

**SUBSURFACE SOIL INVESTIGATION**  
2855 Cypress Street  
Oakland, California  
ATEC Project Number 43-07-9200385

**RECEIVED**  
SEP 15 1998  
By \_\_\_\_\_

Mr. Jim Kropf  
Morgan Stanley and Company, Inc.  
24222 Avenida de la Carlota, Suite 275  
Laguna Hills, California 92653

July 16, 1992

APR - 5 1992

**SUBSURFACE SOIL INVESTIGATION  
2855 Cypress Street  
Oakland, California**

A Report Prepared for  
Morgan Stanley and Company, Inc.  
24222 Avenida de la Carlota, Suite 275  
Laguna Hills, California 92653

July 16, 1992

Report Prepared by  
ATEC Environmental consultants  
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Solid & Hazardous Waste Site Assessments  
Remedial Design & Construction  
Underground Tank Management  
Asbestos Surveys & Analysis  
Hydrogeologic Investigations & Monitoring  
Analytical Testing / Chemistry  
Industrial Hygiene / Hazard Communication  
Environmental Audits & Permitting  
Exploratory Drilling & Monitoring Wells

July 16, 1992

Mr. Jim Kropf  
Morgan Stanley and Company, Inc.  
24222 Avenida de la Carlota, Suite 275  
Laguna Hills, California 92653

RE: SUBSURFACE SOIL INVESTIGATION  
2855 Cypress Street  
Oakland, California  
ATEC Proposal Number 43-07-9200385

Dear Mr. Kropf:

ATEC Environmental Consultants (ATEC) has completed a subsurface soil investigation at the above-captioned site. Our findings further define the extent of soil contamination previously identified on the property.

Currently present on site is one drum containing soil cuttings from B-1, B-2, and B-3. Upon your request, ATEC is prepared to provide you with a proposal for proper disposal of the materials.

We recommend that the extent of on-site groundwater contamination be assessed in the next phase of investigation. However, the appropriate regulatory agencies should be notified and their concurrence sought before further assessment work is done on the property, in order to assure that all work meets regulatory requirements.

We trust this information is sufficient for your current needs. Please contact us at our Irvine office at (714) 753-8100 for any clarification of our report or recommendations.

Sincerely,

**ATEC ENVIRONMENTAL CONSULTANTS**

*Chris Nevison ©*

Chris Nevison  
Staff Hydrogeologist  
Geoscience Services

*Stephen Niou*

Stephen Niou, P.E.  
Division Manager  
Geoscience Services

*Robert Olsen*

Robert Olsen, R.G.  
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## EXECUTIVE SUMMARY

A TEC Environmental Consultants (ATEC) has completed a subsurface soil investigation at the Chromalloy facility in Oakland, California. The scope of work for ATEC's investigation included a soil-vapor survey on the property and the drilling of three soil borings. The purpose of the investigation was to further define the vertical and lateral extent of hydrocarbon contamination on the property. Soil and groundwater contamination was discovered on the site during the removal of one gasoline and one waste oil underground storage tank in 1991.

On June 17, 1992 ATEC conducted a soil vapor survey in order to determine the lateral extent of contamination on the subject site. A total of 17 sample points were established and vapor samples from each were analyzed for total volatile petroleum hydrocarbons (TVPH), and benzene/toluene/ethylbenzene/xylene (BTEX). Results of the survey indicated that elevated levels of TVPH as well as BTEX are present in a soil vapor plume which extends from the former underground storage tank (UST) cavity to the area south of the loading ramp excavation. The highest vapor concentrations were encountered south of the loading ramp excavation, at the southeastern corner of the building. A second area with elevated TVPH concentrations is located immediately south of the former UST cavity. Vapor levels decrease significantly at a distance of thirty feet or more from the center of the plume.

On June 19, 1992 ATEC drilled three soil borings, one to a depth of 15 feet and two to depths of ten feet each, on the subject site. The soil boring locations were based on the results of the soil vapor survey. A total of 7 soil samples were submitted to a State-certified analytical laboratory for analysis for total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418.1, benzene/toluene/ethylbenzene/xylene (BTEX) using EPA method 8020, and gasoline/diesel using EPA Method 8015 (modified). One soil sample was also analyzed for halogenated volatile organics using EPA method 8010, and for base/neutral and acid extractables using EPA method 8270.

Analytical results of soil samples from the three borings indicate that the soil contains elevated levels of BTEX, gasoline, naphthalene and methylnaphthalene as well as small amounts of diesel fuel. The maximum contaminant concentrations were found in the 10-foot sample from boring B-3, adjacent to the tank excavation. Contaminant levels in this sample were as follows: gasoline, 2800 parts per million (ppm); diesel, 24 ppm; total recoverable petroleum hydrocarbons, 110 ppm; benzene, 34 ppm; toluene, 170 ppm; ethylbenzene, 61 ppm; total xylenes, 250 ppm; total lead, 0.65 ppm; naphthalene, 15 ppm; 2-methylnaphthalene, 11 ppm. Gasoline and diesel constituents were found in each of the borings, and were strongly concentrated in the 10-foot samples, that is, just above the water table. Naphthalene and 2-methylnaphthalene were found only in the sample from the 10-foot depth in boring B-3.

Groundwater was encountered in each of the borings at approximately 10 to 11 feet below surface. The groundwater flow direction is unknown; however, it is suspected that the groundwater flow is largely influenced by tidal fluctuations in San Francisco Bay. San Francisco Bay is located approximately one mile north, south, and west of the subject site.

Data developed in this study indicate that soil contamination above permissible State levels is present on the subject site. Petroleum hydrocarbons were detected in soil vapors beneath the on-site building. It is likely that groundwater contamination is present on the property. ATEC recommends that a series of monitoring wells be installed on the subject site as the next phase of site assessment. However, the appropriate regulatory agencies should be notified before monitoring wells are installed so that requirements for regulatory oversight of the site assessment process are met.

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**SUBSURFACE SOIL INVESTIGATION**  
2855 Cypress Street  
Oakland, California  
ATEC Project No. 43-07-9200385

**1.0 INTRODUCTION**

**1.1 Project Authorization**

ATEC Environmental Consultants (ATEC) has conducted a Phase II Environmental Site Assessment at the above-captioned property at the request of Morgan Stanley and Company (MSI). The scope of work was outlined in a proposal dated May 11, 1992 from Mr. Robert Olsen of ATEC to Mr. Jim Kropf of MSC. Mr. Kropf signed a Proposal Acceptance Agreement for the project on June 2, 1992.

**1.2 Project Objective and Scope of Work**

Soil and groundwater contamination were detected on the subject site during the course of the removal of two underground storage tanks (USTs) in June 1990. One waste-oil UST and one gasoline UST were discovered on the property during the course of a Phase I Environmental Site Assessment in September 1990. Operations during the tank removal indicated the presence of soil contamination both in the tank cavity area and in the area of a loading dock located approximately 60 feet south of the tank cavity, and groundwater contamination in the loading dock area.

Further investigation to assess the vertical and lateral extent of contamination has been requested by MSC. The scope of work for this investigation was outlined in ATEC Proposal No. 43-07-9200385 dated May 11, 1992. The scope of work for the investigation included the following:

- A soil vapor study to determine the lateral extent of total volatile petroleum hydrocarbons present in vapors in the subsurface.
- The drilling of three soil borings on the subject site, and chemical analysis of soil samples from the borings.

This report summarizes the results of the investigation and presents our conclusions and recommendations.



## 2.0 SITE DESCRIPTION

### 2.1 Site Layout and History

The subject site is located in an industrial area of the City of Oakland California. Previous tenants in the facility have included Navistar (formerly International Harvester) and Chromalloy, Inc. The current tenants include Joinery Structures and The Envelope Company. A previous gasoline and waste oil tank removal project on June 21, 1991 detected soil and groundwater contamination on the subject site. Soil sampling in the vicinity of the gasoline UST indicated contaminant levels of 240 parts per million (ppm) total petroleum hydrocarbons (TPH) as gasoline, 1800 ppm as diesel, and 2000 ppm as motor oil. Low levels of volatile compounds (benzene, toluene, ethylbenzene, and xylenes) were also present. A soil sample from the waste-oil UST excavation indicated low levels of gasoline, diesel, motor oil, and oil and grease, and very low levels of three other organic compounds (chlorobenzene, methylnaphthalene, and naphthalene).

Soil samples were also collected on June 21, 1991 from the excavation for a loading ramp approximately 50 feet south of the tank cavity. The soil samples were analyzed and found to contain low levels of gasoline, diesel, and motor oil, and somewhat elevated levels of oil and grease (370 ppm). A sample of water (apparently groundwater seepage) from the excavation was also collected and found to contain 58 ppm total petroleum hydrocarbons (TPH) as gasoline, 110 ppm TPH as diesel, and 74 ppm TPH as motor oil. Benzene, toluene, ethylbenzene, and total xylenes were detected in the water sample; the level of benzene detected, 0.29 ppm, is in excess of the accepted regulatory action level of 0.0007 ppm (0.7 parts per billion). Low levels of the semivolatile organic compound phenol were also detected in the water sample.

### 2.2 Geology and Hydrogeology

The subject site is located in the City of Oakland, near San Francisco Bay. The Bay lies approximately one mile north, south, and west of the subject site. The soils underlying the site are composed predominantly of green to dark grey silts and silty sands with very low permeability. These soils are locally termed "Bay Mud".

The depth to water on the subject site, as indicated by the results of the soil borings, is approximately 11 feet. The groundwater flow direction, based on the surface slope, is to the west. However, this flow direction may be diverted or reversed by tidal effects, soil conditions, manmade channels or barriers in the subsurface, or other effects.

### 3.0 SITE ASSESSMENT

#### 3.1 Field Investigation

Pursuant to the scope of work outlined in ATEC's proposal of May 11, 1992, ATEC performed field activities on the subject site on June 17 and 19, 1992. The field work included a soil vapor survey and the drilling and soil sampling of three soil borings (B-1, B-2, and B-3).

The field activities were as follows:

- |                |   |
|----------------|---|
| June 17, 1992: | Conducted soil vapor survey. Marked site for Underground Service Alert for clearance of boring locations.   |
| June 18, 1992: | Analyzed soil vapor study results to determine locations of soil borings.   |
| June 19, 1992: | Finalized boring locations; cored pavement at two borings; advanced one soil boring to 15 feet in depth, and two borings to 10 feet deep. Collected soil samples. |

A total of 17 soil-vapor sampling points were established on the subject site. Ten points were located east and south of the on-site building, in the vicinity of the UST removal area and ramp excavation; seven points were located inside the building, west and north of the UST removal area. Technical details of the soil vapor survey are presented in Appendix A.

Three soil borings were drilled on the site on June 19, 1992 using a hollow-stem auger drilling rig. The locations of the borings were determined by analysis of the results of the soil-vapor survey. Boring B-1 was placed in the loading dock area, at the same location as the soil-vapor survey point that yielded the highest readings. Boring B-3 was placed approximately 5 feet east of the UST excavation. Boring B-2 was placed midway between B-1 and B-3, approximately 5 feet east of the building.

Boring B-1 was drilled to a depth of 15 feet, or 4 feet below the water table. Borings B-2 and B-3 were terminated at depths of 10 feet each. Both B-2 and B-3 appeared to be in the capillary zone (that is, immediately above the level of groundwater saturation) at total depth. Lithologic logs for the three soil borings are presented in Appendix B.

Standard protocols for sample collection, preservation and transport were observed throughout the drilling activities. (See Appendix D for a description of these protocols). The samples were delivered on June 19, 1992 to a State-certified analytical laboratory for analysis.

### 3.2 Results of Field Investigation

The results of the soil vapor survey are presented in Appendix A. A site plan with contours depicting isoconcentrations of total volatile petroleum hydrocarbons (TVPH) is presented in Appendix A. This map presents computer-generated contours provided by the soil-vapor survey subcontractor, and indicates a large area of elevated vapor readings southeast of the loading dock (southeast of SG-02 and SG-09). We interpret this area to be a contouring artifact. A contour map representing ATEC's interpretation of the results of the soil-vapor survey is presented as Figure 2 of this report.

Of the 17 vapor samples collected, 12 had detectible levels of BTEX and TVPH as gasoline. The highest detected levels of each contaminant were found in sample point SG-1, adjacent to the loading dock at the southeast corner of the property. Contaminant levels in the soil vapor at this point were: Total Volatile Petroleum Hydrocarbons (TVPH) as gasoline, 763 parts per billion (ppb); benzene, 95.1 ppb; toluene, 49.1 ppb; ethylbenzene, 2.1 ppb; total xylenes, 29.1 ppb.

The results of the soil vapor survey show a soil-vapor plume trending generally north-south. The highest soil vapor readings were encountered at the south end of the plume, near the loading dock; however, soil vapor levels in the vicinity of the UST excavation were probably affected by the presence of the excavation, which has been partially backfilled with soil but probably represents a disturbed area where volatilization of hydrocarbons has resulted in deceptively low soil-vapor values.

Seven soil-vapor survey points were established within the building. These points indicated moderately elevated levels of contaminants in the soils underlying the building; the highest levels were encountered in the dispenser area (SG-5 and SG-6) and north of the UST excavation.

Examination of soils encountered during the drilling of the soil borings indicate that the soils beneath the subject site consist mostly of silts ("bay mud"), which is typical of this area. However, the soil under the building (as observed during the insertion of the soil vapor probes) appeared to be loose, porous sand. The sand may represent imported fill used in the grading of the site before construction of the building. It is possible that the movement of contaminants in the subsurface beneath the building is controlled by the orientation and extent of the sand.

The results of the analyses performed on the soil samples from the three borings indicate that the soil contains elevated levels of BTEX and gasoline and low levels of diesel fuel. Naphthalene and 2-methylnaphthalene were identified in the sample from 10 feet in boring B-3; this result confirms the previous identification of these compounds in the UST area. However, the concentrations of these compounds in boring B-3 (15,000 ppb naphthalene and 11,000 ppb 2-methylnaphthalene) were somewhat higher than previously determined (2400 ppb naphthalene and 2000 ppb 2-methylnaphthalene).

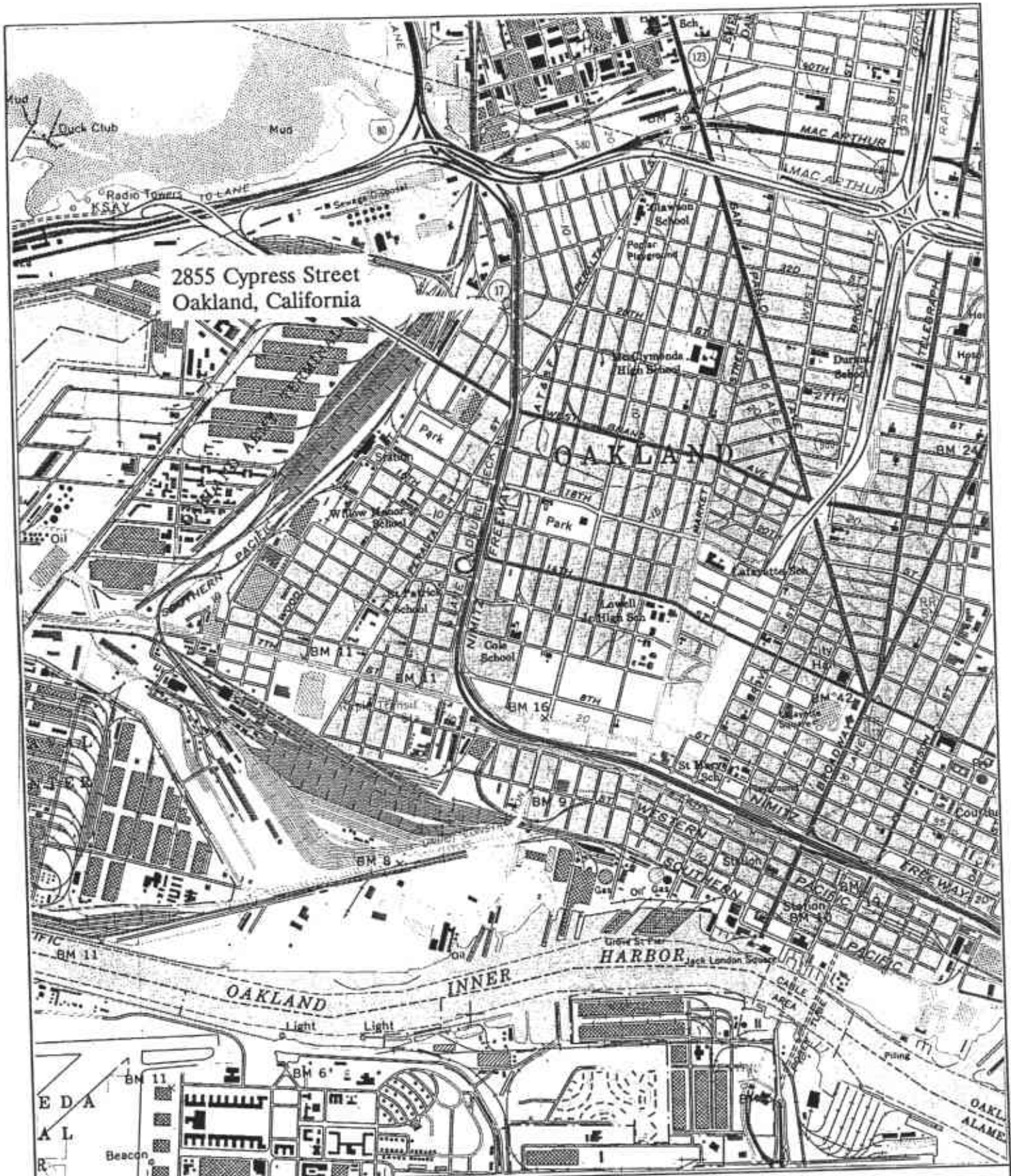
A total of seven soil samples were collected during the drilling and submitted to the analytical laboratory; the results of the soil sample analyses are presented in Table 1 below.

Soil samples from the 5-, 10-, and 15-foot depths in boring B-1 were found to contain 7, 1, and 960 parts per million of gasoline respectively, and 770, 56 and 7,000 parts per billion of benzene respectively. The samples from B-1 contained no total recoverable or total extractable petroleum hydrocarbons (oil, kerosene and diesel range) with the exception of 4 ppm diesel in the 10-foot sample.

Soil samples from the 5- and 10- foot samples in boring B-2 were found to contain less than 20 ppm gasoline in the 5 foot sample and 1,500 ppm gasoline in the 10 foot sample. The 5 and 10 foot samples were found to contain 570 ppb and 25,000 ppb benzene respectively. The samples from B-2 contained no total recoverable or total extractable petroleum hydrocarbons (oil, kerosene and diesel range) with the exception of 2 ppm of diesel in the 10-foot sample.

Soil samples from the 5-and 10-foot depths in boring B-3 were found to contain 300 ppm and 2,800 ppm gasoline respectively. The 5 and 10 foot samples were also found to contain 6,900 and 34,000 ppb benzene respectively. The 5 and 10 foot samples were also found to contain 100 ppm and 110 ppm total recoverable petroleum hydrocarbons respectively, and 80 ppm and 24 ppm extractable petroleum hydrocarbons in the diesel range. In addition to the above analysis, the 10 foot sample from B-3, which was the most highly contaminated sample collected, was also analyzed for volatile halocarbons using EPA method 8010. and base/neutral and acid extractables using EPA method 8270. The soil sample was found to contain no volatile halocarbons using EPA method 8010; however, the sample was found to contain naphthalene and 2-methylnaphthalene as mentioned above.

