 |
| Bromofluorobenzene(FID) | 81 | 51 - 102 |

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# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-2 12.5
Sample Number: 51496
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-3/23851-8298
Date/Time Sampled: 09/11/95 12:14
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 690 | 5.0 | 1 | 09/19/95 |
| Toluene | 110 | 5.0 | 1 | 09/19/95 |
| Ethyl benzene | 69 | 5.0 | 1 | 09/19/95 |
| 1,2-Xylene | 7.8 | 5.0 | 1 | 09/19/95 |
| 1,3-Xylene | 9.1 | 5.0 | 1 | 09/19/95 |
| 1,4-Xylene | 86 | 5.0 | 1 | 09/19/95 |
| TPH - Gasoline | 3100 | 1000 | 1 | 09/19/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 78 | 51 - 102 |
| Bromofluorobenzene(FID) | 78 | 51 - 102 |

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# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-2 26.5
Sample Number: 51498
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-4/23852-8298
Date/Time Sampled: 09/11/95 15:00
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | BRL | 5.0 | 1 | 09/20/95 |
| Toluene | 11 | 5.0 | 1 | 09/20/95 |
| Ethyl benzene | BRL | 5.0 | 1 | 09/20/95 |
| 1,2-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,3-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,4-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| TPH - Gasoline | BRL | 1000 | 1 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 79 | 51 - 102 |
| Bromofluorobenzene(FID) | 85 | 51 - 102 |

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# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-1 12.5
Sample Number: 52401
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-5/23853-8298
Date/Time Sampled: 09/11/95 16:18
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 150 | 50 | 10 | 09/20/95 |
| Toluene | 290 | 50 | 10 | 09/20/95 |
| Ethyl benzene | 6200 | 50 | 10 | 09/20/95 |
| 1,2-Xylene | 7300 | 50 | 10 | 09/20/95 |
| 1,3-Xylene | 16000 | 500 | 100 | 09/20/95 |
| 1,4-Xylene | 7900 | 500 | 100 | 09/20/95 |
| TPH - Gasoline | 310000 | 100000 | 100 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 0 * | 51 - 102 |
| Bromofluorobenzene(FID) | 0 * | 51 - 102 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 9-27-95

MBT Environmental Laboratories

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Report Generated: 09/27/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-1 26.5
Sample Number: 52405
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-6/23854-8298
Date/Time Sampled: 09/11/95 17:10
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 270 | 5.0 | 1 | 09/20/95 |
| Toluene | 60 | 5.0 | 1 | 09/20/95 |
| Ethyl benzene | 18 | 5.0 | 1 | 09/20/95 |
| 1,2-Xylene | 6.8 | 5.0 | 1 | 09/20/95 |
| 1,3-Xylene | 7.1 | 5.0 | 1 | 09/20/95 |
| 1,4-Xylene | 8.9 | 5.0 | 1 | 09/20/95 |
| TPH - Gasoline | 1100 | 1000 | 1 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 76 | 51 - 102 |
| Bromofluorobenzene(FID) | 82 | 51 - 102 |

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# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-5 12.5
Sample Number: 52406
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-7/23855-8298
Date/Time Sampled: 09/12/95 11:00
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 48000 | 5000 | 1000 | 09/20/95 |
| Toluene | 390000 | 5000 | 1000 | 09/20/95 |
| Ethyl benzene | 93000 | 5000 | 1000 | 09/20/95 |
| 1,2-Xylene | 110000 | 5000 | 1000 | 09/20/95 |
| 1,3-Xylene | 260000 | 5000 | 1000 | 09/20/95 |
| 1,4-Xylene | 96000 | 5000 | 1000 | 09/20/95 |
| TPH - Gasoline | 4800000 | 1000000 | 1000 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 0 * | 51 - 102 |
| Bromofluorobenzene(FID) | 0 * | 51 - 102 |

Qualifier Legend:
* - Values outside QC limits

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Report Generated: 09/27/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-5 29.5
Sample Number: 52407
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-8/23856-8298
Date/Time Sampled: 09/12/95 13:00
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 55 | 5.0 | 1 | 09/20/95 |
| Toluene | 9.1 | 5.0 | 1 | 09/20/95 |
| Ethyl benzene | BRL | 5.0 | 1 | 09/20/95 |
| 1,2-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,3-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,4-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| TPH - Gasoline | BRL | 1000 | 1 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 80 | 51 - 102 |
| Bromofluorobenzene(FID) | 86 | 51 - 102 |

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Approved by: _____ Date: 9-27-95

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Report Generated: 09/27/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-3 27
Sample Number: 52410
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-9/23859-8298
Date/Time Sampled: 09/12/95 15:55
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | BRL | 5.0 | 1 | 09/20/95 |
| Toluene | BRL | 5.0 | 1 | 09/20/95 |
| Ethyl benzene | BRL | 5.0 | 1 | 09/20/95 |
| 1,2-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,3-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,4-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| TPH - Gasoline | BRL | 1000 | 1 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 74 | 51 - 102 |
| Bromofluorobenzene(FID) | 79 | 51 - 102 |

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MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/27/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-6 12.5
Sample Number: 52412
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-10/23857-8298
Date/Time Sampled: 09/12/95 16:40
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | BRL | 5.0 | 1 | 09/20/95 |
| Toluene | 9.4 | 5.0 | 1 | 09/20/95 |
| Ethyl benzene | BRL | 5.0 | 1 | 09/20/95 |
| 1,2-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,3-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,4-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| TPH - Gasoline | BRL | 1000 | 1 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 76 | 51 - 102 |
| Bromofluorobenzene(FID) | 83 | 51 - 102 |

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

Approved by: _____ Date: 9-27-95

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Master Builders Technologies

Report Generated: 09/27/95

# METHOD BLANK

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

Lab ID: 24339-MB /8298
Matrix: Soil
Batch Number: 3276-950919

| Analyte | Result ug/Kg (ppb) | Reporting Limit ug/Kg (ppb) | Date Analyzed |
|---|---|---|---|
| Benzene | BRL | 5.0 | 09/19/95 |
| Toluene | BRL | 5.0 | 09/19/95 |
| Ethyl benzene | BRL | 5.0 | 09/19/95 |
| 1,2-Xylene | BRL | 5.0 | 09/19/95 |
| 1,3-Xylene | BRL | 5.0 | 09/19/95 |
| 1,4-Xylene | BRL | 5.0 | 09/19/95 |
| TPH - Gasoline | BRL | 1000 | 09/19/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 92 | 51 - 102 |
| Bromofluorobenzene(FID) | 97 | 51 - 102 |

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

Approved by: _____ Date: _____

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/27/95

# LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL
LCS Date Analyzed: 09/19/95

Lab ID: 24343-LCS /8298
Matrix: Soil Units: ug/Kg (ppb)
Batch Number: 3276-950919
LCSD Date Analyzed: NA

| Analyte | (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 |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 250 | 280 | 111 | NA | NA | NA | 70-124 | ≤25 |
| Ethyl benzene | 0 | 250 | 270 | 108 | NA | NA | NA | 67-128 | ≤25 |
| TPH - Gasoline | 0 | 2500 | 2880 | 115 | NA | NA | NA | 75-125 | ≤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

| Surrogate | (h) Surr. Spike Conc. | (i) Sample + Surr. Spike Conc. | (j) Surr. Spike Rec % | (k) Sample Dup. + Surr. Spike Conc. | (l) Surr. Spike Dup. Rec % | Acceptance Limits |
|---|---|---|---|---|---|---|
| Bromofluorobenzene(PID) | 200 | 190 | 93 | NA | NA | 51-102 |
| Bromofluorobenzene(FID) | 200 | 194 | 97 | NA | NA | 51-102 |

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

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

Approved by: _____ Date: _____

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/27/95

# MATRIX SPIKE/MATRIX SPIKE DUPLICATE

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-2 12.5
Sample Number: 51496
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL
MS Date Analyzed: 09/21/95

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-3/24345,24346-8298
Date/Time Sampled: 09/11/95 12:14
Matrix: Soil (S ) Units: ug/Kg (ppb)
Batch Number: 3276-950919
% Moisture: NA

MSD Date Analyzed: 09/21/95

| Analyte | (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 |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 690 | 250 | 990 | 120 | 1200 | 204* | 19 | 70-124 | ≤25 |
| Ethyl benzene | 69 | 250 | 340 | 108 | 360 | 116 | 6 | 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

| Surrogate | (h) Surr. Spike Conc. | (i) Sample + Surr. Spike Conc. | (j) Surr. Spike Rec % | (k) Sample Dup. + Surr. Spike Conc. | (l) Surr. Spike Dup. Rec % | Acceptance Limits |
|---|---|---|---|---|---|---|
| Bromofluorobenzene(PID) | 200 | 160 | 83 | 160 | 79 | 51-102 |

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

Qualifier Legend:
* - Values outside QC

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

Approved by: _____ Date: _____

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/27/95

MBT Environmental
Laboratories

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

Date: September 25, 1995
LP #: 12552

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

Dear Mr. Germanas:

Enclosed are the laboratory results for the 15 samples submitted to MBT Environmental Laboratories on September 13, 1995, for the project *3810 Broadway*.

The report consists of the following sections:

1. Cover Page
2. Copy of Chain-of-Custody
3. General Narrative
4. Analytical and Quality Control 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,

Kevin Hanlon
Project Coordinator

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

# CHAIN OF CUSTODY RECORD 03475

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: MBT
Address:

Project Name: 3810 BROADWAY
Project Number: 04.0601879.001.001
Project Location: (State) OAKLAND, CA

FOR LABORATORY USE ONLY
Laboratory Project #: 12552
Storage Refrigerator ID: 4-2, 1, 12-C
Storage Freezer ID:

Sampler Name: C. WARWICK
Signature: C. Warwick
PPE Worn in Field: D

Relinquished By: C. Warwick — Date/Time: 09-12-95/1900 — Received By or Method of Shipment/Shipment I.D.: COURIER — Date/Time: 09-12-95/1900
Relinquished By: EXPRESS 24 — Date/Time: — Received By or Method of Shipment/Shipment I.D.: — Date/Time: 9/13/95 0900
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 [ ] 7

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 | TPH-G/8020 BTEX | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 12552-001 | 51494 | 9-11-95 | 1030 | B-4 | 12.5 | 1 | B | SOIL | — | 3 | X | (HOLD) |
| 2 -002 | 52403-04 | 9-12-95 | 0915 | ↓ | 26.5 | 2 | B | | | | X | (HOLD) 9/14 |
| 3 -003 | 51496 | 9-11-95 | 1214 | B-2 | 12.5 | 1 | | | | | X | (HOLD) |
| 4 -004 | 51498 | ↓ | 1500 | ↓ | 26.5 | 1 | | | | | X | (HOLD) |
| 5 -005 | 52401 | | 1618 | B-1 | 12.5 | 1 | | | | | X | (HOLD) |
| 6 -006 | 52405 | ↓ | 1710 | ↓ | 26.5 | 1 | | | | | X | (HOLD) |
| 7 -007 | 52406 | 9-12-95 | 1100 | B-5 | 12.5 | 1 | | | | | X | (HOLD) |
| 8. -008 | 52407-08 | | 1300 | ↓ | 29.5 | 2 | | | | | X | (HOLD) |
| 9 -009 | 52409 | | 1430 | B-3 | 12.5 | 1 | | | | | X | (HOLD) |
| 10 -010 | 52410-11 | ↓ | 1555 | ↓ | 27 | 2 | ↓ | ↓ | ↓ | ↓ | X | (HOLD) |