The results of the soil testing indicate that the highest concentrations of contaminants such as gasoline and benzene were encountered in boring B-3, in the vicinity of the UST excavation. Elevated levels of hydrocarbons were detected in each of the three borings, and in each boring the highest levels were encountered at a depth of 10 feet, or immediately above groundwater. Two areas of concern were identified. These are the tank excavation and the loading dock area approximately 50 feet south of the UST excavation. The highest levels of soil vapor were encountered in the loading dock area; however, levels in the UST excavation area may have been affected by disturbance of the soil and volatilization during tank removal. \*



2855 Cypress Street  
Oakland, California

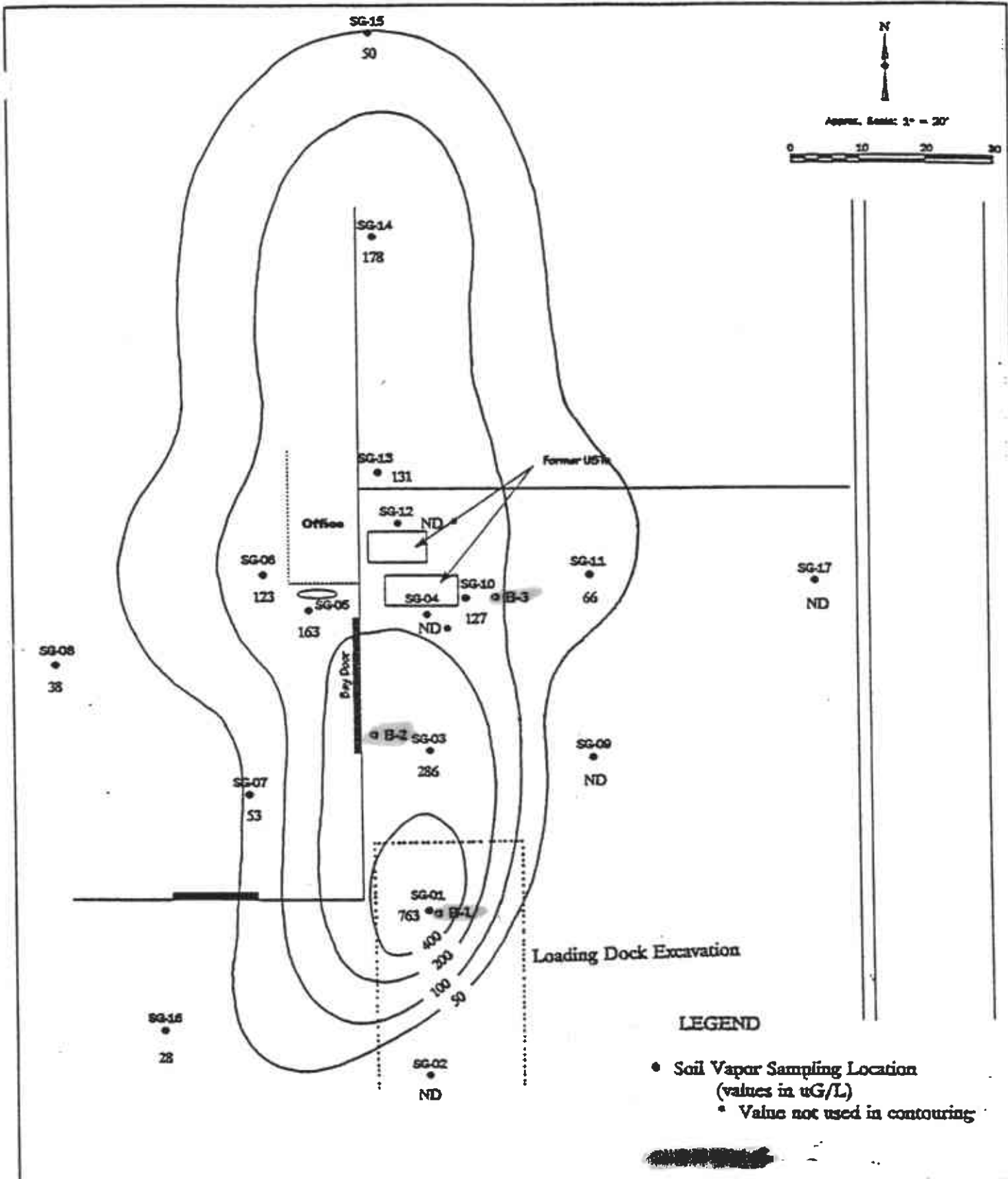
Chromalloy Facility  
Oakland, California



SITE MAP

July 15, 1992

9200385



2855 Cypress Street  
Oakland, California

July 15, 1992

43-07-9200385



**FIGURE 2**  
SITE PLAN WITH SOIL BORING LOCATIONS  
AND SOIL VAPOR SAMPLING POINTS

TABLE 1  
SUMMARY OF SOIL SAMPLE ANALYSES

Boring No.	Depth (ft)	8270 (ppb)	LEAD(7240) (ppm)	TRPH(418.1) Kerosene (ppm)	TRPH(418.1) Diesel (ppm)	TVH(8015) gas (ppm)	(8020) B / T / E / X (ppb)
B-1	5	NA	NA	ND	ND	7	770 / 28 / 280 / 990
	10	NA	NA	**	4	960	7,000 / 41,000 / 21,000 / 96,000
	15	NA	NA	ND	ND	1	56 / 200 / 55 / 240
B-2	5	NA	NA	ND	ND	<20	570 / <80 / <80 / <80
	10	NA	NA	**	2	1,500	25,000 / 100,000 / 35,000 / 150,000
B-3	5	NA	NA	**	80	300	6,900 / 18,000 / 5,800 / 21,000
	10	a) 15,000 b) 11,000	0.65	**	24	2,800	34,000 / 170,000 / 61,000 / 250,000

Notes: a) Napthalene  
 b) 2-methylnapthalene  
 (ppm) parts per million  
 (ppb) parts per billion  
 <20 less than the detection limit of 20, or not detected  
 ND Not Detected  
 NA Not Analyzed  
 \*\* Out of kerosene range - quantitated in diesel range

AT&C  
 July 16, 1992

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

##### Conclusions:

- Results of analysis of the soil vapor study and soil samples recovered from three borings indicate that the soil on the subject site contains elevated levels of gasoline and its constituents such as benzene, toluene, ethylbenzene and xylene. Significant amounts of naphthalene and 2-methylnaphthalene are also present, as are small amounts of diesel fuel, motor oil, and other heavy hydrocarbons.
- Depth to groundwater on the subject site was measured at approximately 11 feet below surface. The groundwater flow direction is unknown; however it is suspected that the groundwater flow is largely influenced by tidal forces of San Francisco Bay. Parts of San Francisco Bay are located approximately one mile north, south, and west of the subject site.
- Two possible source areas were indicated by the soil-vapor survey and soil borings. The possible sources are the UST excavation immediately east of the building, and the loading dock area at the southeast corner of the building. Moderately elevated levels of fuel constituents were also identified in samples of soil vapor collected from beneath the building.



### Recommendations:

- Further assessment work should not be done on the subject site until the appropriate regulatory agencies have been notified and regulatory oversight instituted. The lead agency in this area is likely to be the Alameda County Health Department or the California Regional Water Quality Control Board, Region 2 (Oakland). Regulatory concurrence for any workplan for groundwater assessment or remediation developed for the site is necessary in order to meet government requirements and lead to eventual site closure.
- The Phase I Environmental Site Assessment previously performed on the subject site identified several potential off-site sources of contamination. ATEC recommends further investigation of groundwater conditions in the site vicinity, including detailed review of regulatory files. This information will be needed when negotiating with the regulatory agency regarding cleanup goals on the subject site, since if there is a regional groundwater problem in the area this would affect remediation operations on the subject site.
- Additional Phase II site assessment work will be needed to more fully determine the extent of contamination on the subject site. ATEC recommends that the next phase of site assessment be the installation of approximately four groundwater monitoring wells. The wells should be located in an approximately square pattern at the UST excavation and loading dock, and approximately 50 feet east of those areas. These monitoring wells will serve to determine the degree and extent of groundwater contamination. The wells should be equipped with four-inch casing and screened from five feet below grade to their total depth (estimated to be 30 feet) so that they can later be used as groundwater or soil-vapor extraction wells if necessary.
- Remediation of the subject site will follow the completion of the site assessment process. Based on what is presently known concerning the on-site contamination, soil excavation in the tank cavity and loading dock areas may be recommended. Soil remediation by soil-vapor extraction may not be a feasible alternative at this site because of the tight soils and shallow groundwater. Additional information regarding groundwater contamination will be needed before a remedial strategy can be selected.

## 5.0 QUALIFICATIONS

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This warranty is in lieu of all other warranties, either expressed or implied. This company is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration presented in this report. Client will not hold ATEC liable for any conclusions or recommendations made by ATEC based on false, incorrect or outdated information obtained from any subcontractors.

It should be noted that all environmental assessments are inherently limited in the sense that conclusions are drawn and recommendations developed from information obtained from limited research and site evaluation. Subsurface conditions may differ from the conditions indicated by information available at this time. Additionally, the passage of time may result in a change in the environmental characteristics at this site and surrounding properties.

It must be noted that no investigation can absolutely rule out the existence of any hazardous materials at a given site. This assessment has been based upon prior site history and observable conditions and activities. Existing hazardous materials and contaminants can escape detection using these methods. The work performed in conjunction with this assessment and the data developed are intended as a description of available information at the dates and location given. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

APPENDIX A  
SOIL VAPOR SURVEY RESULTS

**SOIL VAPOR STUDY RESULTS**

**Chromalloy Facility  
Oakland, California**

**Project #: OTI-060692**

***Submitted By:***

**Optimal Technology Inc.**

**June 21, 1992**



**OPTIMAL TECHNOLOGY INC.**  
Specializing in Environmental Field Services

June 21, 1992  
OTI-060692

Mr. Chris Nevison  
ATEC Environmental  
8 Pasteur, Ste # 150  
Irvine, CA 92718

Dear Mr. Nevison:

This letter presents the results of the soil gas investigation conducted by Optimal Technology Inc. (OTI), for ATEC Environmental on June 17th, 1992. This study was performed at the Chromalloy facility in Oakland, CA.

OTI was contracted to perform a soil gas survey at this location to screen for possible BTEX and TVPH contamination. The primary objective of this soil vapor survey was to determine if contamination is present in the subsurface.

#### **Sampling Method**

Sampling was performed by hydraulically pushing 1/2" galvanized steel soil gas probes to depths of 5 feet below ground surface. An electric rotary hammer drill was used to drill a 1.0 inch hole through the overlying concrete/asphalt to allow probe placement. The same electric hammer drill was used to push probes in areas of resistance during placement.

At each sampling depth an electric vacuum pump set to draw a maximum of 100 inches of water vacuum was then attached to the probe. The probe was then purged for 1.0 minutes at a flow rate of 5 liters of soil gas per minute prior to sample collection. Samples were obtained in Hamilton, 1 milliliter gas-tight syringes by puncturing silicone tubing connecting the sampling probe and the vacuum pump. New silicone tubing was used at each sampling point to prevent cross contamination. Samples were immediately injected into the gas chromatograph after collection. The sampling system was blanked before each sampling location by collecting a sample through the probe before emplacement. If contamination was detected, corrective actions were taken to try to eliminate the source and blanks were re-analyzed. If attempts to eliminate the source of contamination were unsuccessful, the quantities were evaluated as to their affects on the actual results.

All analyses were performed on a laboratory grade Hewlett Packard model 5890 Series II gas chromatograph equipped with an Electron Capture Detector (ECD) and a Flame Ionization Detector (FID). Restec wide bore capillary columns using nitrogen as the carrier gases was used to perform all analysis. All results were collected on a 80386 based personal computer utilizing Hewlett Packard's PC based chromatographic data collection and handling system.

## Quality Assurance

### *Calibrations*

The gas chromatograph was calibrated at the beginning of each work day by preparing a Gasoline standard in a 40 ml air tight EPA vial. A three point calibration consisting of 20, 50 and 100 ul injections of this solution was performed at the beginning of each work day. A calibration factor based on a best fit line forced through the origin was calculated using the HP data system. If the  $r^2$  factor generated from this line was not greater than 0.980, an additional three point calibration was performed. Detection limits were calculated to be 0.1 ug/L for BTEX, and 1.0 ug/L for TVPH (as Gasoline).

### *Continuing Calibrations*

A 1-point continuing calibration was run after 10 samples analyzed and compared to that day's 3-point calibration. This assured that the instrument response was consistent throughout the day. These continuing calibrations must agree within 20% of that day's 3-point calibration or an additional 3-point calibration would be performed and the new calibration factor used for subsequent samples.

### *Sample Duplicates*

A duplicate analyses was run after 10 samples were analyzed to evaluate the reproducibility of both the sampling system and the instrument. If the difference between samples collected varied more than 20%, the entire system was evaluated and the cause of the inconsistency was determined and corrected if possible.

### *Equipment Blanks*

Blanks were run on each new probe prior to installation. The blanks were collected by hooking up the entire sampling system above ground and collecting an air sample. These blanks checked the probes, fittings, septum, syringe, GC column, GC detector and the ambient air. If contamination was found to exist, the procedure was repeated until the source was determined and corrected, if possible. The quantities of any contaminants found in the blanks were reported on the Soil Gas Quality Assurance table and were not subtracted from the results given in the Soil Gas Results table.

### *Subsurface Conditions*

During probe emplacement and removal, observed soil types were predominantly clayey sand. These soil conditions offered poor sampling flows (90-100" water vacuum) which indicates a very low permeability soil.

## **Scope of Work**

A total of 17 soil gas samples were collected and analyzed. All soil gas samples were collected at a depth of 5 feet. All samples collected were analyzed for TVPH and BTEX using a Flame Ionization Detector (FID). Diagram 1 shows the approximate location of all the sampling locations.

Sample identification, sampling depths, vacuum pressures, gas flow rates and injection amounts are presented on the daily field log attached.

## **Results**

Of the 17 samples collected, 12 had detectable levels of both BTEX and TVPH as gasoline. TVPH levels ranged from 28 ug/L in SG-16 to 763 ug/L in SG-1. Benzene levels ranged from 2.1 ug/L in SG-16 to 95.1 ug/L in SG-1. Three of the five samples which had no detectable levels of TVPH or BTEX were collected from areas which had been previously excavated.

Complete analytical results and quality assurance tables are included.

## **Conclusions**

Based on the analytical results of the soil vapor survey conducted, moderate levels of TVPH as gasoline along with the benzene, toluene, ethylbenzene and total xylenes are present at the site. The highest levels detected were located to the south of the previous gasoline UST. It should be noted that the samples collected directly adjacent to the former USTs were collected from within a previous excavation. These samples may or may not represent the general subsurface conditions in this area.

A computer generated concentration map using TVPH concentrations (not including samples SG-4 and SG-12) show a distinct vapor plume running parallel along the eastern wall of the warehouse. The highest levels are found near the southeastern corner of the building. Vapor levels decrease significantly as you move 30 feet east or west of the warehouse wall.

The possibility that two separate source exist at this location is likely. One source located at sample SG-1 within the unknown excavation area and another source at or near the excavation which contained the USTs. The low porosity soil encountered at this site should minimize the lateral and vertical migration of the gasoline contaminants in both the vapor and liquid phases.

**Disclaimer**

All conclusions and recommendations presented in this letter are based solely on the information collected by the soil gas survey conducted by OTL. Soil gas testing is only a subsurface screening tool and does not represent actual contaminant concentrations in either the soil and/or groundwater.

We enjoyed working with you on this project and look forward to future projects. If you have any questions please contact me at (805) 684-6226.

Sincerely  
Optimal Technology Inc.

A handwritten signature in black ink, appearing to read "Derek Thiele". The signature is fluid and cursive, with a large initial "D" and "T".

Derek Thiele  
Staff Chemist





Optimal Technology Inc.  
Specializing in Soil Gas Surveys

# SOIL GAS RUN TABLE

DATE: 06/17/1992

SAMPLE ID	FILENAME	SAMPLE DEPTH	INJ VOLUME	SAMPLE VACUUM	SAMPLE FLOW	SOIL TYPE	COMMENTS
Blank	FTA-01	NA	100	0	NA	NA	
20 ul STD	FTA-02	NA	20	NA	NA	NA	Calibration
50 ul STD	FTA-03	NA	50	NA	NA	NA	Calibration
100 ul STD	FTA-04	NA	100	NA	NA	NA	Calibration
EB-01	FTA-05	NA	1000	0	NA	NA	
SG-01	FTA-06	6'	1000	100	< 1	Clayey Sand	
EB-02	FTA-07	NA	1000	0	NA	NA	
SG-02	FTA-08	6'	1000	100	< 1	Clayey Sand	Ground Water HR
EB-03	FTA-09	NA	1000	0	NA	NA	
SG-03	FTA-10	5'	1000	100	< 1	Clayey Sand	1 Foot Less Of Ground Water
EB-04	FTA-11	NA	1000	0	NA	NA	
SG-04	FTA-12	5'	1000	90	< 1	Clayey Sand	Smelled Gas on Probe
EB-05	FTA-13	NA	1000	0	NA	NA	
SG-05	FTA-14	5'	1000	100	< 1	Clayey Sand	
EB-06	FTA-15	NA	1000	0	NA	NA	
SG-06	FTA-16	5'	1000	100	< 1	Clayey Sand	
EB-07	FTA-17	NA	1000	0	NA	NA	
SG-07	FTA-18	5'	1000	100	< 1	Clayey Sand	
SG-07	ETA-18	5'	500	100	< 1	Clayey Sand	Check For Chlorinated Solvents
EB-08	FTA-19	NA	1000	0	NA	NA	
SG-08	FTA-20	5'	1000	100	< 1	Clayey Sand	
EB-09	FTA-21	NA	1000	0	NA	NA	
SG-09	FTA-22	5'	1000	70	1-2	Clayey Sand	
EB-10	FTA-23	NA	1000	0	NA	NA	
SG-10	FTA-24	5'	1000	100	< 1	Clayey Sand	
SG-10 Dup.	FTA-25	5'	1000	100	< 1	Clayey Sand	Sample Duplicate
Cont. Calib.	FTA-26	NA	50	NA	NA	NA	Mid-Point Calibration
Cont. Calib.	FTA-27	NA	50	NA	NA	NA	Mid-Point Calibration
EB-11	FTA-28	NA	1000	0	NA	NA	
SG-11	FTA-29	5'	1000	100	< 1	Clayey Sand	
EB-12	FTA-30	AN	1000	0	NA	NA	
SG-12	FTA-31	5'	1000	100	< 1	Clayey Sand	
EB-13	FTA-32	NA	1000	0	NA	NA	
SG-13	FTA-33	5'	1000	100	< 1	Sandy Clay	
EB-14	FTA-34	NA	1000	0	NA	NA	

SAMPLE DEPTH (Feet); INJECTION VOLUME (ul); SAMPLE VACUUM (Inches of Water - 100" max.); SAMPLE FLOW (L/min.); SOIL TYPE (sand/silt/clay or mixture)

= Not Applicable; EB = Equipment Blanks; SG = Soil Gas Samples; STD = Standards





**Optimal Technology Inc.**  
Specializing in Soil Gas Surveys

**SOIL GAS RESULTS**

**COMPANY:** ATEC Environmental  
**CONTACT:** Mr. Chris Nevison  
**ADDRESS:** 8 Pasteur, Ste # 150  
Irvine, CA 92718

**PROJECT NAME:** Chromalloy  
**PROJECT NUMBER:** OTI-060692  
**SAMPLE DATES:** June 17, 1992  
**MATRIX TYPE:** Air (Soil Vapor)

SAMPLE ID	TVPH (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
SG-01	763	95.1	49.2	2.1	29.1
SG-02	ND	ND	ND	ND	ND
SG-03	286	34.2	23.8	1.6	19.9
SG-04	ND	ND	ND	ND	ND
SG-05	163	18.5	17.2	1.5	22.8
SG-06	123	14.7	12.6	0.9	14.1
SG-07	53	6.3	4.5	ND	4.1
SG-08	38	4.9	2.9	0.2	1.0
SG-09	ND	ND	ND	ND	ND
SG-10	127	13.9	13.0	1.0	16.9
SG-11	66	6.9	7.4	0.6	13.1
SG-12	ND	ND	ND	ND	ND
SG-13	131	13.5	14.9	1.8	26.3
SG-14	178	20.9	18.1	1.4	19.8
SG-15	50	4.5	5.6	0.6	8.7
SG-16	28	2.1	4.1	0.7	12.7
SG-17	ND	ND	ND	ND	ND

ND = Not Detected at or above reporting limits of: 0.1 ug/L for Benzene, Toluene, Ethylbenzene, Xylenes  
1.0 ug/L for TVPH (as Gasoline)

LABORATORY NUMBER: 107724  
 CLIENT: ATEC ENVIRONMENTAL CONSULTANTS  
 PROJECT ID: 9200385  
 LOCATION: CYPRESS PROPERTIES

DATE SAMPLED: 06/19/92  
 DATE RECEIVED: 06/19/92  
 DATE ANALYZED: 06/25/92  
 DATE REPORTED: 06/29/92

Total Volatile Hydrocarbons with BTXE in Soils & Wastes  
 TVH by California DOHS Method/LUFT Manual October 1989  
 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
107724-1	B1 5'	7	770	28	280	990
107724-3	B1 15'	1	56	200	55	240

QA/QC SUMMARY

=====  
 RPD, % 7  
 RECOVERY, % 91  
 =====

LABORATORY NUMBER: 107724  
 CLIENT: ATEC ENVIRONMENTAL CONSULTANTS  
 PROJECT ID: 9200385  
 LOCATION: CYPRESS PROPERTIES

DATE SAMPLED: 06/19/92  
 DATE RECEIVED: 06/19/92  
 DATE ANALYZED: 06/26/92  
 DATE REPORTED: 06/29/92

Total Volatile Hydrocarbons with BTXE in Soils & Wastes  
 TVH by California DOHS Method/LUFT Manual October 1989  
 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
107724-2	B1 10'	960	7,000	41,000	21,000	96,000
107724-4	B2 5'	ND(20)	570	ND(80)	ND(80)	ND(80)
107724-5	B2 10'	1,500	25,000	100,000	35,000	150,000
107724-6	B3 5'	300	6,900	18,000	5,800	21,000
107724-7	B3 10'	2,800	34,000	170,000	61,000	250,000

ND = Not detected at or above reporting limit; Reporting limit  
 indicated in parentheses.