Special Instructions/Comments: PLEASE ANALYZE SAMPLES FOR TPH-G AND 8020 BTEX

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 3°C SAMPLES INTACT (ok)

SEND DOCUMENTATION AND RESULTS TO (Check one)*
[X] Project Manager/Office: SAUL GOLDMAN/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

# CHAIN OF CUSTODY RECORD 6904

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

Ship To: MBT
Address:

Project Name: 3810 BROADWAY
Project Number: 04.0601879.001.001
Project Location: (State) OAKLAND, CA

FOR LABORATORY USE ONLY
Laboratory Project #: 12552
Storage Refrigerator ID: 4-7, 1, 12-C
Storage Freezer ID:

| Sampler Name | Signature | PPE Worn in Field |
|---|---|---|
| C. WARWICK | C. Warwick | D |

| | | | | |
|---|---|---|---|---|
| Relinquished By: C. Warwick | Date/Time 09-12-95/1900 | Received By or Method of Shipment/Shipment I.D. COURIER | Date/Time 09-12-95/1900 |
| Relinquished By: EXPRESSNET | Date/Time | Received By or Method of Shipment/Shipment I.D. [illegible] | Date/Time 9/13/95 0900 |
| 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 | TPH-G/BTEX 8020 | 8015M FF | 12M pmCW 9/14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 12552-011 | 52412 | 9-12-95 | 1640 | B-6 (CW) | 12.5 | 1 | B | SOIL | — | 3 | X | | (H,I,J) |
| 2 -012 | 52413 | 9-12-95 | 1830 | ~~B-2W~~ B-6 | 26.5 | 2 | ↓ | ↓ | ↓ | | X | | (H,I,J) |
| 3 -013 | 211473-76 | 9-11-95 | 1717 | B-2W | — | 4 | V | $H_2O$ | HCl | | X | | |
| 4 5 | 211477-78 | ↓ | ↓ | ↓ | — | 2 | A | | — | | | X | |
| 5 -014 | 211479-82 | ↓ | 1900 | B-1W | — | 4 | V | | HCl | | X | | |
| 6 -015 | 211483-86 | 9-12-95 | 1355 | B-5W | — | 4 | V | | HCl | | X | | |
| 7 | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |

Special Instructions/Comments: PLEASE ANALYZE SAMPLE FOR TPH-G AND 8020 BTEX SOIL.
PLEASE ANALYZE WATER SAMPLES FOR BTEX/TPH-G BY DHS-LUFT 8015M FF - DIESEL, MOTOR OIL ONLY

Container Types: B=Brass Tube, C=Cassette, G=Glass Jar, P=Polyethylene, V=Voa Vial, A=1 Liter Amber, O=Other
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 3°C, SAMPLES INTACT (RT)

SEND DOCUMENTATION AND RESULTS TO (Check one):
[X] Project Manager/Office: SAUL GERMANOS / 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
Semivos
Metals
Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
TSS
Turbidity
* Specify Total or Dissolved

# ANALYTICAL REPORT

## LABORATORY PROJECT (LP) NUMBER 12552

## 3810 BROADWAY

The analyses performed by MBT Environmental Laboratories in this report comply with the requirements under the following certification/approval:

| | | |
|---|---|---|
| | ARIZONA: | Hazardous Waste, #AZ0468<br>Waste Water, # AZ0468<br>Drinking Water, #AZ0468 |
| ✓ | CALIFORNIA: | Hazardous Waste, #1417<br>Waste Water, # 1417<br>Drinking Water, #1417 |
| | CONNECTICUT: | Waste Water, #PH0799 |
| | FLORIDA: | Environmental Water,<br>#E87298<br>CQAPP #930105 |
| | KANSAS: | Hazardous Waste, #E-1167<br>Waste Water, #E-192<br>Drinking Water, #E-192 |
| | NEW HAMPSHIRE: | Waste Water, #253195-B<br>Drinking Water, #253195-A |
| | NEW JERSEY: | Waste Water, #44818 |
| | NEW YORK: | Hazardous Waste, #11241<br>Waste Water, #11241<br>CLP, #11241 |
| | OKLAHOMA: | Hazardous Waste, #9318<br>Waste Water, #9318 |
| | SOUTH CAROLINA: | Hazardous Waste, #87013<br>Waste Water, #87013 |
| | TENNESSEE: | Underground Storage Tank |
| | UTAH: | Hazardous Waste, #E-165<br>Waste Water, #E-165<br>Drinking Water, #E-165 |
| | WASHINGTON: | Hazardous Waste, #C048 |
| | WISCONSIN: | Hazardous Waste, #999940920<br>Waste Water, #999940920 |
| | USACOE: | Hazardous Waste<br>Waste Water |
| | AFCEE | |

(CN12552)

MBT Environmental Laboratories

## GENERAL NARRATIVE

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.

Percent recoveries for laboratory control samples and matrix spikes have been calculated using unrounded concentration values. Therefore, percent recoveries reported may differ slightly from those obtained from the rounded concentration values which appear on the report.

EPA 8020 BTEX and TPH/G:

The surrogate recoveries for the analytes flagged on the data sheet were beyond acceptance limits for the following samples: 12552-13, 12552-14, LCS-Gas.

The following samples were analyzed at a dilution to bring target analytes within linear working range: 12552-13, 12552-14, 12552-15.

EPA 8015 Modified Fuel Fingerprinting:

For EPA 8015 Modified - Fuel Fingerprinting (GC), all peaks within the C7-C32 carbon range are compared to the standard which the peaks most closely resemble. Values reported are calculated based on the total area of the peaks in the carbon range of that standard.

The chromatographic pattern of the reported results for the following sample does not resemble that of the diesel standard: 12552-13.

The reported result for Motor Oil for the following sample is calculated based on the Motor Oil standard; however, the chromatographic pattern in the sample does not exactly resemble that of the Motor Oil standard: 12552-13.

Gasoline is present in sample 12552-13 at a concentration of 1.4 ppm.

**Abbreviations and Definitions:**

| | |
|---|---|
| MB | *Method Blank* - An aliquot of a blank matrix carried throughout the entire analytical process |
| LCS | *Laboratory Control Sample* - A blank to which known quantities of specific analytes are added prior to sample preparation and analysis to assess the accuracy of the method |
| MS/MSD | *Matrix Spike/Matrix Spike Duplicate* - Duplicate samples to which known quantities of specific analytes are added prior to sample preparation and analysis to assess the extent of matrix bias or interference on analyte recovery |
| RPD | *Relative Percent Difference* - The measurement of precision between duplicate analyses |
| BRL | *Below Reporting Limit* |
| NS | *Not Specified* |
| NA | *Not Applicable* |

**Flags:**

Organics -

| | |
|---|---|
| J | Estimated value below the reporting limit and at or above the method detection limit. |
| B | Analyte found in the associated blank, as well as in the sample. |

Inorganics -

| | |
|---|---|
| B | Estimated value below the reporting limit and at or above the method detection limit. |

(CN12552)

# METHOD BLANK

## EPA 8015 MODIFIED
## FUEL FINGERPRINTING (GC)

Preparation Method: EPA 3520

Date Prepared: 09/14/95 11:45:
Initial Wt./Volume: 1000 mL
Final Volume: 1 mL

Lab ID: 23539-MB /7950
Matrix: Water
Batch Number: 3145-950914

| Analyte | Result mg/L (ppm) | Reporting Limit mg/L (ppm) | Date Analyzed |
|---|---|---|---|
| Diesel (C12-C22) | BRL | 0.050 | 09/15/95 |
| Motor Oil (C22-C32) | BRL | 0.050 | 09/15/95 |

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

Approved by: _____ Date: 9-18-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/18/95

# LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

## EPA 8015 MODIFIED
## FUEL FINGERPRINTING (GC)

Preparation Method: EPA 3520

Date Prepared: 09/14/95 11:45:
Initial Wt./Volume: 1000 mL
Final Volume: 1 mL
LCS Date Analyzed: 09/15/95

Lab ID: 23540-LCS /7950
Matrix: Water Units: mg/L (ppm)
Batch Number: 3145-950914
LCSD Date Analyzed: NA

| Analyte | (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 (C12-C22) | 0 | 2.50 | 1.88 | 75 | 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

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

Approved by: _____ Date: 9-18-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/18/95

# EPA 8015 MODIFIED
# FUEL FINGERPRINTING (GC)

Preparation Method: EPA 3520

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-2W
Sample Number: 211477
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/14/95 11:45:
Initial Wt./Volume: 1000 mL
Final Volume: 1 mL

SDG #: 12552
Project Number: 040601879001001
Lab ID: 12552-13/23385-8311
Date/Time Sampled: 09/11/95 17:17
Matrix: Water ( W )
Batch Number: 3145-950914

| Analyte | Result mg/L (ppm) | Reporting Limit mg/L (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Diesel (C12-C22) | BRL | 0.11 | 2.2 | 09/18/95 |
| Motor Oil (C22-C32) | 0.34 | 0.11 | 2.2 | 09/18/95 |

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

Approved by: _____ Date: 9-18-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/18/95

# MATRIX SPIKE/MATRIX SPIKE DUPLICATE

## EPA 8015 MODIFIED
## FUEL FINGERPRINTING (GC)

Preparation Method: EPA 3520

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-2W
Sample Number: 211478
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/14/95 11:45:
Initial Wt./Volume: 500 mL
Final Volume: 1 mL
MS Date Analyzed: 09/15/95

SDG #: 12552
Project Number: 040601879001001
Lab ID: 12552-13/23546,23547-8311
Date/Time Sampled: 09/11/95 17:17
Matrix: Water (W) Units: mg/L (ppm)
Batch Number: 3145-950914
% Moisture: NA

MSD Date Analyzed: 09/15/95

| Analyte | (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 (C12-C22) | 0 | 5.00 | 3.60 | 72 | 3.14 | 63 | 14 | - | ≤ |

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

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

Approved by: _____ Date: 9-18-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/18/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-2W
Sample Number: 211473
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/13/95
Initial Wt./Volume: NA
Final Volume: NA

SDG #: 12552
Project Number: 040601879001001
Lab ID: 12552-13/23382-7531
Date/Time Sampled: 09/11/95 17:17
Matrix: Water ( W )
Batch Number: 3252-950913

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 240 | 30 | 100 | 09/14/95 |
| Toluene | 540 | 30 | 100 | 09/14/95 |
| Ethyl benzene | 120 | 3.0 | 10 | 09/14/95 |
| 1,2-Xylene | 160 | 30 | 10 | 09/14/95 |
| 1,3-Xylene | 260 | 30 | 10 | 09/14/95 |
| 1,4-Xylene | 120 | 30 | 10 | 09/14/95 |
| TPH - Gasoline | 3400 | 500 | 10 | 09/14/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 128 * | 80 - 120 |
| Orthochlorotoluene (FID) | 126 * | 80 - 120 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 9-22-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/22/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-1W
Sample Number: 211479
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/13/95
Initial Wt./Volume: NA
Final Volume: NA

SDG #: 12552
Project Number: 040601879001001
Lab ID: 12552-14/23383-7531
Date/Time Sampled: 09/11/95 18:00
Matrix: Water ( W )
Batch Number: 3252-950913

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 24000 | 600 | 2000 | 09/14/95 |
| Toluene | 47000 | 600 | 2000 | 09/14/95 |
| Ethyl benzene | 2900 | 600 | 2000 | 09/14/95 |
| 1,2-Xylene | 4500 | 600 | 2000 | 09/14/95 |
| 1,3-Xylene | 7800 | 600 | 2000 | 09/14/95 |
| 1,4-Xylene | 3000 | 600 | 2000 | 09/14/95 |
| TPH - Gasoline | 190000 | 100000 | 2000 | 09/14/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 98 | 80 - 120 |
| Orthochlorotoluene (FID) | 136 * | 80 - 120 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 9-22-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/22/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-5W
Sample Number: 211483
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/13/95
Initial Wt./Volume: NA
Final Volume: NA

SDG #: 12552
Project Number: 040601879001001
Lab ID: 12552-15/23384-7531
Date/Time Sampled: 09/12/95 13:55
Matrix: Water ( W )
Batch Number: 3252-950913

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 270 | 30 | 100 | 09/14/95 |
| Toluene | 540 | 30 | 100 | 09/14/95 |
| Ethyl benzene | 110 | 30 | 100 | 09/14/95 |
| 1,2-Xylene | 140 | 30 | 100 | 09/14/95 |
| 1,3-Xylene | 280 | 30 | 100 | 09/14/95 |
| 1,4-Xylene | BRL | 30 | 100 | 09/14/95 |
| TPH - Gasoline | 5600 | 5000 | 100 | 09/14/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 103 | 80 - 120 |
| Orthochlorotoluene (FID) | 154 * | 80 - 120 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 9-22-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/22/95

# METHOD BLANK

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 09/13/95

Lab ID: 24249-MB /7531
Matrix: Water
Batch Number: 3252-950913

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Date Analyzed |
|---|---|---|---|
| Benzene | BRL | 0.30 | 09/14/95 |
| Toluene | BRL | 0.30 | 09/14/95 |
| Ethyl benzene | BRL | 0.30 | 09/14/95 |
| 1,2-Xylene | BRL | 0.30 | 09/14/95 |
| 1,3-Xylene | BRL | 0.30 | 09/14/95 |
| 1,4-Xylene | BRL | 0.30 | 09/14/95 |
| TPH - Gasoline | BRL | 50 | 09/14/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 98 | 80 - 120 |
| Orthochlorotoluene (FID) | 109 | 80 - 120 |

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

Approved by: _____ Date: 9-22-95

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Report Generated: 09/22/95

# LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 09/13/95
Initial Wt./Volume: NA
Final Volume: NA
LCS Date Analyzed: 09/14/95

Lab ID: 24246-LCS /7531
Matrix: Water Units: ug/L (ppb)
Batch Number: 3252-950913
LCSD Date Analyzed: NA

| Analyte | (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 |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 10 | 12 | 120 | NA | NA | NA | 72-134 | ≤20 |
| Ethyl benzene | 0 | 10 | 12 | 120 | NA | NA | NA | 72-128 | ≤20 |
| TPH - Gasoline | 0 | 100 | 107 | 107 | NA | NA | NA | 100-127 | ≤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

| Surrogate | (h) Surr. Spike Conc. | (i) Sample + Surr. Spike Conc. | (j) Surr. Spike Rec % | (k) Sample Dup. + Surr. Spike Conc. | (l) Surr. Spike Dup. Rec % | Acceptance Limits |
|---|---|---|---|---|---|---|
| Orthochlorotoluene (PID) | 4.0 | 4.0 | 100 | NA | NA | 80-120 |
| Orthochlorotoluene (FID) | 4.0 | 7.7 | 190* | NA | NA | 80-120 |

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

Qualifier Legend:
* - Value beyond QC limits

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

Approved by: _____ Date: 9-22-95

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: September 25, 1995
LP #: 12558

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

Dear Mr. Germanas:

Enclosed are the laboratory results for the two samples submitted to MBT Environmental Laboratories on September 14, 1995, for the project *3810 Broadway*.

The report consists of the following sections:

1. Cover Page
2. Copy of Chain-of-Custody
3. General Narrative
4. Analytical and Quality Control 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,

for

Kevin Hanlon
Project Coordinator

MBT Environmental Laboratories
3063 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

# CHAIN OF CUSTODY RECORD 12986

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

**Project Name:** 3810 Broadway
**Project Number:** 04-001-379-000-000
**Project Location: (State)** OAK. CA.

**FOR LABORATORY USE ONLY**
**Laboratory Project #:** 12558 **Storage ID:** 8
**Sample Condition Upon Receipt: Temp:** 2 °C **Geiger:**
**Custody Seals Present? Yes/No Intact? Yes/No Samples Intact? Yes/No**

**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 [ ] A

Write in Analysis Method →

## 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 | ANALYSES REQUESTED: BTEX / TPH-G |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12558-001 | 500151-52 | 9/13/95 | 1115 | B-6 | — | 2 | V | H2O | (HCl) | (Normal) | X |
| 2 | ↓ 002 | 500153-55 | ↓ | 1130 | B-3 | ↓ | 3 | ↓ | ↓ | ↓ | ↓ | X |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |

**SEND REPORT TO:**
Company Name: SAUL GERMANIS / GERMANIS
Client Name:
Address:
Phone: Fax:

**BILL TO (if different):**
Company Name:
Address:
PO #:
Phone: Fax:

**Special Instructions/Comments** ONLY 2 VOAS CAN COULD BE COLLECTED FROM B-6

**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
606
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
Semivos
Metals
Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
TSS
Turbidity

Sampler Name: NATHAN KING
Signature:
PPE Worn in Field: D

Relinquished By: Date/Time: 9/13/95 1700
Received By or Method of Shipment/Shipment I.D.: EXPRESS MT Date/Time: 9/13/95 1700

Relinquished By: EXPRESS MT Date/Time: 9/14/95 0730
Received By or Method of Shipment/Shipment I.D.: Date/Time: 9/14/95 0730

Relinquished By: Date/Time:
Received By or Method of Shipment/Shipment I.D.: Date/Time:

# ANALYTICAL REPORT

# LABORATORY PROJECT (LP) NUMBER 12558

## 3810 BROADWAY

The analyses performed by MBT Environmental Laboratories in this report comply with the requirements under the following certification/approval:

| | | |
|---|---|---|
| | ARIZONA: | Hazardous Waste, #AZ0468<br>Waste Water, # AZ0468<br>Drinking Water, #AZ0468 |
| ✓ | CALIFORNIA: | Hazardous Waste, #1417<br>Waste Water, # 1417<br>Drinking Water, #1417 |
| | CONNECTICUT: | Waste Water, #PH0799 |
| | FLORIDA: | Environmental Water,<br>#E87298<br>CQAPP #930105 |
| | KANSAS: | Hazardous Waste, #E-1167<br>Waste Water, #E-192<br>Drinking Water, #E-192 |
| | NEW HAMPSHIRE: | Waste Water, #253195-B<br>Drinking Water, #253195-A |
| | NEW JERSEY: | Waste Water, #44818 |
| | NEW YORK: | Hazardous Waste, #11241<br>Waste Water, #11241<br>CLP, #11241 |
| | OKLAHOMA: | Hazardous Waste, #9318<br>Waste Water, #9318 |
| | SOUTH CAROLINA: | Hazardous Waste, #87013<br>Waste Water, #87013 |
| | TENNESSEE: | Underground Storage Tank |
| | UTAH: | Hazardous Waste, #E-165<br>Waste Water, #E-165<br>Drinking Water, #E-165 |
| | WASHINGTON: | Hazardous Waste, #C048 |
| | WISCONSIN: | Hazardous Waste, #999940920<br>Waste Water, #999940920 |
| | USACOE: | Hazardous Waste<br>Waste Water |
| | AFCEE | |

(CN12558)

## GENERAL NARRATIVE

**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.

Percent recoveries for laboratory control samples and matrix spikes have been calculated using unrounded concentration values. Therefore, percent recoveries reported may differ slightly from those obtained from the rounded concentration values which appear on the report.

The following samples were analyzed at a dilution to bring target analytes within linear working range: 12558-2.

The surrogate recoveries for the analytes flagged on the data sheet were beyond acceptance limits for the following samples: 12558-1, 12558-2, LCS - Gas.

Percent recovery of LCS - Gas is 94%, and QC limits are 100 - 127%.

**Abbreviations and Definitions:**

| | |
|---|---|
| MB | *Method Blank* - An aliquot of a blank matrix carried throughout the entire analytical process |
| LCS | *Laboratory Control Sample* - A blank to which known quantities of specific analytes are added prior to sample preparation and analysis to assess the accuracy of the method |
| MS/MSD | *Matrix Spike/Matrix Spike Duplicate* - Duplicate samples to which known quantities of specific analytes are added prior to sample preparation and analysis to assess the extent of matrix bias or interference on analyte recovery |
| RPD | *Relative Percent Difference* - The measurement of precision between duplicate analyses |
| BRL | *Below Reporting Limit* |
| NS | *Not Specified* |
| NA | *Not Applicable* |

Flags:

Organics -

| | |
|---|---|
| J | Estimated value below the reporting limit and at or above the method detection limit. |
| B | Analyte found in the associated blank, as well as in the sample. |

Inorganics -

| | |
|---|---|
| B | Estimated value below the reporting limit and at or above the method detection limit. |

(CN12558)

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-6
Sample Number: 500151
Date/Time Received: 09/14/95 07:30
Date Prepared: 09/15/95
Initial Wt./Volume: NA
Final Volume: NA

SDG #: 12558
Project Number: 040601879000000
Lab ID: 12558-1/23411-8298
Date/Time Sampled: 09/13/95 11:15
Matrix: Water ( W )
Batch Number: 3251-950915