QA/QC SUMMARY

=====  
 RPD, % 6  
 RECOVERY, % 97  
 =====

LABORATORY NUMBER: 107724  
 CLIENT: AETC Environmental Consultants  
 PROJECT ID: 9200385  
 LOCATION: Cypress Properties

DATE SAMPLED: 6/19/92  
 DATE RECEIVED: 6/19/92  
 DATE REQUESTED: 6/29/92  
 DATE ANALYZED: 7/01/92  
 DATE REPORTED: 7/06/92

=====

ANALYSIS: ORGANIC LEAD  
 ANALYSIS METHOD: CA DHS METHOD, LUFT MANUAL OCT 1989

=====

LAB ID	CLIENT ID	RESULT	UNITS	REPORTING LIMIT
107724-007	B3 10'	0.65	mg/Kg	0.50

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====

RPD, % 9  
 RECOVERY, % 114

=====



LABORATORY NUMBER: 107724
CLIENT: AETC Environmental Consultants
PROJECT ID: 9200385
LOCATION: Cypress Properties
SAMPLE ID: B3 10'

DATE SAMPLED: 6/19/92
DATE RECEIVED: 6/19/92
DATE REQUESTED: 6/29/92
DATE ANALYZED: 6/29/92
DATE REPORTED: 7/06/92

EPA 8010: Volatile Halocarbons in Soil & Wastes
Extraction Method: EPA 5030 - Purge & Trap

Table with 3 columns: Compound, RESULT ug/Kg, REPORTING LIMIT ug/Kg. Lists various compounds like Chloromethane, Bromomethane, Vinyl chloride, etc., with their respective results and limits. Includes handwritten notes like 'micrograms/Kilogram'.

ND = Not detected at or above reporting limit.

\*\* NOTE: High levels of petroleum hydrocarbons forced the analysis to be run at high detection limits.

QA/QC SUMMARY

Surrogate Recovery, % 102







LABORATORY NUMBER: 107724  
CLIENT: ATEC ENVIRONMENTAL CONSULTANTS  
PROJECT ID: 9200385  
LOCATION: CYPRESS PROPERTIES  
SAMPLE ID: B3 10'

DATE SAMPLED: 06/19/92  
DATE RECEIVED: 06/19/92  
DATE REQUESTED: 06/29/92  
DATE EXTRACTED: 06/30/92  
DATE ANALYZED: 07/01/92  
DATE REPORTED: 07/06/92

EPA 8270: Base/Neutral and Acid Extractables in Soils & Wastes  
Extraction Method: EPA 3550 Sonication

ACID COMPOUNDS	RESULT ug/Kg	REPORTING LIMIT ug/Kg
Phenol	ND	3,300
2-Chlorophenol	ND	3,300
Benzyl Alcohol	ND	3,300
2-Methylphenol	ND	3,300
4-Methylphenol	ND	3,300
2-Nitrophenol	ND	17,000
2,4-Dimethylphenol	ND	3,300
Benzoic Acid	ND	17,000
2,4-Dichlorophenol	ND	17,000
4-Chloro-3-methylphenol	ND	3,300
2,4,6-Trichlorophenol	ND	3,300
2,4,5-Trichlorophenol	ND	17,000
2,4-Dinitrophenol	ND	17,000
4-Nitrophenol	ND	17,000
4,6-Dinitro-2-methylphenol	ND	17,000
Pentachlorophenol	ND	17,000
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	3,300
Aniline	ND	3,300
Bis(2-chloroethyl)ether	ND	3,300
1,3-Dichlorobenzene	ND	3,300
1,4-Dichlorobenzene	ND	3,300
1,2-Dichlorobenzene	ND	3,300
Bis(2-chloroisopropyl)ether	ND	3,300
N-Nitroso-di-n-propylamine	ND	3,300
Hexachloroethane	ND	3,300
Nitrobenzene	ND	3,300
Isophorone	ND	3,300
Bis(2-chloroethoxy)methane	ND	3,300
1,2,4-Trichlorobenzene	ND	3,300
Naphthalene	15,000	3,300
4-Chloroaniline	ND	3,300
Hexachlorobutadiene	ND	3,300
2-Methylnaphthalene	11,000	3,300
Hexachlorocyclopentadiene	ND	3,300
2-Chloronaphthalene	ND	3,300
2-Nitroaniline	ND	17,000

LABORATORY NUMBER: 107724  
 SAMPLE ID: B3 10'

EPA 8270

BASE/NEUTRAL COMPOUNDS	RESULT ug/kg	REPORTING LIMIT ug/kg
Dimethylphthalate	ND	3,300
Acenaphthylene	ND	3,300
2,6-Dinitrotoluene	ND	3,300
3-Nitroaniline	ND	17,000
Acenaphthene	ND	3,300
Dibenzofuran	ND	3,300
2,4-Dinitrotoluene	ND	3,300
Diethylphthalate	ND	3,300
4-Chlorophenyl-phenylether	ND	3,300
Fluorene	ND	3,300
4-Nitroaniline	ND	17,000
N-Nitrosodiphenylamine	ND	3,300
Azobenzene	ND	3,300
4-Bromophenyl-phenylether	ND	3,300
Hexachlorobenzene	ND	3,300
Phenanthrene	ND	3,300
Anthracene	ND	3,300
Di-n-butylphthalate	ND	3,300
Fluoranthene	ND	3,300
Benzidine	ND	3,300
Pyrene	ND	3,300
Butylbenzylphthalate	ND	3,300
3,3'-Dichlorobenzidine	ND	17,000
Benzo(a)anthracene	ND	3,300
Chrysene	ND	3,300
Bis(2-ethylhexyl)phthalate	ND	3,300
Di-n-octylphthalate	ND	3,300
Benzo(b)fluoranthene	ND	3,300
Benzo(k)fluoranthene	ND	3,300
Benzo(a)pyrene	ND	3,300
Indeno(1,2,3-cd)pyrene	ND	3,300
Dibenzo(a,h)anthracene	ND	3,300
Benzo(g,h,i)perylene	ND	3,300

ND = Not detected at or above reporting limit.

## QA/QC SUMMARY: % SURROGATE RECOVERIES

2-Fluorophenol	93	Nitrobenzene-d5	86
Phenol-d6	86	2-Fluorobiphenyl	86
2,4,6-Tribromophenol	65	Terphenyl-d14	103

# Curtis & Tompkins, Ltd

2323 Fifth Street  
Berkeley, California 94710  
(415) 486-0900

## Chain of Custody Form

Samplers Chris Nevison  
Chen C. Nevison

Job Description Cypress properties

Job Number 9200385

Client Contact Robert OLSEN - ATEC  
(714) 753-8100

Recorder \_\_\_\_\_

Matrix				# Containers	Method Preserved					Sample Number		Sampling Date				SAMPLE NOTES
Water	Soil	Waste	Oil		H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	Ice	None	Other			Yr	Mo	Dy	Time	
X				1			X			B1	5'			9206190730	107724-1	
	X			1			X			B1	10'			9206190740	-2	
X				1			X			B1	15'			9206190755	-3	
	X			1			X			B2	5'			9206190820	-4	
X				1			X			B2	11'			9206190840	-5	
X				1			X			B3	5'			9206190900	-6	
X				1			X			B3	10'			9206190915	-7	

ANALYSIS REQUESTED											
EPA 418.1	EPA 8015 M Diesel	TYH/BTXE									
X	X	X									
X	X	X									
X	X	X									
X	X	X									
X	X	X									
X	X	X									

Laboratory Notes: See Attached, See Nancy



Division of ATEC Associates, Inc.  
8 Pasteur, Suite 150  
Irvine, California 92718-3803  
(714) 753-8100 FAX (714) 753-0897

CHRIS NEVISON  
Staff Hydrogeologist

Consulting Environmental, Geotechnical and Materials Engineers

### Chain of Custody Record

Relinquished by: (signature) Date/Hr <u>Chen C. Nevison</u> 6/19/92 11:40	Received by (signature)
Relinquished by: (signature) Date/Hr	Received by (signature)
Relinquished by: (signature) Date/Hr	Received by (signature)
Relinquished by: (signature) Date/Hr	Received by (signature)
Relinquished by: (signature) Date/Hr	Received by (signature)
Dispatched by: (signature) Date/Hr	Received for Lab by (signature) <u>Nancy Drew</u> 6/19/92 11:40

APPENDIX D  
DRUM TALLY SHEETS

Date: July 19, 1992

DRUM TALLY SHEET

DRUM #	BORING #	DEPTH INTERVAL	COMMENTS
1	1	1' - 15'	Composite to 1 drum.
	2	1' - 10'	
	3	1' - 10'	

APPENDIX E  
FIELD PROTOCOLS

## FIELD PROTOCOLS

### SITE SAFETY PLAN

A site-specific health was developed before field work began. The site safety plan describes the safety requirements for the evaluation of petroleum hydrocarbons in soil and groundwater, directions to the nearest hospital, and known hazards at the site. ATEC personnel briefed its subcontractors on the contents of the site safety plan before work began each day.

Field activities were conducted according to the guidelines recommended by the state Water Resources Control Board (SWRCB), California Site Mitigation Decision Tree Manual, Environmental Protection Agency (EPA), and standard practices. The field investigation was conducted under the supervision of an ATEC Registered Geologist or Professional Engineer.

### DRILLING PROTOCOL

Each proposed boring location was cleared by Underground Services Alert before drilling begins. This procedure is required in order to ensure that underground utilities are not disrupted by drilling operations. As an added precaution, each soil boring was initially hand augered down to approximately three feet below ground surface before drilling.

The borings were be advanced using a 6 inch, continuous flight hollow stem auger (HSA) drilling rig. The augers were steam cleaned before and after the drilling of each soil boring. All soil cuttings and decon water generated were drummed, labeled and held onsite pending laboratory results.

### BORING LOG PROTOCOL

An on-site geologist logged the soil cuttings and samples using the unified soil classification system. Logs include color, texture, moisture, plasticity, consistency, blow counts, and other characteristics. The boring logs also include PID readings of the headspace analysis and other evidence indicative to the presence of hydrocarbons such as odor and staining.

### SOIL SAMPLING PROTOCOL

Before each sampling procedure, all sampling equipment was cleaned by washing with water and phosphate free detergent, rinsed with potable water, and finally rinsed with distilled water.

Soil samples were recovered at approximately five foot intervals using a split-spoon sampler with three 1 1/2-inch diameter by 6-inch long brass tubes. Each sample was driven a total of 18 inches using a 140-pound down-hole hammer with a thirty inch drop. The locations of the samples, blow counts, PID readings, and descriptions of types of soil encountered will be provided on the boring logs.

Upon sample retrieval, the samples were sealed with a Teflon liner and a plastic cap over each end. The cap was then taped to the sample ring. The samples were labeled and placed inside a zip-loc bag, then placed in a cooler containing ice. Samples were kept inside the cooler during field activities and during shipment to the laboratory. All samples were handled according to EPA sample-preservation and chain-of-custody procedures.

#### FIELD SCREENING PROTOCOL

Each soil sample was field-screened for organic vapors with an PID. A portion of the sample from each one of the remaining brass sleeves was placed in a 12-ounce plastic beaker and covered with a lid through which a hole has been punched and covered with electrical tape. The sample was allowed to equilibrate to ambient temperature for at least 10 minutes. After this time a headspace reading in the beaker was taken by inserting a PID probe into the beaker through the hole in the lid.



# SOIL GAS QA RESULTS

**IPANY NAME:** ATEC Environmental  
**SAMPLING DATE:** June 17, 1992

**PROJECT NAME:** Chromalloy  
**PROJECT NUMBER:** OTI-060692

## BLANKS

SAMPLE ID	TVPH (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
EB-01	ND	ND	ND	ND	ND
EB-02	ND	ND	ND	ND	ND
EB-03	ND	ND	ND	ND	ND
EB-04	ND	ND	ND	ND	ND
EB-05	ND	ND	ND	ND	ND
EB-06	ND	ND	ND	ND	ND
EB-07	ND	ND	ND	ND	ND
EB-08	ND	ND	ND	ND	ND
EB-09	ND	ND	ND	ND	ND
EB-10	ND	ND	ND	ND	ND
EB-11	ND	ND	ND	ND	ND
EB-12	ND	ND	ND	ND	ND
EB-13	ND	ND	ND	ND	ND
EB-14	ND	ND	ND	ND	ND
EB-15	ND	ND	ND	ND	ND
EB-16	ND	ND	ND	ND	ND
EB-17	ND	ND	ND	ND	ND

## CONTINUING CALIBRATIONS

FILE ID		TVPH	Benzene	Toluene	Ethylbenzene	Xylenes
FTA-26	Injected	1075	NA	NA	NA	NA
	Recovered	1075	NA	NA	NA	NA
FTA-27	Injected	1075	NA	NA	NA	NA
	Recovered	1060	NA	NA	NA	NA
	Injected					
	Recovered					
	Injected					
	Recovered					

## DUPLICATES

SAMPLE ID		TVPH	Benzene	Toluene	Ethylbenzene	Xylenes
SG-10	Sample	127	13.9	13.0	1.0	16.9
	Duplicate	125	14.0	13.2	1.0	16.4
	Sample					
	Duplicate					
	Sample					
	Duplicate					
	Sample					
	Duplicate					

# CHROMATOGRAMS

## Standard Calibration (FD)

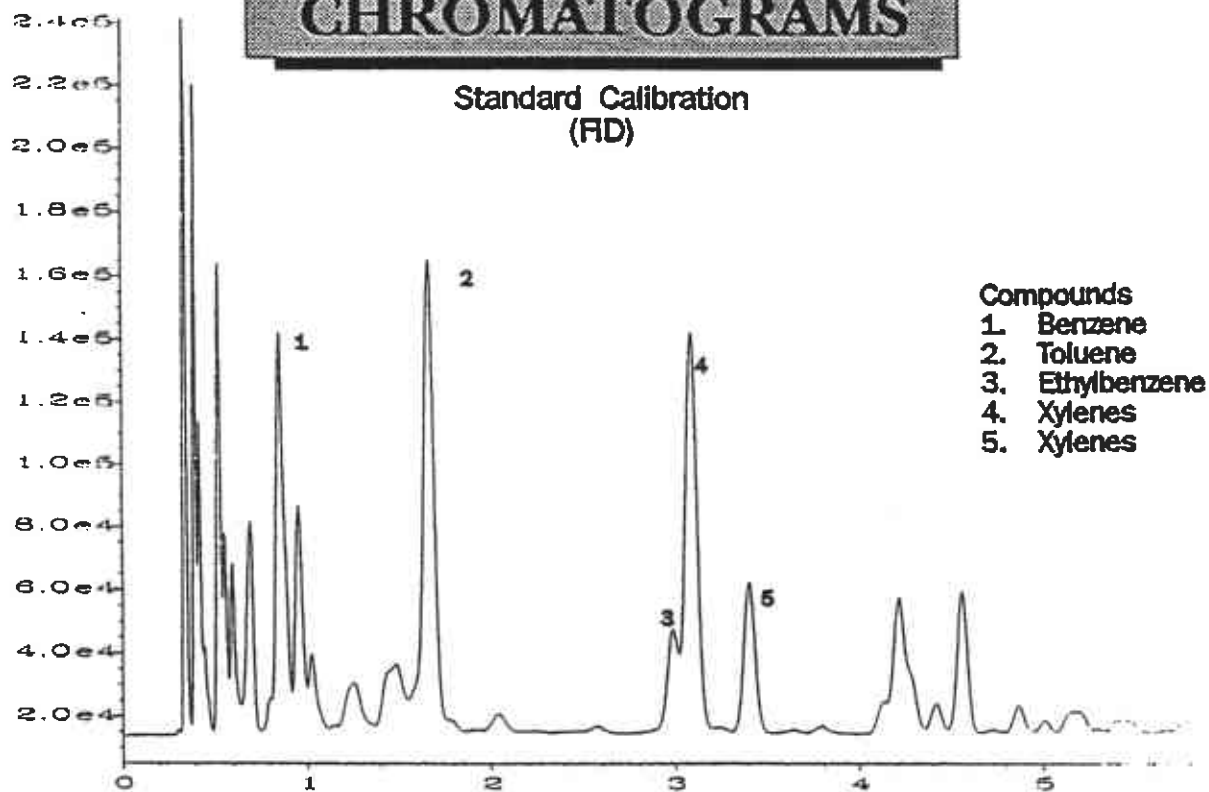


Fig. 1 in C:\NHP\CHEM\1\DATA\FTA-04.D

## Soil Gas Sample 1 (FD)

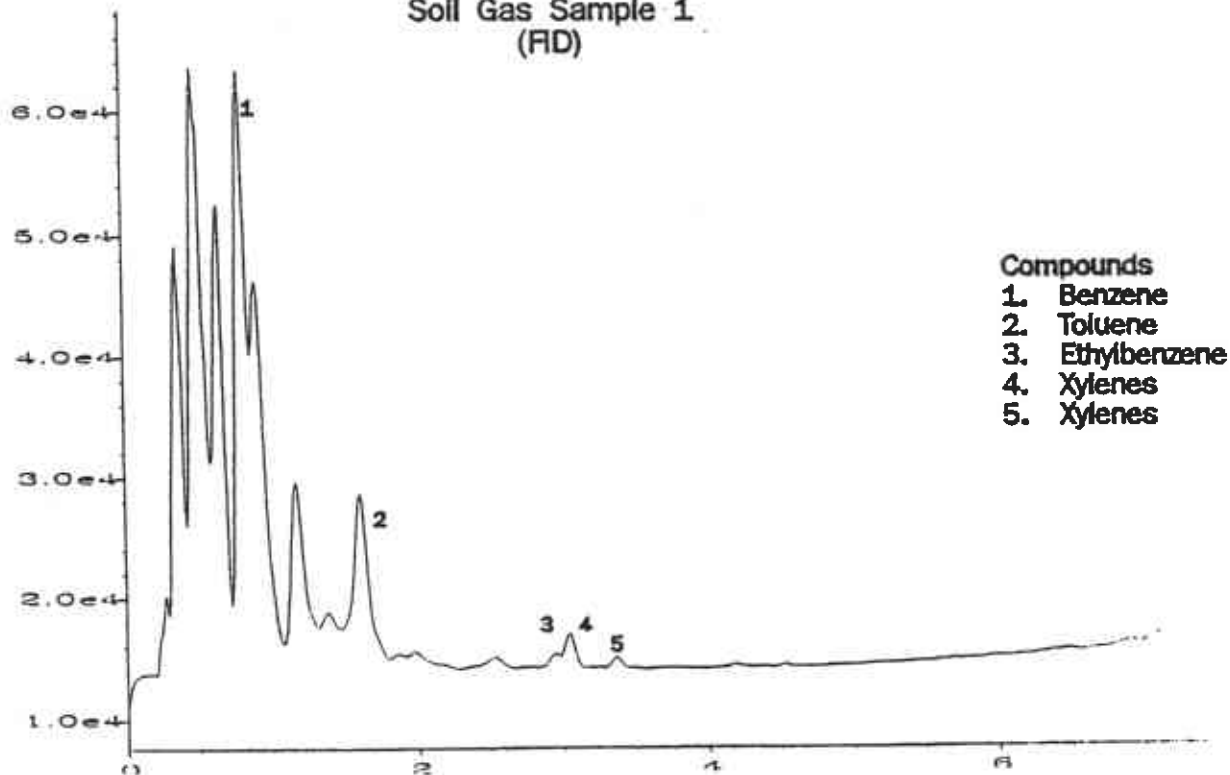
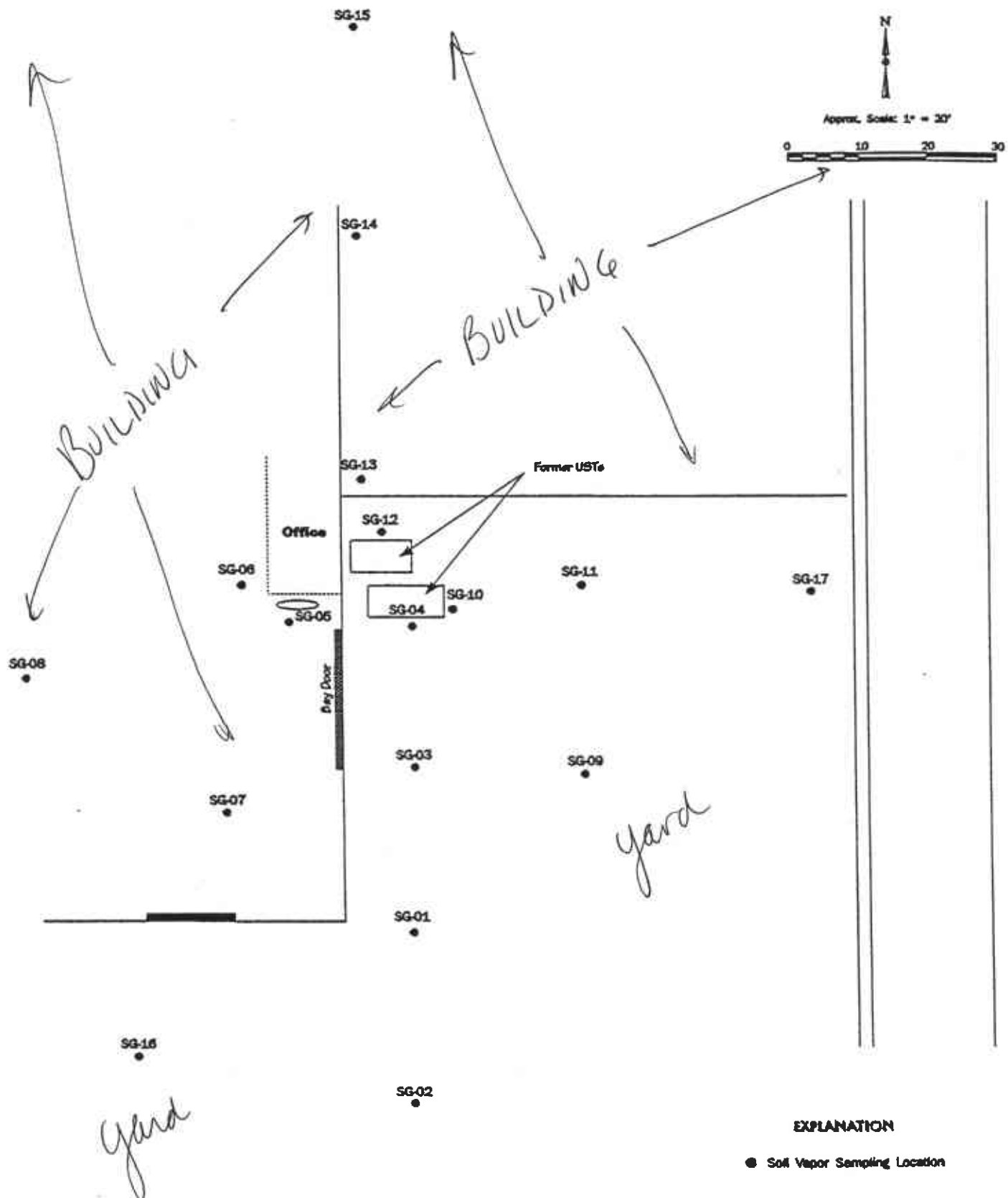