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 24 | 0.50 | 1 | 09/15/95 |
| Toluene | 26 | 1.0 | 2 | 09/15/95 |
| Ethyl benzene | 16 | 0.50 | 1 | 09/15/95 |
| 1,2-Xylene | 15 | 0.50 | 1 | 09/15/95 |
| 1,3-Xylene | 14 | 0.50 | 1 | 09/15/95 |
| 1,4-Xylene | 15 | 0.50 | 1 | 09/15/95 |
| TPH - Gasoline | 360 | 50 | 1 | 09/15/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 138 * | 80 - 120 |
| Orthochlorotoluene (FID) | 111 | 80 - 120 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 9-22-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/22/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-3
Sample Number: 500153
Date/Time Received: 09/14/95 07:30
Date Prepared: 09/15/95
Initial Wt./Volume: NA
Final Volume: NA

SDG #: 12558
Project Number: 040601879000000
Lab ID: 12558-2/23412-8298
Date/Time Sampled: 09/13/95 11:30
Matrix: Water ( W )
Batch Number: 3251-950915

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 140 | 5.0 | 10 | 09/18/95 |
| Toluene | 66 | 5.0 | 10 | 09/18/95 |
| Ethyl benzene | 130 | 5.0 | 10 | 09/18/95 |
| 1,2-Xylene | 52 | 5.0 | 10 | 09/18/95 |
| 1,3-Xylene | 98 | 5.0 | 10 | 09/18/95 |
| 1,4-Xylene | 100 | 5.0 | 10 | 09/18/95 |
| TPH - Gasoline | 1500 | 500 | 10 | 09/18/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 112 | 80 - 120 |
| Orthochlorotoluene (FID) | 135 * | 80 - 120 |

Qualifier Legend:
* - Values outside QC limits

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Approved by: _____ Date: 9-22-95

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# METHOD BLANK

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 09/15/95

Lab ID: 24244-MB /8298
Matrix: Water
Batch Number: 3251-950915

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Date Analyzed |
|---|---|---|---|
| Benzene | BRL | 0.50 | 09/15/95 |
| Toluene | BRL | 0.50 | 09/15/95 |
| Ethyl benzene | BRL | 0.50 | 09/15/95 |
| 1,2-Xylene | BRL | 0.50 | 09/15/95 |
| 1,3-Xylene | BRL | 0.50 | 09/15/95 |
| 1,4-Xylene | BRL | 0.50 | 09/15/95 |
| TPH - Gasoline | BRL | 50 | 09/15/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 92 | 80 - 120 |
| Orthochlorotoluene (FID) | 101 | 80 - 120 |

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Approved by: _____ Date: 9-22-95

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# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-2 12.5
Sample Number: 51496
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-3/23851-8298
Date/Time Sampled: 09/11/95 12:14
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 690 | 5.0 | 1 | 09/19/95 |
| Toluene | 110 | 5.0 | 1 | 09/19/95 |
| Ethyl benzene | 69 | 5.0 | 1 | 09/19/95 |
| 1,2-Xylene | 7.8 | 5.0 | 1 | 09/19/95 |
| 1,3-Xylene | 9.1 | 5.0 | 1 | 09/19/95 |
| 1,4-Xylene | 86 | 5.0 | 1 | 09/19/95 |
| TPH - Gasoline | 3100 | 1000 | 1 | 09/19/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 78 | 51 - 102 |
| Bromofluorobenzene(FID) | 78 | 51 - 102 |

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Approved by: _____ Date: 9-25-95

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Report Generated: 09/25/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-2 26.5
Sample Number: 51498
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-4/23852-8298
Date/Time Sampled: 09/11/95 15:00
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | BRL | 5.0 | 1 | 09/20/95 |
| Toluene | 11 | 5.0 | 1 | 09/20/95 |
| Ethyl benzene | BRL | 5.0 | 1 | 09/20/95 |
| 1,2-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,3-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,4-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| TPH - Gasoline | BRL | 1000 | 1 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 79 | 51 - 102 |
| Bromofluorobenzene(FID) | 85 | 51 - 102 |

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Approved by: _____ Date: 9-25-95

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# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-1 12.5
Sample Number: 52401
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-5/23853-8298
Date/Time Sampled: 09/11/95 16:18
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 150 | 50 | 10 | 09/20/95 |
| Toluene | 290 | 50 | 10 | 09/20/95 |
| Ethyl benzene | 6200 | 50 | 10 | 09/20/95 |
| 1,2-Xylene | 7300 | 50 | 10 | 09/20/95 |
| 1,3-Xylene | 16000 | 500 | 100 | 09/20/95 |
| 1,4-Xylene | 7900 | 500 | 100 | 09/20/95 |
| TPH - Gasoline | 310000 | 100000 | 100 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 0 * | 51 - 102 |
| Bromofluorobenzene(FID) | 0 * | 51 - 102 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 9-25-95

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Report Generated: 09/25/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-1 26.5
Sample Number: 52405
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-6/23854-8298
Date/Time Sampled: 09/11/95 17:10
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 270 | 5.0 | 1 | 09/20/95 |
| Toluene | 60 | 5.0 | 1 | 09/20/95 |
| Ethyl benzene | 18 | 5.0 | 1 | 09/20/95 |
| 1,2-Xylene | 6.8 | 5.0 | 1 | 09/20/95 |
| 1,3-Xylene | 7.1 | 5.0 | 1 | 09/20/95 |
| 1,4-Xylene | 8.9 | 5.0 | 1 | 09/20/95 |
| TPH - Gasoline | 1100 | 1000 | 1 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 76 | 51 - 102 |
| Bromofluorobenzene(FID) | 82 | 51 - 102 |

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Approved by: _____ Date: 9-25-95

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# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-5 12.5
Sample Number: 52406
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-7/23855-8298
Date/Time Sampled: 09/12/95 11:00
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 48000 | 5000 | 1000 | 09/20/95 |
| Toluene | 390000 | 5000 | 1000 | 09/20/95 |
| Ethyl benzene | 93000 | 5000 | 1000 | 09/20/95 |
| 1,2-Xylene | 110000 | 5000 | 1000 | 09/20/95 |
| 1,3-Xylene | 260000 | 5000 | 1000 | 09/20/95 |
| 1,4-Xylene | 96000 | 5000 | 1000 | 09/20/95 |
| TPH - Gasoline | 4800000 | 1000000 | 1000 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 0 * | 51 - 102 |
| Bromofluorobenzene(FID) | 0 * | 51 - 102 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 9-25-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/25/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-5 29.5
Sample Number: 52407
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-8/23856-8298
Date/Time Sampled: 09/12/95 13:00
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 55 | 5.0 | 1 | 09/20/95 |
| Toluene | 9.1 | 5.0 | 1 | 09/20/95 |
| Ethyl benzene | BRL | 5.0 | 1 | 09/20/95 |
| 1,2-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,3-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,4-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| TPH - Gasoline | BRL | 1000 | 1 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 80 | 51 - 102 |
| Bromofluorobenzene(FID) | 86 | 51 - 102 |

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

Approved by: _____ Date: 9-25-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/25/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-3 27
Sample Number: 52410
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-9/23859-8298
Date/Time Sampled: 09/12/95 15:55
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | BRL | 5.0 | 1 | 09/20/95 |
| Toluene | BRL | 5.0 | 1 | 09/20/95 |
| Ethyl benzene | BRL | 5.0 | 1 | 09/20/95 |
| 1,2-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,3-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,4-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| TPH - Gasoline | BRL | 1000 | 1 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 74 | 51 - 102 |
| Bromofluorobenzene(FID) | 79 | 51 - 102 |

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

Approved by: _____ Date: 9-25-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/25/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-6 12.5
Sample Number: 52412
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-10/23857-8298
Date/Time Sampled: 09/12/95 16:40
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | BRL | 5.0 | 1 | 09/20/95 |
| Toluene | 9.4 | 5.0 | 1 | 09/20/95 |
| Ethyl benzene | BRL | 5.0 | 1 | 09/20/95 |
| 1,2-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,3-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| 1,4-Xylene | BRL | 5.0 | 1 | 09/20/95 |
| TPH - Gasoline | BRL | 1000 | 1 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 76 | 51 - 102 |
| Bromofluorobenzene(FID) | 83 | 51 - 102 |

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

Approved by: _____ Date: 9-25-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/25/95

# METHOD BLANK

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

Lab ID: 24339-MB /8298
Matrix: Soil
Batch Number: 3276-950919

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Date Analyzed |
|---|---|---|---|
| Benzene | BRL | 5.0 | 09/19/95 |
| Toluene | BRL | 5.0 | 09/19/95 |
| Ethyl benzene | BRL | 5.0 | 09/19/95 |
| 1,2-Xylene | BRL | 5.0 | 09/19/95 |
| 1,3-Xylene | BRL | 5.0 | 09/19/95 |
| 1,4-Xylene | BRL | 5.0 | 09/19/95 |
| TPH - Gasoline | BRL | 1000 | 09/19/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 92 | 51 - 102 |
| Bromofluorobenzene(FID) | 97 | 51 - 102 |

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

Approved by: _____ Date: 9-25-95

MBT Environmental Laboratories

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Report Generated: 09/25/95

# LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL
LCS Date Analyzed: 09/19/95

Lab ID: 24343-LCS /8298
Matrix: Soil Units: mg/Kg (ppm)
Batch Number: 3276-950919
LCSD Date Analyzed: NA

| Analyte | (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 |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 250 | 280 | 111 | NA | NA | NA | 70-124 | ≤25 |
| Ethyl benzene | 0 | 250 | 270 | 108 | NA | NA | NA | 67-128 | ≤25 |
| TPH - Gasoline | 0 | 2500 | 2880 | 115 | NA | NA | NA | 75-125 | ≤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

| Surrogate | (h) Surr. Spike Conc. | (i) Sample + Surr. Spike Conc. | (j) Surr. Spike Rec % | (k) Sample Dup. + Surr. Spike Conc. | (l) Surr. Spike Dup. Rec % | Acceptance Limits |
|---|---|---|---|---|---|---|
| Bromofluorobenzene(PID) | 200 | 190 | 93 | NA | NA | 51-102 |
| Bromofluorobenzene(FID) | 200 | 194 | 97 | NA | NA | 51-102 |

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

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

Approved by: _____ Date: 9-25-95

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# MATRIX SPIKE/MATRIX SPIKE DUPLICATE

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-2 12.5
Sample Number: 51496
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL
MS Date Analyzed: 09/21/95

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-3/24345,24346-8298
Date/Time Sampled: 09/11/95 12:14
Matrix: Soil (S) Units: mg/Kg (ppm)
Batch Number: 3276-950919
% Moisture: NA

MSD Date Analyzed: 09/21/95

| Analyte | (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 |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 690 | 250 | 990 | 120 | 1200 | 204* | 19 | 70-124 | ≤25 |
| Ethyl benzene | 69 | 250 | 340 | 108 | 360 | 116 | 6 | 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

| Surrogate | (h) Surr. Spike Conc. | (i) Sample + Surr. Spike Conc. | (j) Surr. Spike Rec % | (k) Sample Dup. + Surr. Spike Conc. | (l) Surr. Spike Dup. Rec % | Acceptance Limits |
|---|---|---|---|---|---|---|
| Bromofluorobenzene(PID) | 200 | 160 | 83 | 160 | 79 | 51-102 |

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

Qualifier Legend:
* - Values outside QC

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

Approved by: _____ Date: 9-25-95

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Report Generated: 09/25/95

# METHOD BLANK

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 09/15/95

Lab ID: 24245-MB /8298
Matrix: Water
Batch Number: 3251-950915

| Analyte | Result ug/L (ppb) | Reporting Limit ug/L (ppb) | Date Analyzed |
|---|---|---|---|
| Benzene | BRL | 0.50 | 09/18/95 |
| Toluene | BRL | 0.50 | 09/18/95 |
| Ethyl benzene | BRL | 0.50 | 09/18/95 |
| 1,2-Xylene | BRL | 0.50 | 09/18/95 |
| 1,3-Xylene | BRL | 0.50 | 09/18/95 |
| 1,4-Xylene | BRL | 0.50 | 09/18/95 |
| TPH - Gasoline | BRL | 50 | 09/18/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Orthochlorotoluene (PID) | 95 | 80 - 120 |
| Orthochlorotoluene (FID) | 102 | 80 - 120 |

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

Approved by: _____ Date: 9-22-95

MBT Environmental Laboratories

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# LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 09/15/95
Initial Wt./Volume: NA
Final Volume: NA
LCS Date Analyzed: 09/15/95

Lab ID: 24242-LCS /8298
Matrix: Water Units: ug/L (ppb)
Batch Number: 3251-950915
LCSD Date Analyzed: NA

| Analyte | (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 |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 10 | 9.7 | 97 | NA | NA | NA | 72-134 | ≤20 |
| Ethyl benzene | 0 | 10 | 8.8 | 88 | NA | NA | NA | 72-128 | ≤20 |
| TPH - Gasoline | 0 | 100 | 93.9 | 94* | NA | NA | NA | 100-127 | ≤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

| Surrogate | (h) Surr. Spike Conc. | (i) Sample + Surr. Spike Conc. | (j) Surr. Spike Rec % | (k) Sample Dup. + Surr. Spike Conc. | (l) Surr. Spike Dup. Rec % | Acceptance Limits |
|---|---|---|---|---|---|---|
| Orthochlorotoluene (PID) | 4.0 | 3.7 | 94 | NA | NA | 80-120 |
| Orthochlorotoluene (FID) | 4.0 | 7.0 | 176* | NA | NA | 80-120 |

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

Qualifier Legend:
* - Value beyond QC limits

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

Approved by: _____ Date: 9-22-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/22/95

# LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

## VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Date Prepared: 09/15/95
Initial Wt./Volume: NA
Final Volume: NA
LCS Date Analyzed: 09/15/95

Lab ID: 24243-LCS /8298
Matrix: Water Units: ug/L (ppb)
Batch Number: 3251-950915
LCSD Date Analyzed: NA

| Analyte | (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 |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 10 | 12 | 117 | NA | NA | NA | 72-134 | ≤20 |
| Ethyl benzene | 0 | 10 | 10 | 104 | NA | NA | NA | 72-128 | ≤20 |
| TPH - Gasoline | 0 | 100 | 112 | 112 | NA | NA | NA | 100-127 | ≤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

| Surrogate | (h) Surr. Spike Conc. | (i) Sample + Surr. Spike Conc. | (j) Surr. Spike Rec % | (k) Sample Dup. + Surr. Spike Conc. | (l) Surr. Spike Dup. Rec % | Acceptance Limits |
|---|---|---|---|---|---|---|
| Orthochlorotoluene (PID) | 4.0 | 3.8 | 94 | NA | NA | 80-120 |
| Orthochlorotoluene (FID) | 4.0 | 7.1 | 177* | NA | NA | 80-120 |

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

Qualifier Legend:
* - Value beyond QC limits

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

Approved by: _____ Date: 9-22-95

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: September 26, 1995
LP #: 12586

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

Dear Mr. Germanas:

Enclosed are the additional laboratory results requested on September 18, 1995, for the samples submitted to MBT Environmental Laboratories on September 13, 1995, for the project *3810 Broadway*.

The report consists of the following sections:

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

Unless otherwise instructed by you, samples will be disposed of according to the instructions provided for the original samples (LP # 12552).

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,

Kevin Hanlon
Project Coordinator

# ANALYTICAL REPORT

## LABORATORY PROJECT (LP) NUMBER 12586

## 3810 BROADWAY

The analyses performed by MBT Environmental Laboratories in this report comply with the requirements under the following certification/approval:

| | | |
|---|---|---|
| | ARIZONA: | Hazardous Waste, #AZ0468<br>Waste Water, # AZ0468<br>Drinking Water, #AZ0468 |
| ✓ | CALIFORNIA: | Hazardous Waste, #1417<br>Waste Water, # 1417<br>Drinking Water, #1417 |
| | CONNECTICUT: | Waste Water, #PH0799 |
| | FLORIDA: | Environmental Water,<br>#E87298<br>CQAPP #930105 |
| | KANSAS: | Hazardous Waste, #E-1167<br>Waste Water, #E-192<br>Drinking Water, #E-192 |
| | NEW HAMPSHIRE: | Waste Water, #253195-B<br>Drinking Water, #253195-A |
| | NEW JERSEY: | Waste Water, #44818 |
| | NEW YORK: | Hazardous Waste, #11241<br>Waste Water, #11241<br>CLP, #11241 |
| | OKLAHOMA: | Hazardous Waste, #9318<br>Waste Water, #9318 |
| | SOUTH CAROLINA: | Hazardous Waste, #87013<br>Waste Water, #87013 |
| | TENNESSEE: | Underground Storage Tank |
| | UTAH: | Hazardous Waste, #E-165<br>Waste Water, #E-165<br>Drinking Water, #E-165 |
| | WASHINGTON: | Hazardous Waste, #C048 |
| | WISCONSIN: | Hazardous Waste, #999940920<br>Waste Water, #999940920 |
| | USACOE: | Hazardous Waste<br>Waste Water |
| | AFCEE | |

(CN12586)

MBT Environmental Laboratories

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

# CHAIN OF CUSTODY RECORD 15706

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

**Project Name:** 3810 Broadway
**Project Number:** 04.060/879.001.021
**Project Location: (State)** Oakland, CA

**FOR LABORATORY USE ONLY**
*Laboratory Project #:* 12586 *Storage ID:* 4-7, 1, 12-C
*Sample Condition Upon Receipt: Temp:* 3 °C *Geiger:*
*Custody Seals Present? Yes/No Intact? Yes/No Samples Intact? Yes/No*

Sample Disposal (check one)
- [x] ~~Laboratory Standard~~ (10)
- [x] Other See LP12552

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

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 | TPH Gas + BTEX | TPH Diesel F.F. D.M.O. | Polynuclear Aromatics F.F. D.M.O. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12586-1 | 12552.001 | 51494 | 9/11 | 1030 | B-4 | 12.5 | 1 | B | Soil | — | 1 week | X | |
| -2 | -002 | 52403-04 | 9/12 | 0915 | ↓ | 26.5 | 2 | B | | | | X | X |
| -3 | -003 | 51496 | 9/11 | 1214 | B-2 | 12.5 | 1 | B | | | | X | |
| -4 | -004 | 51498 | | 1540 | ↓ | 26.5 | 1 | B | | | | X | |
| -5 | -005 | 52401 | | 1618 | B-1 | 12.5 | 1 | B | | | | X | |
| -6 | -006 | 52405 | ↓ | 1710 | ↓ | 26.5 | 1 | B | | | | X | |
| -7 | -007 | 52406 | 9/12 | 1100 | B-5 | 12.5 | 1 | B | | | | X | |
| -8 | -008 | 52407-08 | | 1300 | ↓ | 29.5 | 1 | B | | | | X | |
| -9 | -010 | 52410-11 | ↓ | 1555 | B-3 | 27 | 2 | B | | | | X | X |
| -10 | ~~-011~~ | 52412 | 9/12 | 1640 | B-6 | 12.5 | 1 | B | ↓ | ↓ | ↓ | X | |

**SEND REPORT TO:**
Company Name McLaren/Hart
Client Name Saul Germonas
Address Alameda
Phone ____ Fax ____

**BILL TO (if different):**
Company Name ____
Address ____
PO # ____
Phone ____ Fax ____

**Special Instructions/Comments**

Sampler Name ____ Signature ____ PPE Worn in Field ____

| | | | |
|---|---|---|---|
| Relinquished By: | Date/Time | Samples Request | Received By or Method of Shipment/Shipment I.D. / Date/Time: 9/13/95 0900 |
| Relinquished By: | Date/Time | | Received By or Method of Shipment/Shipment I.D. / Date/Time: 9/18/95 1600 |
| Relinquished By: | Date/Time | | Received By or Method of Shipment/Shipment I.D. / Date/Time |

**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
606
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
Semivos
Metals
Pesticide
TDS
Total Hardness
Total Solids
TPH/D
TPH/G
TSS
Turbidity

* Specify Total or Dissolved

## GENERAL NARRATIVE

**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.

Percent recoveries for laboratory control samples and matrix spikes have been calculated using unrounded concentration values. Therefore, percent recoveries reported may differ slightly from those obtained from the rounded concentration values which appear on the report.

Modified EPA 8015:

The reported result for Motor Oil for the following sample is calculated based on the Motor Oil standard; however, the chromatographic pattern in the sample does not exactly resemble that of the Motor Oil standard: 12586-9.

The following sample was analyzed at a dilution due to the presence of non-target analyte interferences: 12586-2.

EPA 8020 (BTEX) and TPH-G:

The surrogate recoveries for the analytes flagged on the data sheet were diluted out for the following samples: 12586-1, 12586-5, and 12586-7.

The following samples were analyzed at a dilution to bring target analytes within linear working range: 12586-1, 12586-5, and 12586-7.

Matrix spike recovery for 12586-3MS/MSD is outside of advisory quality control limits due to the high concentration of that analyte in the sample.

**Abbreviations and Definitions:**

| | |
|---|---|
| MB | *Method Blank* - An aliquot of a blank matrix carried throughout the entire analytical process |
| LCS | *Laboratory Control Sample* - A blank to which known quantities of specific analytes are added prior to sample preparation and analysis to assess the accuracy of the method |
| MS/MSD | *Matrix Spike/Matrix Spike Duplicate* - Duplicate samples to which known quantities of specific analytes are added prior to sample preparation and analysis to assess the extent of matrix bias or interference on analyte recovery |

RPD — *Relative Percent Difference* - The measurement of precision between duplicate analyses

BRL — *Below Reporting Limit*

NS — *Not Specified*

NA — *Not Applicable*

**Flags:**

Organics -

J — Estimated value below the reporting limit and at or above the method detection limit.

B — Analyte found in the associated blank, as well as in the sample.

Inorganics -

B — Estimated value below the reporting limit and at or above the method detection limit.