Fig. 1 in C:\NHP\CHEM\1\DATA\FTA-06.D



**EXPLANATION**

● Soil Vapor Sampling Location

**OPTIMAL TECHNOLOGY INC.**

6430 Via Real, Suite 6  
Carpinteria, CA 93013

Tel: (805) 684-6226 • Fax: (805) 684-1061

DATE: June 18, 1992

PROJECT NO: 011-000622

APPROVED BY: T.L.T.

COMPANY:

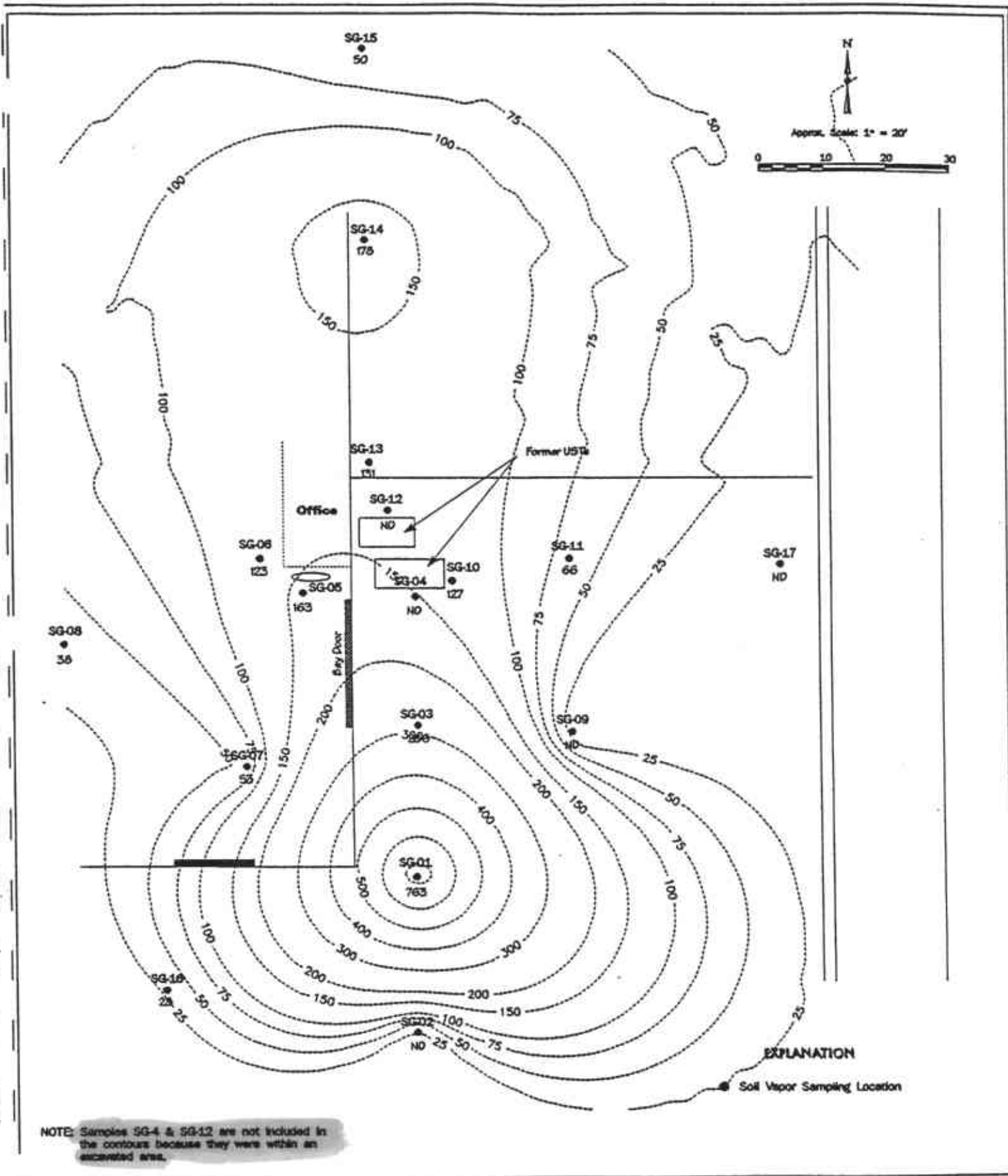
ATEC

TITLE:

Soil Vapor Sampling Locations

FIGURE

**1**



<b>OPTIMAL TECHNOLOGY INC.</b> 6430 Via Real, Suite 6 Carpinteria, CA 93013 Tel: (805) 694-6226 • Fax: (805) 694-1081	<b>DATE:</b> June 18, 1992	<b>PROJECT NO:</b> 07000892	<b>APPROVED BY:</b> T.L.T.	<b>FIGURE</b> <h1>2</h1>
	<b>COMPANY:</b> ATEC	<b>TITLE:</b> TVPH Levels (ug/L)		

**APPENDIX B**  
**SOIL BORING LOGS**



RECORD OF  
SUBSURFACE EXPLORATION  
B-1

LITHOLOGY

TEST DATA

Depth (feet)	DESCRIPTION	Sample No.	READING (ppm)
—		—	
—		—	
—		—	
—		—	
5	FINE GRAINED SANDY SILT (OL), (mud) dark olive gray to dark gray, very moist, medium to low plasticity, rank organic odor.	B-1-5	138
—		—	
—		—	
—		—	
10	SANDY SILT WITH CLAY (OL), dark olive gray to dark gray, very moist, very soft, medium to low plasticity, rank organic odor.	B-1-10	69
—		—	
—		—	
—		—	
15	CLAY (CH), greenish gray with 10% very fine grained black flecks, very soft, highly plastic.	B-1-15	45

GROUND WATER  
AT 11 FEET

Date Started: 6-19-92  
Date Completed: 6-19-92

Approved By: *Robert Allen RG 5149*

NOTE: See Figure 2 for boring location.

CLIENT/PROJECT LOCATION: OAKLAND, CALIFORNIA

PROJECT NO: 43-07-9200385



RECORD OF  
SUBSURFACE EXPLORATION  
B-2

LITHOLOGY

TEST DATA

Depth (feet)	DESCRIPTION	Sample No.	READING (ppm)
—	BACKFILL: FINE SAND AND SILT (SM), to 3 feet, dark brown.	—	
—		—	
—		—	
5	FINE GRAINED SANDY SILT (OL), (mud) dark olive gray to dark gray, very moist, medium to low plasticity, rank organic odor.	B-2-5	114
—		—	
—		—	
10	FINE GRAINED SANDY SILT (OL), (mud) dark olive gray to dark gray, very moist, medium to low plasticity, rank organic odor.	B-2-10	6,200
—		—	
—		—	
15		15	

GROUND WATER  
AT 11 FEET

Date Started: 6-19-92  
Date Completed: 6-19-92

Approved By: *John A. ...* K05 5149

NOTE: See Figure 2 for boring location.

CLIENT/PROJECT LOCATION: OAKLAND, CALIFORNIA

PROJECT NO: 43-07-9200385



# RECORD OF SUBSURFACE EXPLORATION B-3

LITHOLOGY		TEST DATA	
Depth (feet)	DESCRIPTION	Sample No.	READING (ppm)
—	BACKFILL: SAND AND SILT (SM), to 4.5 feet, dark gray, strong hydrocarbon odor.	—	>10K
—		—	
—		—	
—		—	
5	FINE GRAINED SANDY SILT (OL), (mud) dark olive gray to dark gray, very moist, medium to low plasticity, rank organic and hydrocarbon odor.	5 B-3-5	3,888
—		—	
—		—	
—		—	
10	FINE GRAINED SANDY SILT (OL), (mud) dark olive gray to dark gray, very moist, medium to low plasticity, rank organic and hydrocarbon odor.	10 B-3-10	7,080
—		—	
—		—	
—		—	
15		15	

GROUND WATER AT 11 FEET

Date Started: 6-19-92  
 Date Completed: 6-19-92  
 Approved By: *[Signature]* K65149

NOTE: See Figure 2 for boring location.



APPENDIX C  
ANALYTICAL RESULTS



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 06/19/92

DATE REPORTED: 06/29/92

LABORATORY NUMBER: 107724

CLIENT: ATEC ENVIRONMENTAL CONSULTANTS

PROJECT ID: 9200385

LOCATION: CYPRESS PROPERTIES

RESULTS: SEE ATTACHED

JUL 10 1992

Reviewed By

Reviewed By

LABORATORY NUMBER: 107724  
 CLIENT: ATEC ENVIRONMENTAL CONSULTANTS  
 PROJECT ID: 9200385  
 LOCATION: CYPRESS PROPERTIES

DATE SAMPLED: 06/19/92  
 DATE RECEIVED: 06/19/92  
 DATE EXTRACTED: 06/23/92  
 DATE ANALYZED: 06/23/92  
 DATE REPORTED: 06/29/92

EPA 418.1: Total Recoverable Petroleum Hydrocarbons by IR

LAB. ID	CLIENT ID	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)
107724-1	B1 5'	ND	10
107724-2	B1 10'	ND	10
107724-3	B1 15'	ND	10
107724-4	B2 5'	ND	10
107724-5	B2 10'	ND	10
107724-6	B3 5'	100	10
107724-7	B3 10'	110	10

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	2
RECOVERY, %	90

LABORATORY NUMBER: 107724  
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 LOCATION: CYPRESS PROPERTIES

DATE SAMPLED: 06/19/92  
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 DATE REPORTED: 06/29/92

Extractable Petroleum Hydrocarbons in Soils & Wastes  
 California DOHS Method  
 LUFT Manual October 1989

LAB ID	SAMPLE ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT* (mg/Kg)
107724-1	B1 5'	ND	ND	1
107724-2	B1 10'	**	4	1
107724-3	B1 15'	ND	ND	1
107724-4	B2 5'	ND	ND	1
107724-5	B2 10'	**	2	1
107724-6	B3 5'	**	80	10
107724-7	B3 10'	**	24	1

ND = Not Detected at or above reporting limit.

\*Reporting limit applies to all analytes.

\*\*Kerosene range not reported. Quantitated as diesel range.

NOTE: Samples do not resemble diesel standard.

QA/QC SUMMARY

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=====
RPD, %                               8
RECOVERY, %                           88
=====
  
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August 13, 1991

18452,047.02

Wareham Property Group  
1120 Nye Street, Suite 400  
San Rafael, California 94901

Attention: Mr. Dan Nourse

Report  
Underground Storage Tank Removal  
2855 Cypress Street  
Oakland, California

This letter presents to the Wareham Property Group (Wareham) the results of Harding Lawson Associates' (HLA's) environmental services during the removal of two underground storage tanks (UST's) at 2855 Cypress Street, Oakland, California (site). An area map showing the site location is presented in Plate 1. The work was performed in response to the discovery of the USTs and the detection of hydrocarbon odors in soil from a nearby excavation. The purpose of HLA's investigation was to observe and document tank removal activities and perform soil sampling. The work was performed in accordance with HLA's proposal dated March 7, 1991, and authorized by a signed HLA Service Agreement dated March 27, 1991.

## BACKGROUND

Harding Lawson Associates (HLA) has provided Wareham Property Group with a Preliminary Hazardous Materials Site Assessment (PSA) report of the 2855 Cypress Street property dated September 5, 1990. The purpose of the PSA was to provide information about the site and surrounding area relative to the potential presence of hazardous materials. During the course of the PSA investigation a vent line was observed indicating that a UST may be present at the site. No records regarding the history, age, and integrity testing of the UST are currently available. HLA recommended in the PSA that the possible presence for a UST be further evaluated.

## FIELD INVESTIGATION

### Geophysical Investigation

HLA was authorized by Wareham to perform an underground tank evaluation at the site. Pursuant to HLA's proposal of February 14, 1991, a geophysical investigation was performed to locate a possible UST and associated pipelines. The geophysical

investigation was conducted by use a pipe and cable locator and ground penetrating radar (GPR). The results of our investigation indicated that two USTs were located at the site: in approximate sizes they appeared to be a 350-gallon gasoline UST and a 200-gallon waste oil tank. Access to both USTs was made. The gasoline UST had approximately 1 foot of product in the tank, while the waste oil tank was full of oil with a thicker sludge at the bottom of the tank.

#### UST Content and Ramp Excavation Sampling

On June 20, 1991, HLA collected samples of the contents of the gasoline and waste oil USTs. The samplers were collected using disposable teflon bailers and decanted into 40-milliliter volatile organic analysis (VOA) vials, 1-liter amber glass containers, 1-liter plastic containers, labelled, and placed in a cooler. The purpose of the sampling was to document the contents of the USTs prior to their removal. The tank contents were then removed by a vacuum truck supplied by KVS Transportation (KVS), Bakersfield, California. The KVS truck remained onsite until tank removal activities started the next day. Two soil samples were collected at 2.5 feet below ground surface (bgs) from an excavation for a loading dock (ramp excavation) approximately 35 feet south of the USTs. The samples were collected in response to detection of hydrocarbon odors during the ramp excavation. In addition, a sample of water from the ramp excavation was collected in the same manner as the UST content samples previously mentioned. The soil samples were collected by pushing a clean stainless steel tube into the soil until it was completely filled and the ends of the samples tubes were then covered with teflon-lined plastic caps, labeled and placed in a cooler along with the water sample and UST content samples.

#### TANK REMOVAL ACTIVITIES

On June 20, 1991, Dees Excavation (Dees), Antioch, California, removed the concrete surface above the two USTs by use of a jack-hammer and backhoe.

On June 21, 1991, Dees began tank excavation activities at the site. Representatives from HLA, Wareham, and the Alameda County Health Care Service Agency (County), were on site to observe UST removal. Prior to tank removal, permits were obtained by Dees from the County, the City of Oakland Fire Department (City), and the Bay Area Air Quality Management District.

One 250-gallon waste oil tank and one 350-gallon gasoline tank were adjacent to a building wall (Plate 2). A concrete pump island which supported a former fuel dispenser was observed directly inside the building adjacent to the USTs. A backhoe was used to remove soil above the USTs. The soil was stockpiled in the vicinity of the excavation. The product line, between the gasoline UST and pump island, was cut off at the building wall. At this time, the remaining product line has not been capped. Water, which had entered the tanks since being pumped the previous day, was removed

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Mr. Dan Nourse  
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Harding Lawson Associates

from the tanks by KVS. Approximately 1,250 gallons of water and tank contents were transported from the site for disposal under appropriate manifest to Gibson Oil and Refining (Gibson), Bakersfield, California. A copy of the original uniform hazardous waste manifest is attached to this letter.

Approximately 50 pounds of dry ice was added to each tank to purge hydrocarbon vapors from them. Vapors were monitored by HLA for the presence of explosive hydrocarbon vapors using a Gastech Model 1314 combustible gas indicator (Gastech) and found to be below 10 percent of the lower explosive limit (LEL). The County then approved tank removal from the excavation.

The tanks were then removed by attaching a chain to them and lifting them out of the excavation with the backhoe. The tanks were composed of single wall steel wrapped with burlap. The burlap was badly deteriorated. Visual examination of the two USTs found numerous holes up to 3 inches in diameter. The largest hole observed was approximately 2 inches wide by 10 inches long at the bottom of the gasoline UST. The tanks were then loaded onto a truck provided by H&H Shipping Services (H&H), San Francisco, California, and transported under appropriate manifest from the site to the H&H Yard for steam cleaning. Copies of the original uniform hazardous waste manifests are attached to this letter. Upon completion of steam cleaning, the 350-gallon tank was disposed as scrap metal to Schnitzer Steel Oakland, California, and the 250-gallon tank was disposed as scrap metal to Levin Metals Company, Richmond, California.

The backfill for the tank excavation consisted of dark gray-green sandy clay. The material had strong petroleum hydrocarbon odors and was visibly stained. No free groundwater was present in the tank excavation after UST removal although the soil appeared to be saturated. Observation made during excavation and soil sampling activities indicate that soil conditions at the site consist of bay mud overlain by fill material.

#### SOIL SAMPLING

Following removal of the two USTs from the site, two soil samples were collected from the excavation. One soil sample was collected from beneath the waste oil UST, and one soil sample from the east excavation wall adjacent to the gasoline tank. In addition, four samples were collected from the tank backfill soil stockpile for compositing in the laboratory. The number of samples and sampling locations were specified by the County. The excavation samples were collected by having the backhoe remove a bucket of soil from the desired sample location. The bucket was then brought to the surface and samples were then directly sampled as described before.

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The samples were labeled, placed in a cooler along with the previously collected samples, and transported under chain of custody to NET Pacific Inc. Laboratories (NET), Santa Rosa, California. NET is a state-certified laboratory for the analyses requested. Sample locations are shown on Plate 2.

Upon completion of sample collection, the tank excavation was lined with plastic sheeting. The tank backfill stockpiled soil was then placed back into the plastic lined tank excavation pending receipt of laboratory analytical results and recommendation.

### LABORATORY ANALYSES

Soil samples collected from the soil stockpile and excavation wall adjacent to the east end of the gasoline UST were analyzed for total petroleum hydrocarbons (TPH) as gasoline, diesel, and motor oil, and benzene, toluene, ethylbenzene, and xylene's (BTEX). The ramp excavation soil and water samples, tank content samples, and excavation floor soil sample from beneath the waste oil UST were analyzed for TPH as gasoline, diesel, and motor oil, BTEX, total oil and grease (TOG), volatile organic compounds (EPA Test Method 8010), semivolatile organic compounds (EPA Test Method 8270), and the metals cadmium, chromium, lead, nickel, and zinc. Analytical results are listed in Tables 1 and 2. Copies of the original laboratory reports are attached to this letter.