(CN12586)

# TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015
Preparation Method: EPA 3550S

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-4 26.5
Sample Number: 52403
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95 07:50:
Initial Wt./Volume: 60 grams
Final Volume: 1 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-2/23858-7931
Date/Time Sampled: 09/12/95 09:15
Matrix: Soil ( S )
Batch Number: 3219-950919
% Moisture: NA

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Diesel Range (C12 - C22) | BRL | 20 | 20 | 09/22/95 |
| Motor Oil Range (C22 - C32) | 16 J | 20 | 20 | 09/22/95 |

Qualifier Legend:
J - estimated value

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

Approved by: _____ Date: 9-22-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/22/95

# TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015
Preparation Method: EPA 3550S

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-3 27
Sample Number: 52410
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95 07:50:
Initial Wt./Volume: 60 grams
Final Volume: 1 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-9/23859-7931
Date/Time Sampled: 09/12/95 15:55
Matrix: Soil ( S )
Batch Number: 3219-950919
% Moisture: NA

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Diesel Range (C12 - C22) | BRL | 1.0 | 1 | 09/19/95 |
| Motor Oil Range (C22 - C32) | 1.3 | 1.0 | 1 | 09/19/95 |

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

Approved by: _____ Date: 9-22-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/22/95

# METHOD BLANK

## TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015
Preparation Method: EPA 3550S

Date Prepared: 09/19/95 07:50:
Initial Wt./Volume: 60 grams
Final Volume: 1 mL

Lab ID: 23992-MB /25
Matrix: Soil
Batch Number: 3219-950919

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Date Analyzed |
|---|---|---|---|
| Diesel Range (C12-C22) | BRL | 1.0 | 09/20/95 |
| Motor Oil Range (C22-C32) | BRL | 1.0 | 09/20/95 |

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

Approved by: _____ Date: 9-22-95

MBT Environmental Laboratories

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Report Generated: 09/22/95

# LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

## TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Modified EPA 8015
Preparation Method: EPA 3550S

Date Prepared: 09/19/95 07:50:
Initial Wt./Volume: 60 grams
Final Volume: 1 mL
LCS Date Analyzed: 09/19/95

Lab ID: 23993-LCS /25
Matrix: Soil Units: mg/Kg (ppm)
Batch Number: 3219-950919
LCSD Date Analyzed: NA

| Analyte | (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 Range (C12-C22) | 0 | 41.7 | 30.1 | 72 | 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

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

Approved by: _____ Date: 9-22-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/22/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
*Project Name:* 3810 Broadway
Sample Description: B-4 12.5
Sample Number: 51494
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
*Project Number:* 040601879001001
Lab ID: 12586-1/23850-8298
Date/Time Sampled: 09/11/95 10:30
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 60 | 50 | 10 | 09/20/95 |
| Toluene | BRL | 50 | 10 | 09/20/95 |
| Ethyl benzene | 1200 | 50 | 10 | 09/20/95 |
| 1,2-Xylene | 1600 | 50 | 10 | 09/20/95 |
| 1,3-Xylene | 3700 | 50 | 10 | 09/20/95 |
| 1,4-Xylene | 1900 | 50 | 10 | 09/20/95 |
| TPH - Gasoline | 83000 | 10000 | 10 | 09/20/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 0 * | 51 - 102 |
| Bromofluorobenzene(FID) | 0 * | 51 - 102 |

Qualifier Legend:
* - Values outside QC limits

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

Approved by: _____ Date: 9-25-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/25/95

# VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and TPH/G by LUFT
Preparation Method: EPA 5030

Company: McLaren/Hart
Project Name: 3810 Broadway
Sample Description: B-4 26.5
Sample Number: 52403
Date/Time Received: 09/13/95 09:00
Date Prepared: 09/19/95
Initial Wt./Volume: 20 grams
Final Volume: 10 mL

SDG #: 12586
Project Number: 040601879001001
Lab ID: 12586-2/23858-8298
Date/Time Sampled: 09/12/95 09:15
Matrix: Soil ( S )
Batch Number: 3276-950919
% Moisture: NA

| Analyte | Result mg/Kg (ppm) | Reporting Limit mg/Kg (ppm) | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Benzene | 520 | 5.0 | 1 | 09/19/95 |
| Toluene | 78 | 5.0 | 1 | 09/19/95 |
| Ethyl benzene | 39 | 5.0 | 1 | 09/19/95 |
| 1,2-Xylene | 24 | 5.0 | 1 | 09/19/95 |
| 1,3-Xylene | 26 | 5.0 | 1 | 09/19/95 |
| 1,4-Xylene | 20 | 5.0 | 1 | 09/19/95 |
| TPH - Gasoline | 1900 | 1000 | 1 | 09/19/95 |

| Surrogates | % Recovery | Limits |
|---|---|---|
| Bromofluorobenzene(PID) | 78 | 51 - 102 |
| Bromofluorobenzene(FID) | 81 | 51 - 102 |

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

Approved by: _____ Date: 9-25-95

MBT Environmental Laboratories

Master Builders Technologies

Report Generated: 09/25/95

# APPENDIX D

## LABORATORY WRITE-UP, LABORATORY ANALYTICAL DATA SHEETS AND CHAIN-OF-CUSTODY RECORDS - FREE PRODUCT SAMPLE

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

December 5, 1995

Chris Warwick, Project Leader
McLaren Hart
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. Warwick:

Enclosed are the results from the testing of material submitted on November 22, 1995 from your 04.0601879.001.002, 3810 Broadway project.

Sample 259951-2 contained leaded automotive gasoline and trace amounts of a middle distillate such as diesel or heating oil. The gasoline appeared evaporatively weathered, as evidenced by the enrichment of xylenes and $C_3$-benzenes (4-7 minutes on the GC/FID trace) relative to the more volatile constituents (before 4 minutes on the GC/FID trace). The presence of broad peaks between 9 and 12 minutes is also indicative of chemical/biological degradation. The GC/ECD trace showed the possible presence of organic lead, which was confirmed by inductively coupled plasma automic emission spectroscopy (ICP/AES). The peak at nine minutes on the GC/ECD trace is characteristic of tetraethyl lead, while the peak at 7 minutes could be a different lead alkyl associated with a lead package in common use from 1960 to the mid 1970's. We tested for tetramethyl lead, another compound used in this package, but did not detect any analyte. Tetramethyl lead is the most highly volatile component of the lead package, however, and it may have evaporated, leaving the other lead species behind.

Your December 1, 1995 fax stated that sample 259951-2 was collected from a confined zone. The sample was found as a 6" product layer floating on the water table in a 22' deep well. The surrounding soil was a sandy clay topped with asphalt. Annual rainfall varies from 12" to 24", and the water table fluctuates approximately 1.5'. The site conditions would restrict air flow to the sample, slowing degradation processes. The extent of weathering in

259951-2 leads us to believe the product is at least five years old, and more likely, ten or more years old.

The organic lead level in 259951-2 is relatively high at 270 ppm, or 1.2 g/gallon. This concentration is typical for regular leaded gasolines manufactured between 1975 and 1982. The measured lead level, however, might have been altered during weathering processes. Lead is relatively persistent in the environment, and may concentrate over time. The original lead levels in 259951-2 may have been lower, opening the possibility that the sample was released earlier. We do not, however, expect 259951-2 to be much younger than 10 years old, because lead levels dropped sharply around 1985 in expectation of the EPA mandated lead phaseout.

The site information, weathering patterns, high organic lead levels, and possible presence of other lead alkyls leads us to believe the majority of 259951-2 was released sometime between 1975 and 1985. We are unable to tell you if the contamination came from a single spill or slow leak over time, but we do feel it was released in the stated time frame.

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.

Beth Albertson

Beth Albertson
Chemist

keh
Enclosures
FAX: (510) 521-1547
MH11205R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: December 5, 1995
Date Received: November 22, 1995
Project: 04.0601879.001.002, 3810 Broadway
Date Samples Extracted: November 27, 1995

## RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID) AND ELECTRON CAPTURE DETECTOR (ECD)

| Sample ID | GC Characterization |
|---|---|
| 259951-2 | The GC trace using the flame ionization detector (FID) showed the presence of low and medium boiling compounds. The low boiling compounds appeared as a ragged pattern of peaks eluting from *n*-$C_6$ to *n*-$C_{14}$ showing a maximum near *n*-$C_8$. The GC/FID trace showed the presence of peaks that appeared to be indicative of augmented levels of toluene, ethylbenzene, the xylenes and $C_3$-benzenes. These compounds are characteristic of the constituents commonly found in gasoline. The GC/ECD trace showed the possible presence of tetraethyl lead, a common additive to leaded gasolines and a suite of lead alkyl compounds characteristic of old leaded gasolines. The low boiling product appears to have undergone degradation by evaporative processes due to the loss of the low boiling constituents and chemical or biological degradation due to the presence of broad peaks.<br><br>The medium boiling compounds appeared as a regular pattern of peaks eluting from *n*-$C_{15}$ to *n*-$C_{21}$. A regular pattern of the *n*-alkanes is seen for the medium boiling product. The patterns displayed by these peaks are indicative of a middle distillate such as diesel fuel or heating oil. The medium boiling material was seen in very low concentration relative to the gasoline, making product identification tentative.<br><br>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. |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: December 5, 1995
Date Received: November 22, 1995
Project: 04.0601879.001.002, 3810 Broadway
Date Samples Extracted: December 4, 1995
Date Extracts Analyzed: December 4, 1995

## RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR ORGANIC LEAD BY ICP (METHOD 6010)

Results Reported as µg/g (ppm)

| Sample ID | Organic Lead |
|---|---|
| 259951-2 | 270 |
| Method Blank | <0.4 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: December 5, 1995
Date Received: November 22, 1995
Project: 04.0601879.001.002, 3810 Broadway

## QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR ORGANIC LEAD BY ICP (METHOD 6010)

Laboratory Code: 64364 (Duplicate)

| Analyte: | Reporting Units | Sample Result | Duplicate Result | Relative Percent Difference | Acceptance Criteria |
|---|---|---|---|---|---|
| Organic Lead | ug/g (ppm) | 42 | 37 | 13 | 0-20 |

Laboratory Code: 64364 (Matrix Spike)

| Analyte: | Reporting Units | Spike Level | Sample Result | % Recovery MS | % Recovery MSD | Acceptance Criteria | Relative Percent Difference |
|---|---|---|---|---|---|---|---|
| Organic Lead | ug/g (ppm) | 59 | 42 | 81 | 80 | 80-120 | 1 |

Laboratory Code: Spike Blank

| Analyte: | Reporting Units | Spike Level | % Recovery MS | Acceptance Criteria |
|---|---|---|---|---|
| Organic Lead | ug/g (ppm) | 59 | 80 | 80-120 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: December 5, 1995
Date Received: November 22, 1995
Project: 04.0601879.001.002, 3810 Broadway
Date Samples Extracted: December 4, 1995

## RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR TETRAMETHYL LEAD BY GAS CHROMATOGRAPHY WITH ELECTRON CAPTURE DETECTION (GC/ECD)

Results Reported as µg/g (ppm)

| Sample ID | Tetramethyl Lead |
|---|---|
| 259951-2 | <1 |
| Method Blank | <1 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: December 5, 1995
Date Received: November 22, 1995
Project: 04.0601879.001.002, 3810 Broadway

## QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR TETRAMETHYL LEAD BY GAS CHROMATOGRAPHY WITH ELECTRON CAPTURE DETECTION (GC/ECD)

Laboratory Code: 64084 (Duplicate)

| Analyte: | Reporting Units | Sample Result | Duplicate Result | Relative Percent Difference | Acceptance Criteria |
|---|---|---|---|---|---|
| Tetramethyl Lead | µg/g (ppm) | <1 | <1 | nm | 0-20 |

Laboratory Code: Spike Blank

| Analyte: | Reporting Units | Spike Level | % Recovery MS | Acceptance Criteria |
|---|---|---|---|---|
| Tetramethyl Lead | µg/g (ppm) | 50 | 115 | 65-135 |

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

MBT Environmental Laboratories

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

# CHAIN OF CUSTODY RECORD 16402

SEE SIDE 2 FOR COMPLETE INSTRUCTIONS

BD BTEX #0 11-22-95 9:50

oject Name: 3810 BROADWAY
oject Number: 04-0601879.001.002
oject Location: (State) OAKLAND, CA

FOR LABORATORY USE ONLY
Laboratory Project: _____ Storage ID: _____
Sample Condition Upon Receipt: Temp: _____ °C _____ Geiger: _____
Custody Seals Present? Yes/No Intact? Yes/No Samples Intact? Yes/No

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 →

## 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 | HFS | ADDITIVES, 6/MS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 64084-85 | 259951-2 | 11-0395 | 11:00 | MW-2 | — | 2 | V | PROD. | — | SEE BELOW | X | X |
| | client ord | lead | | 12/1/95 | | | | | | | | |

SEND REPORT TO:
Company Name CHRIS WARWICK
Client Name MCLAREN/HART
Address 1135 ATLANTIC AVE
ALAMEDA, CA 94501
Phone 510 521-5700 Fax 510 521-1547

BILL TO (if different):
Company Name _____
Address _____
_____
PO # _____
Phone _____ Fax _____

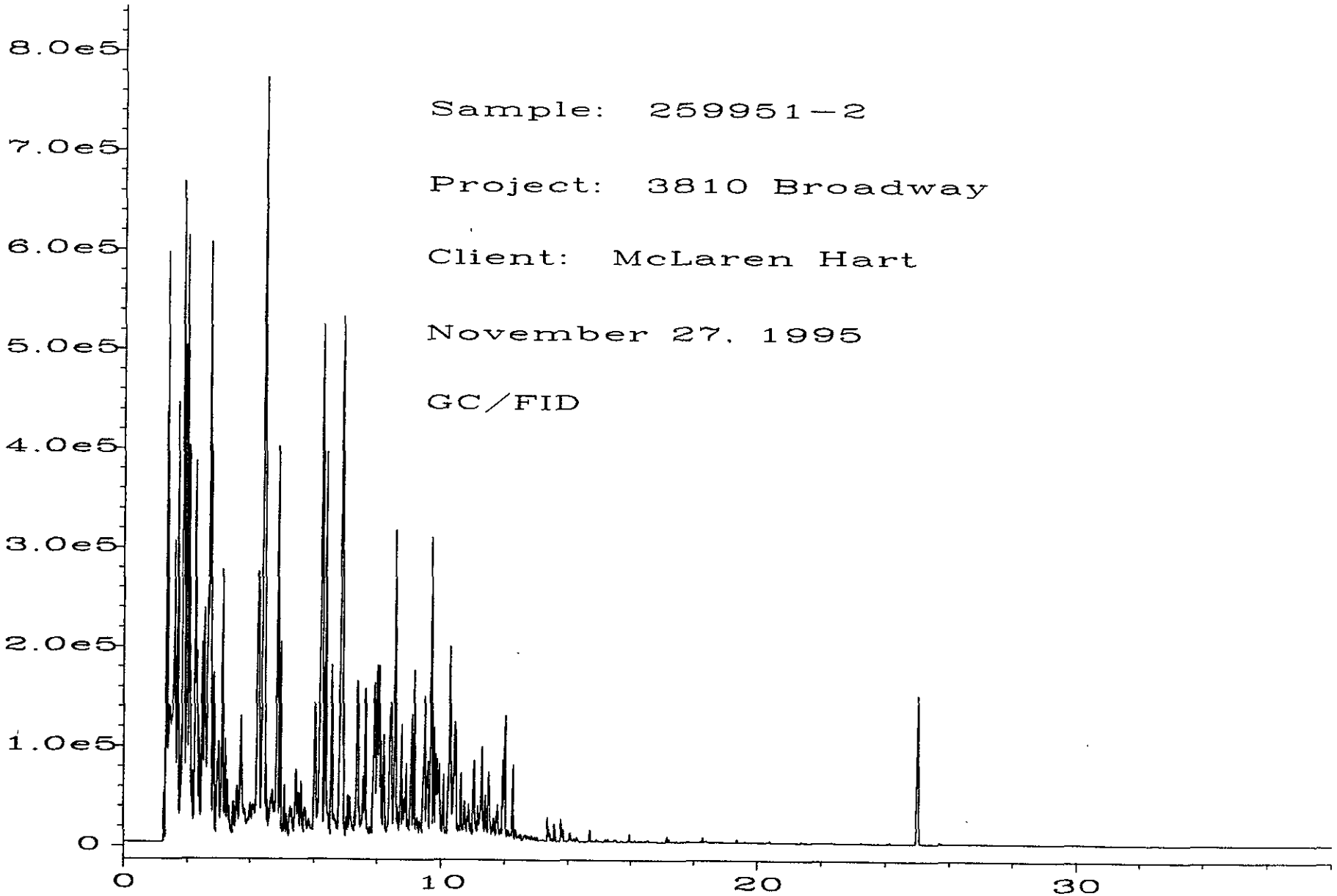
Special Instructions/Comments PLEASE CALL CHRIS WARWICK @ (510) 748-5634 TO CONFIRM ABOVE ANALYSES

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

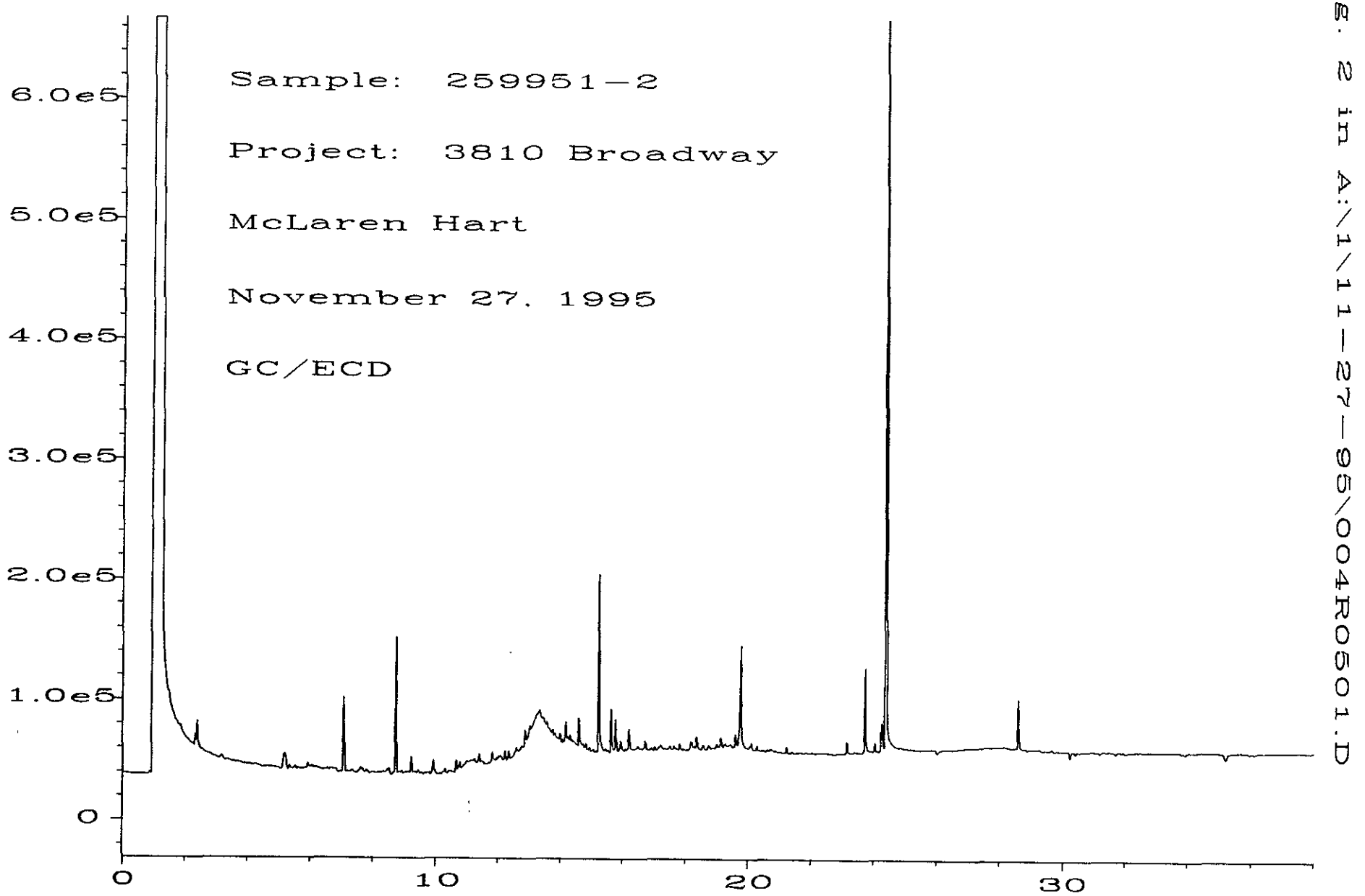
Relinquished By: [signature] Date/Time: 11-21-95/1900
Received By or Method of Shipment/Shipment I.D.: FED EXPRESS Date/Time: 11-21-95/1900