### SUMMARY OF ANALYTICAL RESULTS

Analytical results of soil samples collected from the ramp excavation indicate that TPH as gasoline was present at concentrations ranging from nondetect (ND) to 16 parts per million (ppm), TPH as diesel ranged from ND to 11 ppm, TPH as motor oil ranged from 14 to 32 ppm, TOG ranged from 85 to 370 ppm, and BTEX was ND. No EPA Test Method 8010 and 8270 parameters were detected. Results of the ramp excavation water sample indicate TPH as gasoline was detected at a concentration of 58 ppm, and TPH as diesel at 1.3 ppm. TPH as motor oil was not detected. BTEX was detected at concentrations from 0.078 to 0.48 ppm. The semivolatile compound, phenol, was present in the water sample at a concentration of 0.067 ppm. No other EPA Method 8270 constituents were detected. No EPA Method 8010 constituents were detected. The metals chromium, lead, nickel, and zinc were detected at concentrations of 30, 2.9, 27, and 19 respectively. Cadmium was not detected.

Review of analytical results of soil samples collected from the tank excavation floor, sidewall, and backfill indicate TPH as gas ranged from 41 to 240 ppm, TPH as diesel ranged from 12 to 1,800 ppm, TPH as motor oil ranged from 14 to 2,000 ppm, and TOG was present at 120 ppm in the floor sample beneath the waste oil UST. BTEX concentrations ranged between ND and 5.7 ppm. Volatile organic compounds (EPA Test Method 8010 parameters) and semivolatile organic compounds (EPA Test Method 8270 parameters) were detected in the soil sample collected from beneath the waste oil UST. The volatile compound, chlorobenzene, was present at 0.012 ppm and



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the semivolatile compounds, 2-methylnaphthalene and naphthalene, were present at 0.44 and 0.87 ppm, respectively. No other EPA Test Method 8010 and 8270 constituents were detected. In addition, the metals chromium, lead, nickel, and zinc were detected at 65, 5.1, 70, and 57 ppm respectively in the soil sample collected from beneath the waste oil UST.

#### DISCUSSION

Based on visual examination and analytical results there has been a release of petroleum hydrocarbons to the area surrounding the USTs. The majority of constituents detected are gasoline, diesel, motor oil, and oil and grease. At the present time, the extent of release of petroleum hydrocarbons has not been defined. The highest concentrations of TPH as gasoline, diesel, and motor oil (240, 1,800, and 2,000 ppm respectively) were detected in soil collected from the UST excavation. In those samples analyzed for TOG, the highest concentration was detected at 370 ppm in soil collected from the ramp excavation approximately 35 feet south of the UST excavation.

HLA recommends that copies of this report be submitted to the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) and the Alameda County Health Care Service Agency (County).

Very truly yours,

HARDING LAWSON ASSOCIATES

*Chris Rossitto*

Christopher D. Rossitto  
Staff Geologist

*Michael L. Siembieda*

Michael L. Siembieda  
Associate Geologist

CDR/MLS/elb/E18429-H



**Table 1. Analytical Results of Petroleum Hydrocarbons  
Constituents in Samples (ppm)<sup>1</sup>**

**Harding Lawson Associates**

Sample Number	Sample Date	Sample Location <sup>2</sup>	Sample Type	Sample Depth (ft) <sup>3</sup>	TPH as Gasoline	TPH as Diesel	TPH as Motor Oil	Total Oil & Grease	Benzene	Toluene	Ethyl-benzene	Total Xylenes
91062001	6/20/91	1	Soil-ramp Excavation (East End)	2.5	ND(1) <sup>4</sup>	ND(1)	14	85	ND(0.0025)	ND(0.0025)	ND(0.0025)	ND(0.0025)
91062002	6/20/91	2	Soil-ramp Excavation (West End)	2.5	16	11	32	370	ND(0.0025)	ND(0.0025)	ND(0.0025)	ND(0.0025)
91062003	6/20/91	3	Water-ramp Excavation	3.0	58	1.3	ND(0.5)	NA <sup>5</sup>	0.29	0.36	0.078	0.48
91062004	6/20/91	4	Waste Oil UST Contents	-	130,000	290,000	460,000	450,000	ND(0.0005)	85	ND(0.0005)	ND(0.0005)
91062005	6/20/91	5	Gasoline UST Contents	-	53	110	74	NA	0.86	0.079	0.065	2
91062101	6/21/91	6	Soil - UST Excavation Floor	6.5	41	12	14	120	0.93	1.3	0.89	2.5
91062102	6/21/91	7	Soil - UST Excavation Sidewall	2.5	240	1,800	2,000	NA	1.1	0.2	1.8	5.7
91062103	6/21/91	8	Soil - UST Backfill	-	81	230	410	NA	ND(0.0025)	ND(0.0025)	0.5	3.6

1 ppm - parts per million.

2 Sample locations shown on Plate 2.

3 Sample depth in feet below ground surface.

4 ND(1) - Not detected at indicated detection limit.

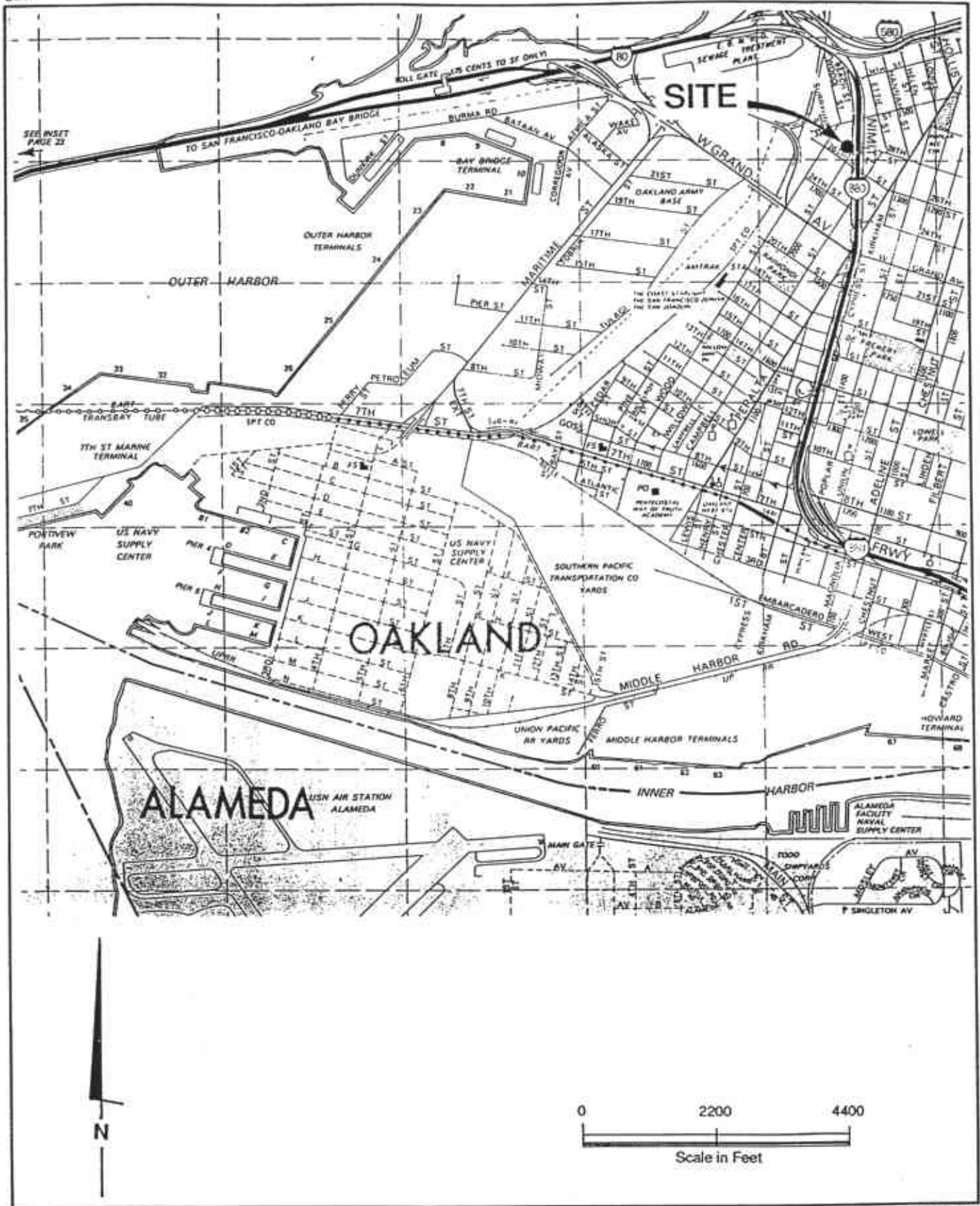
5 NA - Not Analyzed.

Table 2. Analytical Results of Volatile and Semivolatile Organic Compounds and Metals in Samples (ppm)<sup>1</sup>

Harding Lawson Associates

Sample Number <sup>2</sup>	91062001	91062002	91062003	91062004	91062005	91062101	92062102	92062103
Sample Location	1	2	3	4	5	6	7	8
EPA Method 8010 Parameters <sup>3</sup> (Volatile Organic Compounds)								
Chlorobenzene	ND <sup>4</sup>	ND	ND	0.032	ND	0.012	NA <sup>5</sup>	NA
1,2-Dichloroethane	ND	ND	ND	0.61	0.0064	ND	NA	NA
Methylene Chloride	ND	ND	ND	12	ND	ND	NA	NA
Trichloroethane	ND	ND	ND	0.0095	ND	ND	NA	NA
EPA Method 8270 Parameters <sup>6</sup> (Semivolatile Organic Compounds)								
2-Methylnaphthalene	ND	ND	ND	87	2	0.44	NA	NA
Naphthalene	ND	ND	ND	ND	2.4	0.87	NA	NA
Phenol	ND	ND	0.067	170	ND	ND	NA	NA
4-Methylphenol	ND	ND	ND	160	ND	ND	NA	NA
2,4-Dimethylphenol	ND	ND	ND	ND	0.51	ND	NA	NA
Metals								
Cadmium	ND	ND	ND	3	ND	ND	NA	NA
Chromium	30	50	0.21	21	ND	65	NA	NA
Lead	2.9	20	0.13	640	0.04	5.1	NA	NA
Nickel	27	48	0.25	30	0.09	70	NA	NA
Zinc	19	42	0.3	870	0.63	57	NA	NA

1 ppm - parts per million.  
 2 Corresponding sample date, location, type, and depth are shown in Table 1.  
 3 All other EPA Method 8010 Parameters were not detected.  
 4 ND - Not Detected (detection limits shown in laboratory analytical report).  
 5 NA - Not Analyzed.  
 6 All other EPA Method 8270 Parameters were not detected.



PLATE



**Harding Lawson Associates**  
 Engineering and  
 Environmental Services

**Area Map**  
 2855 Cypress Street  
 Oakland, California

**1**

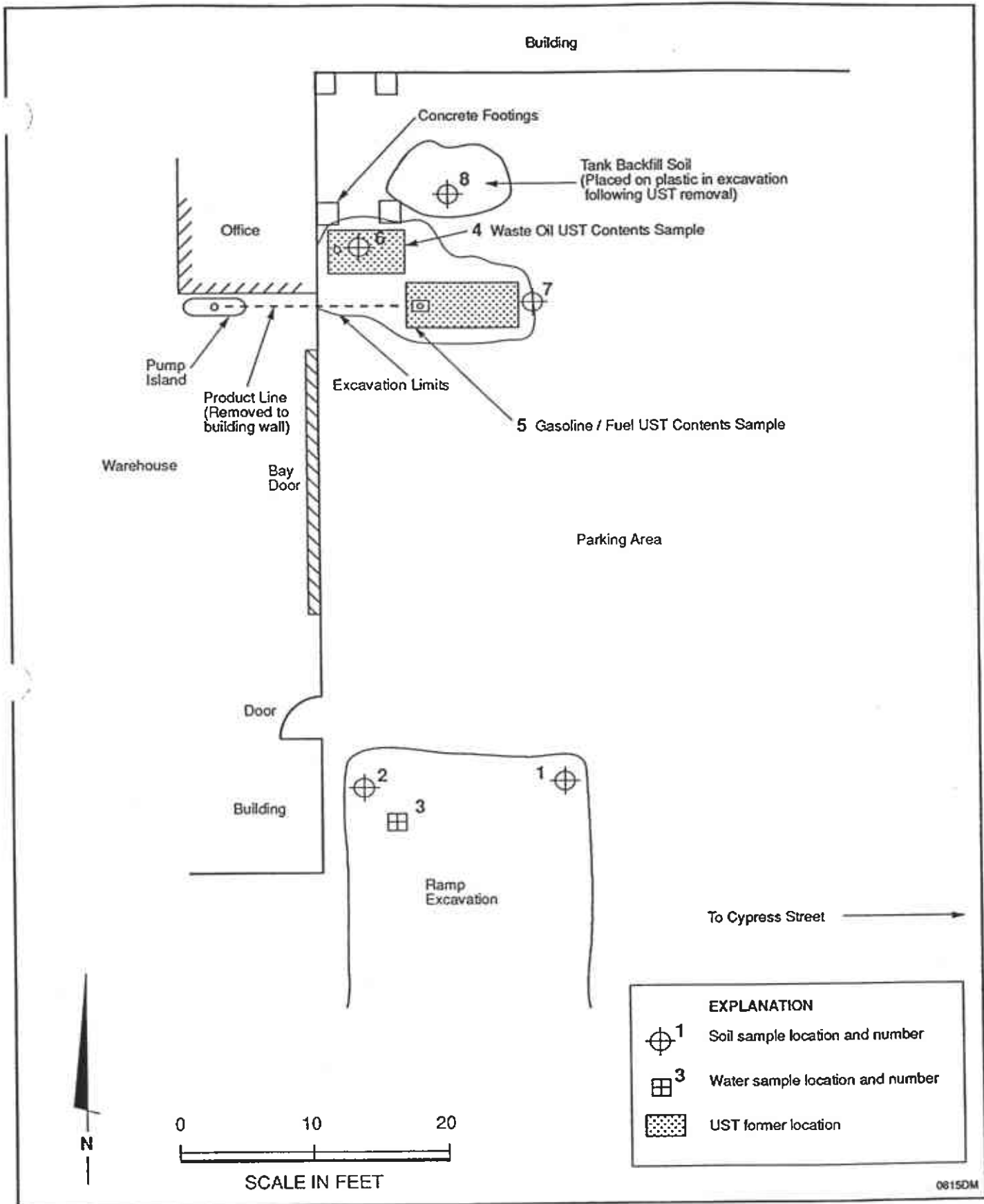
DRAWN  
PK

JOB NUMBER  
18452,047.02

APPROVED

DATE  
8/91

REVISED DATE



0815DM

PLATE



**Harding Lawson Associates**  
Engineering and Environmental Services

**Site Plan**  
2855 Cypress Street  
Oakland, California

**2**

DRAWN  
PKC

JOB NUMBER  
18452,047.02

APPROVED

DATE  
8/91

REVISED DATE

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-9802; WITHIN CALIFORNIA CALL 1-800-852-7550

GENERATOR

TRANSPORTER

FACILITY

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. <b>CA1R1010015R268210100V</b>	Manifest Document No. <b>10100V</b>	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address <b>WAREHOUSE PROPERTY 1180 NYE ST. SAN RAFAEL, CA. 94901</b>			A. State Manifest Document Number <b>90658291</b>		B. State Generator's ID	
4. Generator's Phone <b>415 457-4964</b>		6. US EPA ID Number <b>CA1D19824956108</b>		C. State Transporter's ID <b>116238</b>		D. Transporter's Phone <b>805-579-5220</b>
5. Transporter 1 Company Name <b>KUS Transportation</b>		8. US EPA ID Number		E. State Transporter's ID <b>116238</b>		F. Transporter's Phone
7. Transporter 2 Company Name		10. US EPA ID Number <b>CA1D980883177</b>		G. State Facility's ID <b>CA1D980883177</b>		H. Facility's Phone
9. Designated Facility Name and Site Address <b>GIBSON OIL + REFINING 3121 STANDARD AVE. BAKERS FIELD, CA. 93305</b>		12. Containers		13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		No.	Type			State
a. <b>WASTE OIL NON-RCRA HAZARDOUS WASTE LIQUID</b>		<b>0101</b>	<b>TD</b>	<b>11250</b>	<b>G</b>	<b>223</b>
b.						EPA/Other
c.						State
d.						EPA/Other
J. Additional Descriptions for Materials Listed Above <b>WATER 50% OIL 50%</b>				K. Handling Codes for Wastes Listed Above		
				a.	b.	
				c.	d.	
15. Special Handling Instructions and Additional Information <b>RELEASE # 0346-2 Property: 2855 Cypress St Wear protective clothing as needed OAKLAND, CA. 94607</b>						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name <b>Samuel Nouze</b>		Signature <i>[Signature]</i>		Month Day Year <b>10/21/91</b>		
17. Transporter 1 Acknowledgement of Receipt of Materials						
Printed/Typed Name <b>LARRY WOODRUFF</b>		Signature <i>[Signature]</i>		Month Day Year <b>10/21/91</b>		
18. Transporter 2 Acknowledgement of Receipt of Materials						
Printed/Typed Name		Signature		Month Day Year		
19. Discrepancy Indication Space						
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						
Printed/Typed Name		Signature		Month Day Year		

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. C I A I C 0 0 0 0 5 8 2 6 3 2 2 0 0 0 0 0 1		Manifest Document No. 0 0 0 0 0 1		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address WARE HAM PROPERTY DEVELOPMENT 1120 Nye Street, San Rafael, Ca. 94901						A. State Manifest Document Number 90537239							
4. Generator's Phone (415) 457-4964						B. State Generator's ID							
5. Transporter 1 Company Name H & H Ship Service Company			6. US EPA ID Number C I A I D 0 0 0 4 7 7 1 1 1 6 1 8			C. State Transporter's ID 200501		D. Transporter's Phone (415) 543-4835					
7. Transporter 2 Company Name			8. US EPA ID Number			E. State Transporter's ID		F. Transporter's Phone					
9. Designated Facility Name and Site Address H & H Ship Service Company 220 China Basin Street San Francisco, CA 94107						10. US EPA ID Number C I A I D 0 0 0 4 7 7 1 1 1 6 1 8			G. State Facility's ID C I A I D 0 0 0 4 7 7 1 1 1 6 1 8				
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol		L Waste No.	
a. RESIDUE GASOLINE TANK NON-RCRA HAZARDOUS WASTE SOLID						0 0 1 1 T P		0 1 0 1 3 5 1 0		P		State 512 EPA/Other	
b.												State EPA/Other	
c.												State EPA/Other	
d.												State EPA/Other	
J. Additional Descriptions for Materials Listed Above PUMPED OUT 350 gallon tank last containing gasoline. Tank inerted with dry ice for transport. PROFILE #A0953						K. Handling Codes for Wastes Listed Above a. 01 b. c. d.							
15. Special Handling Instructions and Additional Information JOB #7828 24 Hr. Emergency Contact: H & H # (415) 543-4835 APPROPRIATE PROTECTIVE CLOTHING AND RESPIRATOR												JOB SITE: WARE HAM PROPERTY DEVEL. 2855 Cypress Street Oakland, California	
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practical method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.													
Printed/Typed Name Daniel Nourse				Signature <i>[Signature]</i>				Month Day Year 10/6/21/01					
17. Transporter 1 Acknowledgement of Receipt of Materials													
Printed/Typed Name WAYMON H. MC DONALD				Signature <i>[Signature]</i>				Month Day Year 10/6/21/01					
18. Transporter 2 Acknowledgement of Receipt of Materials													
Printed/Typed Name				Signature				Month Day Year					
19. Discrepancy Indication Space													
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Rem 19.													
Printed/Typed Name Charles Valley				Signature <i>[Signature]</i>				Month Day Year 06/21/91					

GENERATOR

TRANSPORTER

FACILITY

Do Not Write Below This Line



Please print or type. Form designed for use on effie (12-pitch typewriter).

# UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. **12 10 10 15 18 13 15 17** Manifest Document No. **0 0 0 0 7**

2. Page 1 of 1 Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address  
**WARE HAM PROPERTY DEVELOPMENT**  
**1120 Nye Street, San Rafael, Ca. 94901**

A. State Manifest Document Number **90537240**

5. Transporter 1 Company Name **R S H Ship Service Company** 6. US EPA ID Number **1 2 1 0 1 0 1 5 1 8 1 3 1 5 1 7**

B. State Generator's ID

7. Transporter 2 Company Name 8. US EPA ID Number

C. State Transporter's ID **700501**

9. Designated Facility Name and Site Address  
**Ericksen, Inc.**  
**255 Parr Blvd.**  
**Richmond CA 94801**

D. Transporter's Phone

E. State Transporter's ID

F. Transporter's Phone

G. State Facility's ID

H. Facility's Phone

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

12. Containers No. Type 13. Total Quantity 14. Unit: Wt/Vol

a. **WASTE FLUORINE STORAGE TANK**  
**NON HAZ HAZARDOUS WASTE**

15001 1 1000 1000 LBS

b.

15002 1 1000 1000 LBS

c.

15003 1 1000 1000 LBS

d.