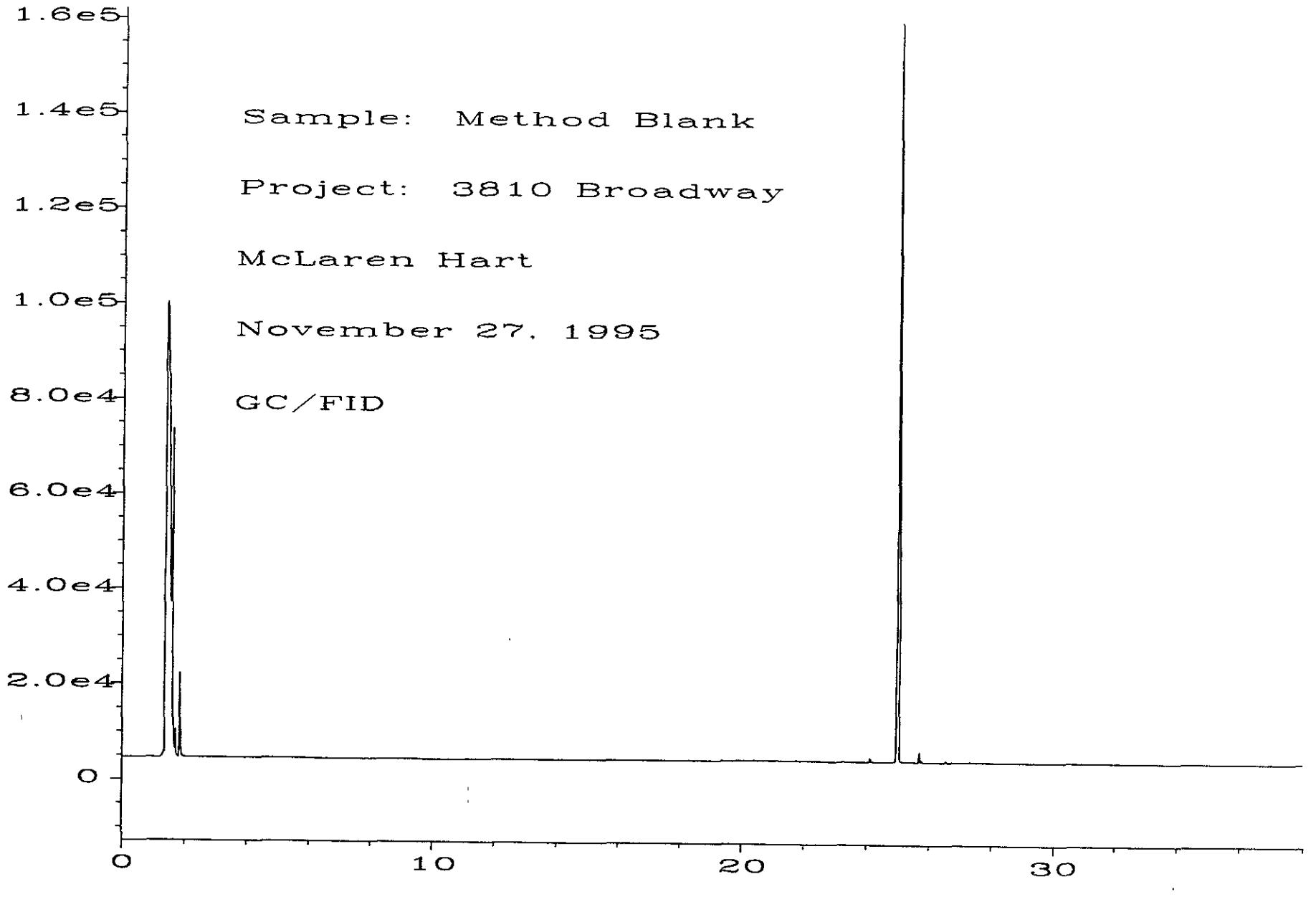
Relinquished By: _____ Date/Time: _____
Received By or Method of Shipment/Shipment I.D.: [signature] Date/Time: 11-22-95 9:50

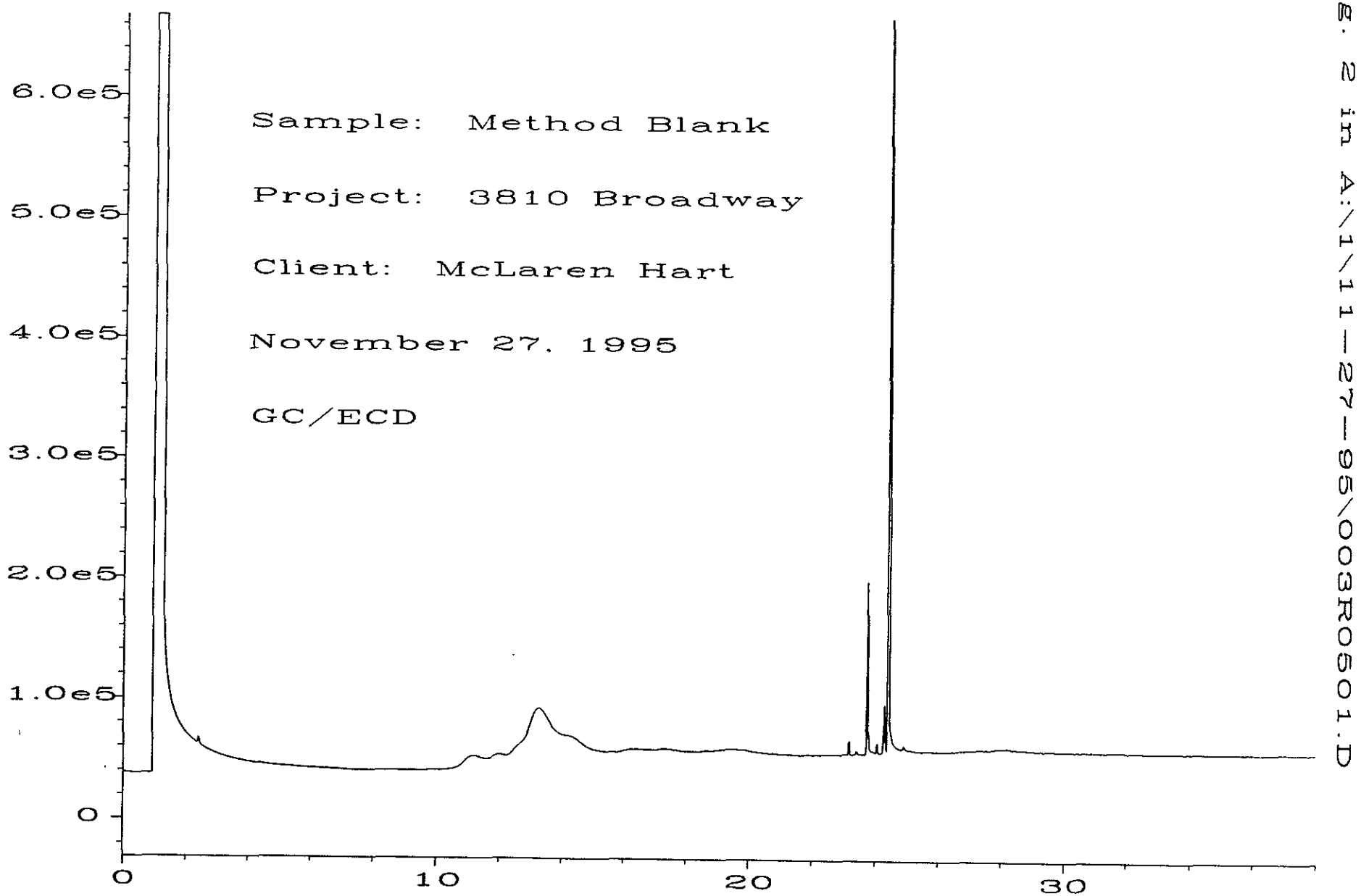
Common Analytical Methods
413.1
413.2 Long Method
413.2 Short Method
418.1 Long Method
418.1 Short Method
420.1
502.2
503E
503.1
524.2
601
602
604
608
610
624
625
8010
8015
8015 Mod.
8020
8021
8040
8080
8100
8150
8240
8270
8310
Acidity
Alkalinity
BTEX
Chloride
CLP (see Side 2)
COD
Color
Conductivity
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
Semivos
Metals
Pesticide
TDS
Total Hardness
Total
TPH(D)
TPH
TS
Tu




Sig. 1 in A:\11\11-27-95\004F0501.D


Sample: 259951-2
Project: 3810 Broadway
McLaren Hart
November 27, 1995
GC/ECD
6.0e5
5.0e5
4.0e5
3.0e5
2.0e5
1.0e5
0
0
10
20
30
Sig. 2 in A:\11\11-27-95\004R0501.D


Sig. 1 in A:\1\11-27-95\003F0501.D
Sample: Method Blank
Project: 3810 Broadway
McLaren Hart
November 27, 1995
GC/FID
1.6e5
1.4e5
1.2e5
1.0e5
8.0e4
6.0e4
4.0e4
2.0e4
0
0
10
20
30


Sample: Method Blank
Project: 3810 Broadway
Client: McLaren Hart
November 27, 1995
GC/ECD
6.0e5
5.0e5
4.0e5
3.0e5
2.0e5
1.0e5
0
0
10
20
30
Sig. 2 in A:\11\11-27-95\003R0501.D

# Friedman & Bruya, Inc.

(206) 285-8282

## Analysis For Ethylene Dichloride, Ethylene Dibromide and MTBE By EPA Method 8240

| | | | |
|---|---|---|---|
| **Client Sample Name:** | Method Blank | **Matrix:** | Product |
| **FBI Sample Name:** | EK 1129 MB1 P | **Run Date:** | 11/29/95 |
| **Client:** | McLaren/Hart | **Instrument:** | GCMS1 |
| **Extraction Date:** | 11/29/95 | **Operator:** | BA |
| **Data File:** | 112837.D | **Units:** | mg/kg(ppm) |
| **Project:** | 3810 Broadway | | |

| **Surrogates** | % Recovery |
|---|---|
| 1,2-Dichloroethane-d4 | 117 |
| Toluene-d8 | 93 |
| 4-Bromofluorobenzene | 98 |

| **Compounds** | **Concentration mg/kg(ppm)** |
|---|---|
| 1,2-Dibromoethane (EDB) | <10 |
| 1,2-Dichlororethane (EDC) | <10 |
| MTBE | <10 |

# Friedman & Bruya, Inc.

(206) 285-8282

## Analysis For Ethylene Dichloride, Ethylene Dibromide and MTBE By EPA Method 8240

| | | | |
|---|---|---|---|
| **Client Sample Name:** | 259951 - 2 | **Matrix:** | Product |
| **FBI Sample Name:** | 64084 | **Run Date:** | 11/30/95 |
| **Client:** | McLaren/Hart | **Instrument:** | GCMS1 |
| **Extraction Date:** | 11/29/95 | **Operator:** | BA |
| **Data File:** | 112852.D | **Units:** | mg/kg(ppm) |
| **Project:** | 3810 Broadway | | |

| **Surrogates** | % Recovery |
|---|---|
| 1,2-Dichloroethane-d4 | 123 |
| Toluene-d8 | 95 |
| 4-Bromofluorobenzene | 100 |

| **Compounds** | **Concentration mg/kg(ppm)** |
|---|---|
| Ethylene dibromide (EDB) | <10 |
| Ethylene dichloride (EDC) | <10 |
| MTBE | <10 |