15004 1 1000 1000 LBS

J. Additional Descriptions for Materials Listed Above  
**6489** Early Storage Tank...  
 Tank has been inspected with 10 lbs dry test per 1000 gal capacity

K. Handling Codes for Wastes Listed Above  
**01**

15. Special Handling Instructions and Additional Information  
 Keep away from sources of ignition. Always wear JOB SITE: WARE HAM PROPERTY DEVEL.  
 hardhats when working around U.S.T.'s. 24 Hr. 2855 Cypress Street  
 Contact Name R S H Phone (415) 547-4975 OR 87877 Oakland California

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.  
 If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name **Robert Novice** Signature **[Signature]** Month Day Year **10/11/91**

17. Transporter 1 Acknowledgement of Receipt of Materials  
 Printed/Typed Name **RAYMOND H. MC DONALD** Signature **[Signature]** Month Day Year **10/11/91**

18. Transporter 2 Acknowledgement of Receipt of Materials  
 Printed/Typed Name Signature Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.  
 Printed/Typed Name **Donald H. Rosson Jr** Signature **[Signature]** Month Day Year **10/24/91**

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL SPILL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-852-7650

GENERATOR

TRANSPORTER

FACILITY

Do Not Write Below This Line

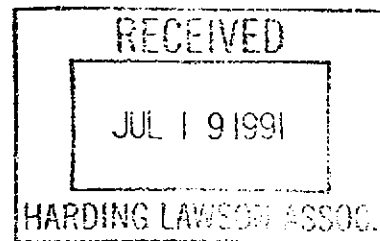
GREEN: HAULER RETAINS





NATIONAL  
ENVIRONMENTAL  
TESTING, INC.

NET Pacific, Inc.  
435 Tesconi Circle  
Santa Rosa, CA 95401  
Tel: (707) 526-7200  
Fax: (707) 526-9623



Mike Siembieda  
Harding Lawson Associates  
200 Rush Landing  
Novato, CA 94947

Date: 07-16-91  
NET Client Acct. No: 281  
NET Pacific Log No: 8242  
Received: 06-21-91 1734

Client Reference Information

Wareham/2855 Cypress St., Job: 18452,047.02

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

  
Jules Skamarack  
Laboratory Manager

Enclosure(s)



Client Acct: 281  
 Client Name: Harding Lawson Associates  
 NET Log No: 8242

Date: 07-16-91  
 Page: 2

NET Pacific, Inc.

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062001 06-20-91 1020  
 LAB Job No: (-89637 )

Parameter	Method	Reporting Limit	Results	Units
Oil & Grease(Total)	5520E	50	85	mg/Kg
Cadmium	6010	2	ND	mg/Kg
Chromium	6010	2	30	mg/Kg
Lead (EPA 7421)	7421	0.2	2.9	mg/Kg
Nickel	6010	5	27	mg/Kg
Zinc	6010	2	19	mg/Kg

METHOD 8010

DATE ANALYZED	07-02-91			
DILUTION FACTOR*	1			
Bromodichloromethane	2.0	ND		ug/Kg
Bromoform	2.0	ND		ug/Kg
Bromomethane	2.0	ND		ug/Kg
Carbon tetrachloride	2.0	ND		ug/Kg
Chlorobenzene	2.0	ND		ug/Kg
Chloroethane	2.0	ND		ug/Kg
2-Chloroethylvinyl ether	5.0	ND		ug/Kg
Chloroform	2.0	ND		ug/Kg
Chloromethane	2.0	ND		ug/Kg
Dibromochloromethane	2.0	ND		ug/Kg
1,2-Dichlorobenzene	2.0	ND		ug/Kg
1,3-Dichlorobenzene	2.0	ND		ug/Kg
1,4-Dichlorobenzene	2.0	ND		ug/Kg
Dichlorodifluoromethane	2.0	ND		ug/Kg
1,1-Dichloroethane	2.0	ND		ug/Kg
1,2-Dichloroethane	2.0	ND		ug/Kg
1,1-Dichloroethene	2.0	ND		ug/Kg
trans-1,2-Dichloroethene	2.0	ND		ug/Kg
1,2-Dichloropropane	2.0	ND		ug/Kg
cis-1,3-Dichloropropene	2.0	ND		ug/Kg
trans-1,3-Dichloropropene	2.0	ND		ug/Kg
Methylene Chloride	50	ND		ug/Kg
1,1,2,2-Tetrachloroethane	2.0	ND		ug/Kg
Tetrachloroethene	2.0	ND		ug/Kg
1,1,1-Trichloroethane	2.0	ND		ug/Kg
1,1,2-Trichloroethane	2.0	ND		ug/Kg
Trichloroethene	2.0	ND		ug/Kg
Trichlorofluoromethane	2.0	ND		ug/Kg
Vinyl chloride	2.0	ND		ug/Kg



NET Pacific, Inc.

Client Acct: 281

Client Name: Harding Lawson Associates

NET Log No: 8242

Date: 07-16-91

Page: 3

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062001 06-20-91 1020  
LAB Job No: (-89637 )

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS				
VOLATILE (SOIL)				
DILUTION FACTOR *			1	
DATE ANALYZED			07-03-91	
METHOD GC FID/5030			---	
as Gasoline	1		ND	mg/Kg
METHOD 8020			---	
DILUTION FACTOR *			1	
DATE ANALYZED			07-03-91	
Benzene		2.5	ND	ug/Kg
Ethylbenzene		2.5	ND	ug/Kg
Toluene		2.5	ND	ug/Kg
Xylenes, total		2.5	ND	ug/Kg
PETROLEUM HYDROCARBONS				
EXTRACTABLE (SOIL)				
DILUTION FACTOR *			1	
DATE EXTRACTED			06-27-91	
DATE ANALYZED			06-30-91	
METHOD GC FID/3550			---	
as Diesel	1		ND	mg/Kg
as Motor Oil	10		14	mg/Kg



NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242

Date: 07-16-91  
Page: 4

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062001 06-20-91 1020  
LAB Job No: (-89637 )

Parameter	Method	Reporting Limit	Results	Units
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METHOD 8270

DATE EXTRACTED			06-26-91	
DATE ANALYZED			06-28-91	
DILUTION FACTOR *			1	
Acenaphthene	330	ND		ug/Kg
Acenaphthylene	330	ND		ug/Kg
Aldrin	1600	ND		ug/Kg
Anthracene	330	ND		ug/Kg
Benzidine	1600	ND		ug/Kg
Benzo(a)anthracene	330	ND		ug/Kg
Benzo(b)fluoranthene	330	ND		ug/Kg
Benzo(k)fluoranthene	330	ND		ug/Kg
Benzo(a)pyrene	330	ND		ug/Kg
Benzo(g,h,i)perylene	330	ND		ug/Kg
Benzoic Acid	1600	ND		ug/Kg
Benzy l Alcohol	330	ND		ug/Kg
Butyl benzyl phthalate	330	ND		ug/Kg
delta-BHC	1600	ND		ug/Kg
gamma-BHC	1600	ND		ug/Kg
bis(2-chloroethyl)ether	330	ND		ug/Kg
bis(2-chloroethoxy)methane	330	ND		ug/Kg
bis(2-chloroisopropyl)ethe	330	ND		ug/Kg
bis(2-ethylhexyl)phthalate	330	ND		ug/Kg
4-Bromophenyl phenyl ether	330	ND		ug/Kg
4-Chloroaniline	330	ND		ug/Kg
2-Chloronaphthalene	330	ND		ug/Kg
4-Chlorophenyl phenyl ethe	330	ND		ug/Kg
Chrysene	330	ND		ug/Kg
4,4'-DDD	1600	ND		ug/Kg
4,4'-DDE	1600	ND		ug/Kg
4,4'-DDT	1600	ND		ug/Kg
Dibenzo(a,h)anthracene	330	ND		ug/Kg
Dibenzofuran	330	ND		ug/Kg
Di-n-butylphthalate	330	ND		ug/Kg
1,2-Dichlorobenzene	330	ND		ug/Kg
1,3-Dichlorobenzene	330	ND		ug/Kg
1,4-Dichlorobenzene	330	ND		ug/Kg
3,3'-Dichlorobenzidine	660	ND		ug/Kg
Dieldrin	1600	ND		ug/Kg
Diethylphthalate	330	ND		ug/Kg
Dimethyl phthalate	330	ND		ug/Kg
2,4-Dinitrotoluene	330	ND		ug/Kg
2,6-Dinitrotoluene	330	ND		ug/Kg
Di-n-octyl phthalate	330	ND		ug/Kg
Endrin aldehyde	1600	ND		ug/Kg



NET Pacific, Inc.

Client Acct: 281

Client Name: Harding Lawson Associates

NET Log No: 8242

Date: 07-16-91

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Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062001 06-20-91 1020

LAB Job No: (-89637 )

Parameter	Method	Reporting Limit	Results	Units
Fluoranthene		330	ND	ug/Kg
Fluorene		330	ND	ug/Kg
Heptachlor		1600	ND	ug/Kg
Heptachlor epoxide		1600	ND	ug/Kg
Hexachlorobenzene		330	ND	ug/Kg
Hexachlorobutadiene		330	ND	ug/Kg
Hexachlorocyclopentadiene		330	ND	ug/Kg
Hexachloroethane		330	ND	ug/Kg
Indeno(1,2,3-cd)pyrene		330	ND	ug/Kg
Isophorone		330	ND	ug/Kg
2-Methylnaphthalene		330	ND	ug/Kg
Naphthalene		330	ND	ug/Kg
2-Nitroaniline		1600	ND	ug/Kg
3-Nitroaniline		1600	ND	ug/Kg
4-Nitroaniline		1600	ND	ug/Kg
Nitrobenzene		330	ND	ug/Kg
N-Nitroso-Di-N-propylamine		330	ND	ug/Kg
N-Nitrosodiphenylamine		330	ND	ug/Kg
Phenanthrene		330	ND	ug/Kg
Pyrene		330	ND	ug/Kg
1,2,4-Trichlorobenzene		330	ND	ug/Kg
4-Chloro-3-methylphenol		330	ND	ug/Kg
2-Chlorophenol		330	ND	ug/Kg
2,4-Dichlorophenol		330	ND	ug/Kg
2,4-Dimethylphenol		330	ND	ug/Kg
2,4-Dinitrophenol		1600	ND	ug/Kg
4,6-Dinitro-2-methylphenol		1600	ND	ug/Kg
2-Nitrophenol		330	ND	ug/Kg
4-Nitrophenol		1600	ND	ug/Kg
Pentachlorophenol		1600	ND	ug/Kg
Phenol		330	ND	ug/Kg
2,4,6-Trichlorophenol		330	ND	ug/Kg
2-Methylphenol		330	ND	ug/Kg
4-Methylphenol		330	ND	ug/Kg
2,4,5-Trichlorophenol		1600	ND	ug/Kg
SURROGATE RESULTS			--	
Nitrobenzene-d5			45	% Rec.
2-Fluorobiphenyl			52	% Rec.
p-terphenyl-d14			70	% Rec.
Phenol-d5			45	% Rec.
2-Fluorophenol			40	% Rec.
2,4,6-Tribromophenol			64	% Rec.



NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242

Date: 07-16-91  
Page: 6

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062002 06-20-91 1150  
LAB Job No: (-89638 )

Parameter	Method	Reporting Limit	Results	Units
Oil & Grease(Total)	5520E	50	370	mg/Kg
Cadmium	6010	2	ND	mg/Kg
Chromium	6010	2	50	mg/Kg
Lead (EPA 7421)	7421	0.2	20	mg/Kg
Nickel	6010	5	48	mg/Kg
Zinc	6010	2	42	mg/Kg

METHOD 8010

DATE ANALYZED	07-02-91		
DILUTION FACTOR*	1		
Bromodichloromethane	2.0	ND	ug/Kg
Bromoform	2.0	ND	ug/Kg
Bromomethane	2.0	ND	ug/Kg
Carbon tetrachloride	2.0	ND	ug/Kg
Chlorobenzene	2.0	ND	ug/Kg
Chloroethane	2.0	ND	ug/Kg
2-Chloroethylvinyl ether	5.0	ND	ug/Kg
Chloroform	2.0	ND	ug/Kg
Chloromethane	2.0	ND	ug/Kg
Dibromochloromethane	2.0	ND	ug/Kg
1,2-Dichlorobenzene	2.0	ND	ug/Kg
1,3-Dichlorobenzene	2.0	ND	ug/Kg
1,4-Dichlorobenzene	2.0	ND	ug/Kg
Dichlorodifluoromethane	2.0	ND	ug/Kg
1,1-Dichloroethane	2.0	ND	ug/Kg
1,2-Dichloroethane	2.0	ND	ug/Kg
1,1-Dichloroethene	2.0	ND	ug/Kg
trans-1,2-Dichloroethene	2.0	ND	ug/Kg
1,2-Dichloropropane	2.0	ND	ug/Kg
cis-1,3-Dichloropropene	2.0	ND	ug/Kg
trans-1,3-Dichloropropene	2.0	ND	ug/Kg
Methylene Chloride	50	ND	ug/Kg
1,1,2,2-Tetrachloroethane	2.0	ND	ug/Kg
Tetrachloroethene	2.0	ND	ug/Kg
1,1,1-Trichloroethane	2.0	ND	ug/Kg
1,1,2-Trichloroethane	2.0	ND	ug/Kg
Trichloroethene	2.0	ND	ug/Kg
Trichlorofluoromethane	2.0	ND	ug/Kg
Vinyl chloride	2.0	ND	ug/Kg



NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242

Date: 07-16-91  
Page: 7

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062002 06-20-91 1150  
LAB Job No: (-89638\*\*)

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS				
VOLATILE (SOIL)				
DILUTION FACTOR *			1	
DATE ANALYZED			07-02-91	
METHOD GC FID/5030			--	
as Gasoline	1		16	mg/Kg
METHOD 8020			--	
DILUTION FACTOR *			1	
DATE ANALYZED			07-02-91	
Benzene		2.5	ND	ug/Kg
Ethylbenzene		2.5	ND	ug/Kg
Toluene		2.5	ND	ug/Kg
Xylenes, total		2.5	ND	ug/Kg
PETROLEUM HYDROCARBONS				
EXTRACTABLE (SOIL)				
DILUTION FACTOR *			1	
DATE EXTRACTED			06-27-91	
DATE ANALYZED			06-30-91	
METHOD GC FID/3550			--	
as Diesel	1		11	mg/Kg
as Motor Oil	10		32	mg/Kg

\*\* Note: The positive result for the PETROLEUM HYDROCARBONS as Gasoline analysis on this sample appears to be a heavier hydrocarbon than gasoline.



NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242

Date: 07-16-91  
Page: 8

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062002 06-20-91 1150  
LAB Job No: (-89638 )

Parameter	Method	Reporting Limit	Results	Units
METHOD 8270				
DATE EXTRACTED			06-26-91	
DATE ANALYZED			06-28-91	
DILUTION FACTOR *			1	
Acenaphthene		330	ND	ug/Kg
Acenaphthylene		330	ND	ug/Kg
Aldrin		1600	ND	ug/Kg
Anthracene		330	ND	ug/Kg
Benzidine		1600	ND	ug/Kg
Benzo(a)anthracene		330	ND	ug/Kg
Benzo(b)fluoranthene		330	ND	ug/Kg
Benzo(k)fluoranthene		330	ND	ug/Kg
Benzo(a)pyrene		330	ND	ug/Kg
Benzo(g,h,i)perylene		330	ND	ug/Kg
Benzoic Acid		1600	ND	ug/Kg
Benzy l Alcohol		330	ND	ug/Kg
Butyl benzyl phthalate		330	ND	ug/Kg
delta-BHC		1600	ND	ug/Kg
gamma-BHC		1600	ND	ug/Kg
bis(2-chloroethyl)ether		330	ND	ug/Kg
bis(2-chloroethoxy)methane		330	ND	ug/Kg
bis(2-chloroisopropyl)ethe		330	ND	ug/Kg
bis(2-ethylhexyl)phthalate		330	ND	ug/Kg
4-Bromophenyl phenyl ether		330	ND	ug/Kg
4-Chloroaniline		330	ND	ug/Kg
2-Chloronaphthalene		330	ND	ug/Kg
4-Chlorophenyl phenyl ethe		330	ND	ug/Kg
Chrysene		330	ND	ug/Kg
4,4'-DDD		1600	ND	ug/Kg
4,4'-DDE		1600	ND	ug/Kg
4,4'-DDT		1600	ND	ug/Kg
Dibenzo(a,h)anthracene		330	ND	ug/Kg
Dibenzofuran		330	ND	ug/Kg
Di-n-butylphthalate		330	ND	ug/Kg
1,2-Dichlorobenzene		330	ND	ug/Kg
1,3-Dichlorobenzene		330	ND	ug/Kg
1,4-Dichlorobenzene		330	ND	ug/Kg
3,3'-Dichlorobenzidine		660	ND	ug/Kg
Dieldrin		1600	ND	ug/Kg
Diethylphthalate		330	ND	ug/Kg
Dimethyl phthalate		330	ND	ug/Kg
2,4-Dinitrotoluene		330	ND	ug/Kg
2,6-Dinitrotoluene		330	ND	ug/Kg
Di-n-octyl phthalate		330	ND	ug/Kg
Endrin aldehyde		1600	ND	ug/Kg





NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242

Date: 07-16-91  
Page: 9

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062002 06-20-91 1150  
LAB Job No: (-89638 )

Parameter	Method	Reporting Limit	Results	Units
Fluoranthene		330	ND	ug/Kg
Fluorene		330	ND	ug/Kg
Heptachlor		1600	ND	ug/Kg
Heptachlor epoxide		1600	ND	ug/Kg
Hexachlorobenzene		330	ND	ug/Kg
Hexachlorobutadiene		330	ND	ug/Kg
Hexachlorocyclopentadiene		330	ND	ug/Kg
Hexachloroethane		330	ND	ug/Kg
Indeno(1,2,3-cd)pyrene		330	ND	ug/Kg
Isophorone		330	ND	ug/Kg
2-Methylnaphthalene		330	ND	ug/Kg
Naphthalene		330	ND	ug/Kg
2-Nitroaniline		1600	ND	ug/Kg
3-Nitroaniline		1600	ND	ug/Kg
4-Nitroaniline		1600	ND	ug/Kg
Nitrobenzene		330	ND	ug/Kg
N-Nitroso-Di-N-propylamine		330	ND	ug/Kg
N-Nitrosodiphenylamine		330	ND	ug/Kg
Phenanthrene		330	ND	ug/Kg
Pyrene		330	ND	ug/Kg
1,2,4-Trichlorobenzene		330	ND	ug/Kg
4-Chloro-3-methylphenol		330	ND	ug/Kg
2-Chlorophenol		330	ND	ug/Kg
2,4-Dichlorophenol		330	ND	ug/Kg
2,4-Dimethylphenol		330	ND	ug/Kg
2,4-Dinitrophenol		1600	ND	ug/Kg
4,6-Dinitro-2-methylphenol		1600	ND	ug/Kg
2-Nitrophenol		330	ND	ug/Kg
4-Nitrophenol		1600	ND	ug/Kg
Pentachlorophenol		1600	ND	ug/Kg
Phenol		330	ND	ug/Kg
2,4,6-Trichlorophenol		330	ND	ug/Kg
2-Methylphenol		330	ND	ug/Kg
4-Methylphenol		330	ND	ug/Kg
2,4,5-Trichlorophenol		1600	ND	ug/Kg
SURROGATE RESULTS				
Nitrobenzene-d5			48	% Rec.
2-Fluorobiphenyl			58	% Rec.
p-terphenyl-d14			81	% Rec.
Phenol-d5			50	% Rec.
2-Fluorophenol			43	% Rec.
2,4,6-Tribromophenol			75	% Rec.



NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242

Date: 07-16-91  
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Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062101 06-21-91 1142  
LAB Job No: (-89639 )

Parameter	Method	Reporting Limit	Results	Units
Oil & Grease(Total)	5520E	50	120	mg/Kg
Cadmium	6010	2	ND	mg/Kg
Chromium	6010	2	65	mg/Kg
Lead (EPA 7421)	7421	0.2	5.1	mg/Kg
Nickel	6010	5	70	mg/Kg
Zinc	6010	2	57	mg/Kg

METHOD 8010

DATE ANALYZED	07-02-91			
DILUTION FACTOR*	1			
Bromodichloromethane	2.0	ND	ug/Kg	
Bromoform	2.0	ND	ug/Kg	
Bromomethane	2.0	ND	ug/Kg	
Carbon tetrachloride	2.0	ND	ug/Kg	
Chlorobenzene	2.0	12	ug/Kg	
Chloroethane	2.0	ND	ug/Kg	
2-Chloroethylvinyl ether	5.0	ND	ug/Kg	
Chloroform	2.0	ND	ug/Kg	
Chloromethane	2.0	ND	ug/Kg	
Dibromochloromethane	2.0	ND	ug/Kg	
1,2-Dichlorobenzene	2.0	ND	ug/Kg	
1,3-Dichlorobenzene	2.0	ND	ug/Kg	
1,4-Dichlorobenzene	2.0	ND	ug/Kg	
Dichlorodifluoromethane	2.0	ND	ug/Kg	
1,1-Dichloroethane	2.0	ND	ug/Kg	
1,2-Dichloroethane	2.0	ND	ug/Kg	
1,1-Dichloroethene	2.0	ND	ug/Kg	
trans-1,2-Dichloroethene	2.0	ND	ug/Kg	
1,2-Dichloropropane	2.0	ND	ug/Kg	
cis-1,3-Dichloropropene	2.0	ND	ug/Kg	
trans-1,3-Dichloropropene	2.0	ND	ug/Kg	
Methylene Chloride	50	ND	ug/Kg	
1,1,2,2-Tetrachloroethane	2.0	ND	ug/Kg	
Tetrachloroethene	2.0	ND	ug/Kg	
1,1,1-Trichloroethane	2.0	ND	ug/Kg	
1,1,2-Trichloroethane	2.0	ND	ug/Kg	
Trichloroethene	2.0	ND	ug/Kg	
Trichlorofluoromethane	2.0	ND	ug/Kg	
Vinyl chloride	2.0	ND	ug/Kg	



NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242

Date: 07-16-91  
Page: 11

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062101 06-21-91 1142  
LAB Job No: (-89639 )

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS				
VOLATILE (SOIL)				
DILUTION FACTOR *			5	
DATE ANALYZED			07-03-91	
METHOD GC FID/5030			--	
as Gasoline		1	41	mg/Kg
METHOD 8020			--	
DILUTION FACTOR *			20	
DATE ANALYZED			07-06-91	
Benzene		2.5	930	ug/Kg
Ethylbenzene		2.5	890	ug/Kg
Toluene		2.5	1,300	ug/Kg
Xylenes, total		2.5	2,500	ug/Kg
PETROLEUM HYDROCARBONS				
EXTRACTABLE (SOIL)				
DILUTION FACTOR *			1	
DATE EXTRACTED			06-27-91	
DATE ANALYZED			06-30-91	
METHOD GC FID/3550			--	
as Diesel		1	12	mg/Kg
as Motor Oil		10	14	mg/Kg



NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242

Date: 07-16-91  
Page: 12

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062101 06-21-91 1142  
LAB Job No: (-89639 )

Parameter	Method	Reporting Limit	Results	Units
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METHOD 8270

DATE EXTRACTED			06-26-91	
DATE ANALYZED			06-28-91	
DILUTION FACTOR *			1	
Acenaphthene		330	ND	ug/Kg
Acenaphthylene		330	ND	ug/Kg
Aldrin		1600	ND	ug/Kg
Anthracene		330	ND	ug/Kg
Benzidine		1600	ND	ug/Kg
Benzo(a)anthracene		330	ND	ug/Kg
Benzo(b)fluoranthene		330	ND	ug/Kg
Benzo(k)fluoranthene		330	ND	ug/Kg
Benzo(a)pyrene		330	ND	ug/Kg
Benzo(g,h,i)perylene		330	ND	ug/Kg
Benzoic Acid		1600	ND	ug/Kg
BenzyI Alcohol		330	ND	ug/Kg
Butyl benzyI phthalate		330	ND	ug/Kg
delta-BHC		1600	ND	ug/Kg
gamma-BHC		1600	ND	ug/Kg
bis(2-chloroethyl)ether		330	ND	ug/Kg
bis(2-chloroethoxy)methane		330	ND	ug/Kg
bis(2-chloroisopropyl)ethe		330	ND	ug/Kg
bis(2-ethylhexyl)phthalate		330	ND	ug/Kg
4-Bromophenyl phenyl ether		330	ND	ug/Kg
4-Chloroaniline		330	ND	ug/Kg
2-Chloronaphthalene		330	ND	ug/Kg
4-Chlorophenyl phenyl ethe		330	ND	ug/Kg
Chrysene		330	ND	ug/Kg
4,4'-DDD		1600	ND	ug/Kg
4,4'-DDE		1600	ND	ug/Kg
4,4'-DDT		1600	ND	ug/Kg
Dibenzo(a,h)anthracene		330	ND	ug/Kg
Dibenzofuran		330	ND	ug/Kg
Di-n-butylphthalate		330	ND	ug/Kg
1,2-Dichlorobenzene		330	ND	ug/Kg
1,3-Dichlorobenzene		330	ND	ug/Kg
1,4-Dichlorobenzene		330	ND	ug/Kg
3,3'-Dichlorobenzidine		660	ND	ug/Kg
Dieldrin		1600	ND	ug/Kg
Diethylphthalate		330	ND	ug/Kg
Dimethyl phthalate		330	ND	ug/Kg
2,4-Dinitrotoluene		330	ND	ug/Kg
2,6-Dinitrotoluene		330	ND	ug/Kg
Di-n-octyl phthalate		330	ND	ug/Kg
Endrin aldehyde		1600	ND	ug/Kg



NET Pacific, Inc.

Client Acct: 281  
 Client Name: Harding Lawson Associates  
 NET Log No: 8242

Date: 07-16-91  
 Page: 13

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062101 06-21-91 1142  
 LAB Job No: (-89639 )

Parameter	Method	Reporting Limit	Results	Units
Fluoranthene		330	ND	ug/Kg
Fluorene		330	ND	ug/Kg
Heptachlor		1600	ND	ug/Kg
Heptachlor epoxide		1600	ND	ug/Kg
Hexachlorobenzene		330	ND	ug/Kg
Hexachlorobutadiene		330	ND	ug/Kg
Hexachlorocyclopentadiene		330	ND	ug/Kg
Hexachloroethane		330	ND	ug/Kg
Indeno(1,2,3-cd)pyrene		330	ND	ug/Kg
Isophorone		330	ND	ug/Kg
2-Methylnaphthalene		330	440	ug/Kg
Naphthalene		330	870	ug/Kg
2-Nitroaniline		1600	ND	ug/Kg
3-Nitroaniline		1600	ND	ug/Kg
4-Nitroaniline		1600	ND	ug/Kg
Nitrobenzene		330	ND	ug/Kg
N-Nitroso-Di-N-propylamine		330	ND	ug/Kg
N-Nitrosodiphenylamine		330	ND	ug/Kg
Phenanthrene		330	ND	ug/Kg
Pyrene		330	ND	ug/Kg
1,2,4-Trichlorobenzene		330	ND	ug/Kg
4-Chloro-3-methylphenol		330	ND	ug/Kg
2-Chlorophenol		330	ND	ug/Kg
2,4-Dichlorophenol		330	ND	ug/Kg
2,4-Dimethylphenol		330	ND	ug/Kg
2,4-Dinitrophenol		1600	ND	ug/Kg
4,6-Dinitro-2-methylphenol		1600	ND	ug/Kg
2-Nitrophenol		330	ND	ug/Kg
4-Nitrophenol		1600	ND	ug/Kg
Pentachlorophenol		1600	ND	ug/Kg
Phenol		330	ND	ug/Kg
2,4,6-Trichlorophenol		330	ND	ug/Kg
2-Methylphenol		330	ND	ug/Kg
4-Methylphenol		330	ND	ug/Kg
2,4,5-Trichlorophenol		1600	ND	ug/Kg
SURROGATE RESULTS				
Nitrobenzene-d5			43	% Rec.
2-Fluorobiphenyl			53	% Rec.
p-terphenyl-d14			74	% Rec.
Phenol-d5			46	% Rec.
2-Fluorophenol			39	% Rec.
2,4,6-Tribromophenol			73	% Rec.



NET Pacific, Inc.

Client Acct: 281  
 Client Name: Harding Lawson Associates  
 NET Log No: 8242w

Date: 07-16-91  
 Page: 14

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062003 06-20-91 1215  
 LAB Job No: (-89640 )

Parameter	Method	Reporting Limit	Results	Units
Cadmium	6010	0.02	ND	mg/L
Chromium, total	6010	0.02	0.21	mg/L
Lead (EPA 7421)	7421	0.002	0.13	mg/L
Nickel	6010	0.05	0.25	mg/L
Zinc	6010	0.02	0.30	mg/L

## METHOD 601

DATE ANALYZED	07-02-91
DILUTION FACTOR*	1
Bromodichloromethane	0.4 ND ug/L
Bromoform	0.4 ND ug/L
Bromomethane	0.4 ND ug/L
Carbon tetrachloride	0.4 ND ug/L
Chlorobenzene	0.4 ND ug/L
Chloroethane	0.4 ND ug/L
2-Chloroethylvinyl ether	1.0 ND ug/L
Chloroform	0.4 ND ug/L
Chloromethane	0.4 ND ug/L
Dibromochloromethane	0.4 ND ug/L
1,2-Dichlorobenzene	0.4 ND ug/L
1,3-Dichlorobenzene	0.4 ND ug/L
1,4-Dichlorobenzene	0.4 ND ug/L
Dichlorodifluoromethane	0.4 ND ug/L
1,1-Dichloroethane	0.4 ND ug/L
1,2-Dichloroethane	0.4 ND ug/L
1,1-Dichloroethene	0.4 ND ug/L
trans-1,2-Dichloroethene	0.4 ND ug/L
1,2-Dichloropropane	0.4 ND ug/L
cis-1,3-Dichloropropene	0.4 ND ug/L
trans-1,3-Dichloropropene	0.4 ND ug/L
Methylene Chloride	10 ND ug/L
1,1,2,2-Tetrachloroethane	0.4 ND ug/L
Tetrachloroethene	0.4 ND ug/L
1,1,1-Trichloroethane	0.4 ND ug/L
1,1,2-Trichloroethane	0.4 ND ug/L
Trichloroethene	0.4 ND ug/L
Trichlorofluoromethane	0.4 ND ug/L
Vinyl chloride	2.0 ND ug/L



NET Pacific, Inc.

Client Acct: 281

Client Name: Harding Lawson Associates

NET Log No: 8242w

Date: 07-16-91

Page: 15

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062003 06-20-91 1215  
LAB Job No: (-89640 )

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS				
VOLATILE (WATER)				
DILUTION FACTOR *			100	
DATE ANALYZED			07-04-91	
METHOD GC FID/5030			--	
as Gasoline		0.05	58	mg/L
METHOD 602			--	
DILUTION FACTOR *			100	
DATE ANALYZED			07-04-91	
Benzene		0.5	290	ug/L
Ethylbenzene		0.5	78	ug/L
Toluene		0.5	360	ug/L
Xylenes, total		0.5	480	ug/L
PETROLEUM HYDROCARBONS				
EXTRACTABLE (WATER)				
DILUTION FACTOR *			1	
DATE EXTRACTED			06-26-91	
DATE ANALYZED			06-27-91	
METHOD GC FID/3510			--	
as Diesel		0.05	1.3	mg/L
as Motor Oil		0.5	ND	mg/L



NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242w

Date: 07-16-91  
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Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062003 06-20-91 1215  
LAB Job No: (-89640 )

Parameter	Method	Reporting Limit	Results	Units
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METHOD 8270

DATE EXTRACTED			06-28-91	
DATE ANALYZED			07-01-91	
DILUTION FACTOR *			2	
Acenaphthene	10		ND	ug/L
Acenaphthylene	10		ND	ug/L
Aldrin	50		ND	ug/L
Anthracene	10		ND	ug/L
Benzidine	44		ND	ug/L
Benzo(a)anthracene	10		ND	ug/L
Benzo(b)fluoranthene	10		ND	ug/L
Benzo(k)fluoranthene	10		ND	ug/L
Benzo(a)pyrene	10		ND	ug/L
Benzo(g,h,i)perylene	10		ND	ug/L
Benzoic Acid	50		ND	ug/L
Benzyl Alcohol	10		ND	ug/L
Butyl benzyl phthalate	10		ND	ug/L
delta-BHC	50		ND	ug/L
gamma-BHC	50		ND	ug/L
bis(2-chloroethyl) ether	10		ND	ug/L
bis(2-chloroethoxy)methane	10		ND	ug/L
bis(2-chloroisopropyl)ethe	10		ND	ug/L
bis(2-ethylhexyl)phthalate	10		ND	ug/L
4-Bromophenyl phenyl ether	10		ND	ug/L
4-Chloroaniline	10		ND	ug/L
2-Chloronaphthalene	10		ND	ug/L
4-Chlorophenyl phenyl ethe	10		ND	ug/L
Chrysene	10		ND	ug/L
4,4-DDD	50		ND	ug/L
4,4-DDE	50		ND	ug/L
4,4-DDT	50		ND	ug/L
Dibenzo(a,h)anthracene	10		ND	ug/L
Dibenzofuran	10		ND	ug/L
Di-n-butylphthalate	10		ND	ug/L
1,2-Dichlorobenzene	10		ND	ug/L
1,3-Dichlorobenzene	10		ND	ug/L
1,4-Dichlorobenzene	10		ND	ug/L
3,3'-Dichlorobenzidine	20		ND	ug/L
Dieldrin	50		ND	ug/L
Diethylphthalate	10		ND	ug/L
Dimethyl phthalate	10		ND	ug/L
2,4-Dinitrotoluene	10		ND	ug/L
2,6-Dinitrotoluene	10		ND	ug/L
Di-n-octyl phthalate	10		ND	ug/L
Endrin aldehyde	50		ND	ug/L





NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242w

Date: 07-16-91  
Page: 17

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062003 06-20-91 1215  
LAB Job No: (-89640 )

Parameter	Method	Reporting Limit	Results	Units
Fluoranthene		10	ND	ug/L
Fluorene		10	ND	ug/L
Heptachlor		50	ND	ug/L
Heptachlor epoxide		50	ND	ug/L
Hexachlorobenzene		10	ND	ug/L
Hexachlorobutadiene		10	ND	ug/L
Hexachlorocyclopentadiene		10	ND	ug/L
Hexachloroethane		10	ND	ug/L
Indeno(1,2,3-cd)pyrene		10	ND	ug/L
Isophorone		10	ND	ug/L
2-Methylnaphthalene		10	ND	ug/L
Naphthalene		10	ND	ug/L
2-Nitroaniline		50	ND	ug/L
3-Nitroaniline		50	ND	ug/L
4-Nitroaniline		50	ND	ug/L
Nitrobenzene		10	ND	ug/L
N-Nitroso-Di-N-propylamine		10	ND	ug/L
N-nitrosodiphenylamine		10	ND	ug/L
Phenanthrene		10	ND	ug/L
Pyrene		10	ND	ug/L
1,2,4-Trichlorobenzene		10	ND	ug/L
4-Chloro-3-methylphenol		10	ND	ug/L
2-Chlorophenol		10	ND	ug/L
2,4-Dichlorophenol		10	ND	ug/L
2,4-Dimethylphenol		10	ND	ug/L
2,4-Dinitrophenol		50	ND	ug/L
4,6-Dinitro-2-methylphenol		50	ND	ug/L
2-Nitrophenol		10	ND	ug/L
4-Nitrophenol		50	ND	ug/L
Pentachlorophenol		50	ND	ug/L
Phenol		10	67	ug/L
2,4,6-Trichlorophenol		10	ND	ug/L
2-Methylphenol		10	ND	ug/L
4-Methylphenol		10	ND	ug/L
2,4,5-Trichlorophenol		50	ND	ug/L
SURROGATE RESULTS				
Nitrobenzene-d5			49	% Rec.
2-Fluorobiphenyl			49	% Rec.
p-terphenyl-d14			44	% Rec.
Phenol-d5			57	% Rec.
2-Fluorophenol			54	% Rec.
2,4,6-Tribromophenol			44	% Rec.



Client Acct: 281  
 Client Name: Harding Lawson Associates  
 NET Log No: 8242w

Date: 07-16-91  
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NET Pacific, Inc.

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062004 06-20-91 1100  
 LAB Job No: (-89641 )

Parameter	Method	Reporting Limit	Results	Units
Oil & Grease(Total)	5520B	5	450,000	mg/L
Cadmium	6010	0.02	3	mg/Kg
Chromium, total	6010	0.02	21	mg/Kg
Lead (EPA 7421)	7421	0.002	640	mg/Kg
Nickel	6010	0.05	30	mg/Kg
Zinc	6010	0.02	870	mg/Kg

METHOD 601

DATE ANALYZED		07-02-91	
DILUTION FACTOR*		1	
Bromodichloromethane	0.4	ND	ug/L
Bromoform	0.4	ND	ug/L
Bromomethane	0.4	ND	ug/L
Carbon tetrachloride	0.4	ND	ug/L
Chlorobenzene	0.4	32	ug/L
Chloroethane	0.4	ND	ug/L
2-Chloroethylvinyl ether	1.0	ND	ug/L
Chloroform	0.4	ND	ug/L
Chloromethane	0.4	ND	ug/L
Dibromochloromethane	0.4	ND	ug/L
1,2-Dichlorobenzene	0.4	ND	ug/L
1,3-Dichlorobenzene	0.4	ND	ug/L
1,4-Dichlorobenzene	0.4	ND	ug/L
Dichlorodifluoromethane	0.4	ND	ug/L
1,1-Dichloroethane	0.4	ND	ug/L
1,2-Dichloroethane	0.4	610	ug/L
1,1-Dichloroethene	0.4	ND	ug/L
trans-1,2-Dichloroethene	0.4	ND	ug/L
1,2-Dichloropropane	0.4	ND	ug/L
cis-1,3-Dichloropropene	0.4	ND	ug/L
trans-1,3-Dichloropropene	0.4	ND	ug/L
Methylene Chloride	10	12,000	ug/L
1,1,2,2-Tetrachloroethane	0.4	ND	ug/L
Tetrachloroethene	0.4	10	ug/L
1,1,1-Trichloroethane	0.4	ND	ug/L
1,1,2-Trichloroethane	0.4	ND	ug/L
Trichloroethene	0.4	9.5	ug/L
Trichlorofluoromethane	0.4	ND	ug/L
Vinyl chloride	2.0	ND	ug/L



NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242w

Date: 07-16-91  
Page: 19

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062004 06-20-91 1100  
LAB Job No: (-89641\*\*)

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS				
VOLATILE (WATER)				
DILUTION FACTOR *			1,000,000	
DATE ANALYZED			07-03-91	
METHOD GC FID/5030			--	
as Gasoline		0.05	130,000	mg/L
METHOD 602			--	
DILUTION FACTOR *			1,000,000	
DATE ANALYZED			07-03-91	
Benzene		0.5	ND	ug/L
Ethylbenzene		0.5	ND	ug/L
Toluene		0.5	850,000	ug/L
Xylenes, total		0.5	ND	ug/L
PETROLEUM HYDROCARBONS				
EXTRACTABLE (WATER)				
DILUTION FACTOR *			500	
DATE EXTRACTED			06-27-91	
DATE ANALYZED			06-28-91	
METHOD GC FID/3510			--	
as Diesel		0.05	290,000	mg/Kg
as Motor Oil		0.5	460,000	mg/Kg

\*\* Note: The positive result for the PETROLEUM HYDROCARBONS as Gasoline analysis on this sample appears to be a heavier hydrocarbon than gasoline.



Client Acct: 281  
 Client Name: Harding Lawson Associates  
 NET Log No: 8242w

Date: 07-16-91  
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NET Pacific, Inc.

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062004 06-20-91 1100  
 LAB Job No: (-89641 )

Parameter	Method	Reporting Limit	Results	Units
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METHOD 8270

DATE EXTRACTED			06-28-91	
DATE ANALYZED			07-01-91	
DILUTION FACTOR *			10	
Acenaphthene		10	ND	ug/L
Acenaphthylene		10	ND	ug/L
Aldrin		50	ND	ug/L
Anthracene		10	ND	ug/L
Benzidine		44	ND	ug/L
Benzo(a)anthracene		10	ND	ug/L
Benzo(b)fluoranthene		10	ND	ug/L
Benzo(k)fluoranthene		10	ND	ug/L
Benzo(a)pyrene		10	ND	ug/L
Benzo(g,h,i)perylene		10	ND	ug/L
Benzoic Acid		50	ND	ug/L
Benzyl Alcohol		10	ND	ug/L
Butyl benzyl phthalate		10	ND	ug/L
delta-BHC		50	ND	ug/L
gamma-BHC		50	ND	ug/L
bis(2-chloroethyl) ether		10	ND	ug/L
bis(2-chloroethoxy)methane		10	ND	ug/L
bis(2-chloroisopropyl)ethane		10	ND	ug/L
bis(2-ethylhexyl)phthalate		10	ND	ug/L
4-Bromophenyl phenyl ether		10	ND	ug/L
4-Chloroaniline		10	ND	ug/L
2-Chloronaphthalene		10	ND	ug/L
4-Chlorophenyl phenyl ether		10	ND	ug/L
Chrysene		10	ND	ug/L
4,4-DDD		50	ND	ug/L
4,4-DDE		50	ND	ug/L
4,4-DDT		50	ND	ug/L
Dibenzo(a,h)anthracene		10	ND	ug/L
Dibenzofuran		10	ND	ug/L
Di-n-butylphthalate		10	ND	ug/L
1,2-Dichlorobenzene		10	ND	ug/L
1,3-Dichlorobenzene		10	ND	ug/L
1,4-Dichlorobenzene		10	ND	ug/L
3,3'-Dichlorobenzidine		20	ND	ug/L
Dieldrin		50	ND	ug/L
Diethylphthalate		10	ND	ug/L
Dimethyl phthalate		10	ND	ug/L
2,4-Dinitrotoluene		10	ND	ug/L
2,6-Dinitrotoluene		10	ND	ug/L
Di-n-octyl phthalate		10	ND	ug/L
Endrin aldehyde		50	ND	ug/L



NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242wDate: 07-16-91  
Page: 21

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062004 06-20-91 1100

LAB Job No: (-89641\*\*)

Parameter	Method	Reporting Limit	Results	Units
Fluoranthene		10	ND	ug/L
Fluorene		10	ND	ug/L
Heptachlor		50	ND	ug/L
Heptachlor epoxide		50	ND	ug/L
Hexachlorobenzene		10	ND	ug/L
Hexachlorobutadiene		10	ND	ug/L
Hexachlorocyclopentadiene		10	ND	ug/L
Hexachloroethane		10	ND	ug/L
Indeno(1,2,3-cd)pyrene		10	ND	ug/L
Isophorone		10	ND	ug/L
2-Methylnaphthalene		10	87,000	ug/L
Naphthalene		10	ND	ug/L
2-Nitroaniline		50	ND	ug/L
3-Nitroaniline		50	ND	ug/L
4-Nitroaniline		50	ND	ug/L
Nitrobenzene		10	ND	ug/L
N-Nitroso-Di-N-propylamine		10	ND	ug/L
N-nitrosodiphenylamine		10	ND	ug/L
Phenanthrene		10	ND	ug/L
Pyrene		10	ND	ug/L
1,2,4-Trichlorobenzene		10	ND	ug/L
4-Chloro-3-methylphenol		10	ND	ug/L
2-Chlorophenol		10	ND	ug/L
2,4-Dichlorophenol		10	ND	ug/L
2,4-Dimethylphenol		10	ND	ug/L
2,4-Dinitrophenol		50	ND	ug/L
4,6-Dinitro-2-methylphenol		50	ND	ug/L
2-Nitrophenol		10	ND	ug/L
4-Nitrophenol		50	ND	ug/L
Pentachlorophenol		50	ND	ug/L
Phenol		10	170,000	ug/L
2,4,6-Trichlorophenol		10	ND	ug/L
2-Methylphenol		10	ND	ug/L
4-Methylphenol		10	160,000	ug/L
2,4,5-Trichlorophenol		50	ND	ug/L
SURROGATE RESULTS			--	
Nitrobenzene-d5			NA	% Rec.
2-Fluorobiphenyl			NA	% Rec.
p-terphenyl-d14			NA	% Rec.
Phenol-d5			NA	% Rec.
2-Fluorophenol			NA	% Rec.
2,4,6-Tribromophenol			NA	% Rec.

\*\* Note: This sample was analyzed as a dilute and shoot due to the oil matrix and surrogate recoveries were not analyzed (NA).



NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242w

Date: 07-16-91  
Page: 22

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062005 06-20-91 1115  
LAB Job No: (-89642 )

Parameter	Method	Reporting Limit	Results	Units
Cadmium	6010	0.02	ND	mg/L
Chromium, total	6010	0.02	ND	mg/L
Lead (EPA 7421)	7421	0.002	0.040	mg/L
Nickel	6010	0.05	0.09	mg/L
Zinc	6010	0.02	0.63	mg/L

METHOD 601

DATE ANALYZED	07-02-91
DILUTION FACTOR*	1
Bromodichloromethane	0.4 ND ug/L
Bromoform	0.4 ND ug/L
Bromomethane	0.4 ND ug/L
Carbon tetrachloride	0.4 ND ug/L
Chlorobenzene	0.4 ND ug/L
Chloroethane	0.4 ND ug/L
2-Chloroethylvinyl ether	1.0 ND ug/L
Chloroform	0.4 ND ug/L
Chloromethane	0.4 ND ug/L
Dibromochloromethane	0.4 ND ug/L
1,2-Dichlorobenzene	0.4 ND ug/L
1,3-Dichlorobenzene	0.4 ND ug/L
1,4-Dichlorobenzene	0.4 ND ug/L
Dichlorodifluoromethane	0.4 ND ug/L
1,1-Dichloroethane	0.4 ND ug/L
1,2-Dichloroethane	0.4 6.4 ug/L
1,1-Dichloroethene	0.4 ND ug/L
trans-1,2-Dichloroethene	0.4 ND ug/L
1,2-Dichloropropane	0.4 ND ug/L
cis-1,3-Dichloropropene	0.4 ND ug/L
trans-1,3-Dichloropropene	0.4 ND ug/L
Methylene Chloride	10 ND ug/L
1,1,2,2-Tetrachloroethane	0.4 ND ug/L
Tetrachloroethene	0.4 ND ug/L
1,1,1-Trichloroethane	0.4 ND ug/L
1,1,2-Trichloroethane	0.4 ND ug/L
Trichloroethene	0.4 ND ug/L
Trichlorofluoromethane	0.4 ND ug/L
Vinyl chloride	2.0 ND ug/L



NET Pacific, Inc.

Client Acct: 281  
Client Name: Harding Lawson Associates  
NET Log No: 8242w

Date: 07-16-91  
Page: 23

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062005 06-20-91 1115  
LAB Job No: (-89642\*\*)

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS				
VOLATILE (WATER)				
DILUTION FACTOR *			100	
DATE ANALYZED			07-04-91	
METHOD GC FID/5030				
as Gasoline		0.05	53	mg/L
METHOD 602				
DILUTION FACTOR *			100	
DATE ANALYZED			07-04-91	
Benzene		0.5	860	ug/L
Ethylbenzene		0.5	65	ug/L
Toluene		0.5	79	ug/L
Xylenes, total		0.5	2,000	ug/L
PETROLEUM HYDROCARBONS				
EXTRACTABLE (WATER)				
DILUTION FACTOR *			100	
DATE EXTRACTED			06-26-91	
DATE ANALYZED			06-28-91	
METHOD GC FID/3510				
as Diesel		0.05	110	mg/L
as Motor Oil		0.5	74	mg/L

\*\* Note: The positive result for the PETROLEUM HYDROCARBONS as Diesel analysis on this sample appears to be a mixture of lighter hydrocarbon and diesel.



NET Pacific, Inc.

Client Acct: 281

Client Name: Harding Lawson Associates

NET Log No: 8242w

Date: 07-16-91

Page: 24

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062005 06-20-91 1115  
 LAB Job No: (-89642 )

Parameter	Method	Reporting Limit	Results	Units
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## METHOD 8270

DATE EXTRACTED			06-28-91	
DATE ANALYZED			07-03-91	
DILUTION FACTOR *			20	
Acenaphthene		10	ND	ug/L
Acenaphthylene		10	ND	ug/L
Aldrin		50	ND	ug/L
Anthracene		10	ND	ug/L
Benzidine		44	ND	ug/L
Benzo(a)anthracene		10	ND	ug/L
Benzo(b)fluoranthene		10	ND	ug/L
Benzo(k)fluoranthene		10	ND	ug/L
Benzo(a)pyrene		10	ND	ug/L
Benzo(g,h,i)perylene		10	ND	ug/L
Benzoic Acid		50	ND	ug/L
Benzyl Alcohol		10	ND	ug/L
Butyl benzyl phthalate		10	ND	ug/L
delta-BHC		50	ND	ug/L
gamma-BHC		50	ND	ug/L
bis(2-chloroethyl) ether		10	ND	ug/L
bis(2-chloroethoxy)methane		10	ND	ug/L
bis(2-chloroisopropyl)ethane		10	ND	ug/L
bis(2-ethylhexyl)phthalate		10	ND	ug/L
4-Bromophenyl phenyl ether		10	ND	ug/L
4-Chloroaniline		10	ND	ug/L
2-Chloronaphthalene		10	ND	ug/L
4-Chlorophenyl phenyl ether		10	ND	ug/L
Chrysene		10	ND	ug/L
4,4-DDD		50	ND	ug/L
4,4-DDE		50	ND	ug/L
4,4-DDT		50	ND	ug/L
Dibenzo(a,h)anthracene		10	ND	ug/L
Dibenzofuran		10	ND	ug/L
Di-n-butylphthalate		10	ND	ug/L
1,2-Dichlorobenzene		10	ND	ug/L
1,3-Dichlorobenzene		10	ND	ug/L
1,4-Dichlorobenzene		10	ND	ug/L
3,3'-Dichlorobenzidine		20	ND	ug/L
Dieldrin		50	ND	ug/L
Diethylphthalate		10	ND	ug/L
Dimethyl phthalate		10	ND	ug/L
2,4-Dinitrotoluene		10	ND	ug/L
2,6-Dinitrotoluene		10	ND	ug/L
Di-n-octyl phthalate		10	ND	ug/L
Endrin aldehyde		50	ND	ug/L





NET Pacific, Inc.

Client Acct: 281  
 Client Name: Harding Lawson Associates  
 NET Log No: 8242w

Date: 07-16-91  
 Page: 25

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062005 06-20-91 1115  
 LAB Job No: (-89642 )

Parameter	Method	Reporting Limit	Results	Units
Fluoranthene		10	ND	ug/L
Fluorene		10	ND	ug/L
Heptachlor		50	ND	ug/L
Heptachlor epoxide		50	ND	ug/L
Hexachlorobenzene		10	ND	ug/L
Hexachlorobutadiene		10	ND	ug/L
Hexachlorocyclopentadiene		10	ND	ug/L
Hexachloroethane		10	ND	ug/L
Indeno(1,2,3-cd)pyrene		10	ND	ug/L
Isophorone		10	ND	ug/L
2-Methylnaphthalene		10	2,000	ug/L
Naphthalene		10	2,400	ug/L
2-Nitroaniline		50	ND	ug/L
3-Nitroaniline		50	ND	ug/L
4-Nitroaniline		50	ND	ug/L
Nitrobenzene		10	ND	ug/L
N-Nitroso-Di-N-propylamine		10	ND	ug/L
N-nitrosodiphenylamine		10	ND	ug/L
Phenanthrene		10	ND	ug/L
Pyrene		10	ND	ug/L
1,2,4-Trichlorobenzene		10	ND	ug/L
4-Chloro-3-methylphenol		10	ND	ug/L
2-Chlorophenol		10	ND	ug/L
2,4-Dichlorophenol		10	ND	ug/L
2,4-Dimethylphenol		10	510	ug/L
2,4-Dinitrophenol		50	ND	ug/L
4,6-Dinitro-2-methylphenol		50	ND	ug/L
2-Nitrophenol		10	ND	ug/L
4-Nitrophenol		50	ND	ug/L
Pentachlorophenol		50	ND	ug/L
Phenol		10	ND	ug/L
2,4,6-Trichlorophenol		10	ND	ug/L
2-Methylphenol		10	ND	ug/L
4-Methylphenol		10	ND	ug/L
2,4,5-Trichlorophenol		50	ND	ug/L
SURROGATE RESULTS				--
Nitrobenzene-d5			56	% Rec.
2-Fluorobiphenyl			111	% Rec.
p-terphenyl-d14			101	% Rec.
Phenol-d5			97	% Rec.
2-Fluorophenol			85	% Rec.
2,4,6-Tribromophenol			49	% Rec.



Client Acct: 281  
 Client Name: Harding Lawson Associates  
 NET Log No: 8242s

Date: 07-16-91  
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NET Pacific, Inc.

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062102 06-21-91 1148  
 LAB Job No: (-89643\*\*)

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS				
VOLATILE (SOIL)				
DILUTION FACTOR *			50	
DATE ANALYZED			07-06-91	
METHOD GC FID/5030				
as Gasoline		1	240	mg/Kg
METHOD 8020				
DILUTION FACTOR *			50	
DATE ANALYZED			07-06-91	
Benzene		2.5	1,100	ug/Kg
Ethylbenzene		2.5	1,800	ug/Kg
Toluene		2.5	200	ug/Kg
Xylenes, total		2.5	5,700	ug/Kg
PETROLEUM HYDROCARBONS				
EXTRACTABLE (SOIL)				
DILUTION FACTOR *			50	
DATE EXTRACTED			06-27-91	
DATE ANALYZED			06-30-91	
METHOD GC FID/3550				
as Diesel		1	1,800	mg/Kg
as Motor Oil		10	2,000	mg/Kg

\*\* Note: The positive result for the PETROLEUM HYDROCARBONS as Diesel analysis on this sample appears to be a mixture of lighter hydrocarbon and diesel. This sample was analyzed on 07-02-91 at a 1:100 dilution, 07-03-91 at a 1:5 dilution, and 07-06-91 at a 1:50 dilution to achieve a result within linear range of the instrument. The results from these three dates were comparable.



NET Pacific, Inc.

Client Acct: 281  
 Client Name: Harding Lawson Associates  
 NET Log No: 82428

Date: 07-16-91  
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Ref: Wareham/2855 Cypress St., Job: 18452,047.02

SAMPLE DESCRIPTION: 91062103 06-21-91 1220  
 LAB Job No: (-89644\*\*)

Parameter	Method	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS				
VOLATILE (SOIL)				
DILUTION FACTOR *			100	
DATE ANALYZED			07-08-91	
METHOD GC FID/5030				
as Gasoline		1	81	mg/Kg
METHOD 8020				
DILUTION FACTOR *			10	
DATE ANALYZED			07-09-91	
Benzene		2.5	ND	ug/Kg
Ethylbenzene		2.5	500	ug/Kg
Toluene		2.5	ND	ug/Kg
Xylenes, total		2.5	3,600	ug/Kg
PETROLEUM HYDROCARBONS				
EXTRACTABLE (SOIL)				
DILUTION FACTOR *			10	
DATE EXTRACTED			06-27-91	
DATE ANALYZED			06-30-91	
METHOD GC FID/3550				
as Diesel		1	230	mg/Kg
as Motor Oil		10	410	mg/Kg

\*\* Note: The positive result for the PETROLEUM HYDROCARBONS as Diesel analysis on this sample appears to be a mixture of lighter hydrocarbon and diesel. This sample was analyzed five separate times for Gasoline. Each reanalysis had results which were not consistent with the previous analysis. This is possibly due to non-homogenous particulates and analyte in the sample. The results from the five analyses are listed below.

Date Analyzed	(Gasoline)(Dilution factor)	Gasoline	BTXE
07-02-91	(>20 mg/Kg*)(100) =	>2000 mg/Kg*	ND
07-03-91	(1.4 mg/Kg)(500) =	700 mg/Kg*	ND
07-06-91	Port leaked	N/A	N/A
07-08-91	(0.81 mg/Kg)(100) =	81 mg/Kg	ND
07-09-91	(28 mg/Kg*)(10) =	280 mg/Kg*	As reported.

\* These samples were off-scale and not reported because the results were out of the linear range of the instrumentation. The linear range of the instruments is between 0.5 mg/Kg and 20 ug/Kg.



Client Acct: 281  
 Client Name: Harding Lawson Associates  
 NET Log No: 8242

Date: 07-15-91  
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NET Pacific, Inc.

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Cadmium	2	mg/Kg	104	ND	99	97	1.5
Chromium	2	mg/Kg	102	ND	101	95	4.1
Lead	0.2	mg/Kg	102	ND	101	99	2.2
Nickel	5	mg/Kg	104	ND	100	95	3.5
Zinc	2	mg/Kg	103	ND	98	95	2.3
O&G(Total)	50	mg/Kg	88	ND	104	125	18
Diesel	1	mg/Kg	110	ND	36	43	10
Motor Oil	10	mg/Kg	98	ND	N/A	N/A	N/A
Diesel	0.05	mg/L	102	ND	50	52	3.9
Motor Oil	0.5	mg/L	87	ND	N/A	N/A	N/A
Gasoline	0.05	mg/L	114	ND	107	100	6.0
Benzene	0.5	ug/L	97	ND	98	90	7.0
Toluene	0.5	ug/L	107	ND	93	89	4.0

COMMENT: Blank Results were ND on other analytes tested.

Gasoline	0.05	mg/L	108	ND	108	106	2.0
Benzene	0.5	ug/L	102	ND	102	102	< 1
Toluene	0.5	ug/L	112	ND	97	98	1.0

COMMENT: Blank Results were ND on other analytes tested.

Benzene	2.5	ug/Kg	103	ND	98	87	2.3
Toluene	2.5	ug/Kg	108	ND	91	91	< 1

COMMENT: Blank Results were ND on other analytes tested.

Gasoline	1	mg/Kg	101	ND	98	98	< 1
Benzene	2.5	ug/Kg	105	ND	95	99	4.1
Toluene	2.5	ug/Kg	104	ND	98	100	2.0

COMMENT: Blank Results were ND on other analytes tested.

Gasoline	1	mg/Kg	96	ND	87	95	8.8
Gasoline	1	mg/Kg	104	ND	93	112	19

COMMENT: Blank Results were ND on other analytes tested.



NET Pacific, Inc.

Client Acct: 281  
 Client Name: Harding Lawson Associates  
 NET Log No: 8242

Date: 07-15-91  
 Page: 29

Ref: Wareham/2855 Cypress St., Job: 18452,047.02

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Chlorobenzene	2.0	ug/Kg	128	ND	131	130	< 1
1,1-Dichloroethene	2.0	ug/Kg	123	ND	118	126	6.6
Trichloroethene	2.0	ug/Kg	100	ND	103	106	2.9

COMMENT: Blank Results were ND on other analytes tested.

1,1-Dichloroethene	0.4	ug/L	123	ND	130	118	8.9
Trichloroethene	0.4	ug/L	100	ND	104	104	< 1

COMMENT: Blank Results were ND on other analytes tested.

Acenaphthene	330	ug/Kg	87	ND	104	100	4.0
1,4-Dichlorobenzene	330	ug/Kg	96	ND	66	61	8.0
Pyrene	330	ug/Kg	91	ND	271	177	42
1,2,4-Trichlorobenzene	330	ug/Kg	89	ND	96	89	7.0
2-Chlorophenol	330	ug/Kg	100	ND	71	64	11
4-Nitrophenol	1600	ug/Kg	78	ND	77	84	9.0
Phenol	330	ug/Kg	101	ND	71	64	9.0

COMMENT: Blank Results were ND on other analytes tested.

1,4-Dichlorobenzene	10	ug/L	94	ND	45	42	7.0
Pyrene	10	ug/L	87	ND	97	103	6.0
1,2,4-Trichlorobenzene	10	ug/L	93	ND	47	44	6.0
2-Chlorophenol	10	ug/L	89	ND	81	86	6.0
4-Nitrophenol	50	ug/L	108	ND	87	92	6.0
Phenol	10	ug/L	90	ND	77	80	5.0
2,4-Dinitrotoluene	10	ug/L	88	ND	78	75	4.0

COMMENT: Blank Results were ND on other analytes tested.



NET Pacific, Inc.

## KEY TO ABBREVIATIONS and METHOD REFERENCES

- < : Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
- \* : Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated Reporting Limits by the dilution factor (but do not multiply reported values).
- ICVS : Initial Calibration Verification Standard (External Standard).
- mean : Average; sum of measurements divided by number of measurements.
- mg/Kg (ppm) : Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
- mg/L : Concentration in units of milligrams of analyte per liter of sample.
- mL/L/hr : Milliliters per liter per hour.
- MPN/100 mL : Most probable number of bacteria per one hundred milliliters of sample.
- N/A : Not applicable.
- NA : Not analyzed.
- ND : Not detected; the analyte concentration is less than applicable listed reporting limit.
- NTU : Nephelometric turbidity units.
- RPD : Relative percent difference,  $100 \text{ [Value 1 - Value 2] / mean value}$ .
- SNA : Standard not available.
- ug/Kg (ppb) : Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
- ug/L : Concentration in units of micrograms of analyte per liter of sample.
- umhos/cm : Micromhos per centimeter.

### Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

SM: see "Standard Methods for the Examination of Water & Wastewater", 16th Edition, APHA, 1985.



9/23/90

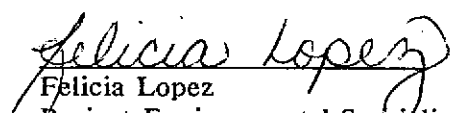
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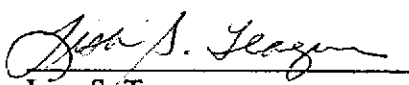
Wareham Property Group  
1120 Nye Street, Suite 400  
San Rafael, California 94901

**PHASE I  
PRELIMINARY HAZARDOUS MATERIALS  
SITE ASSESSMENT  
2855 CYPRESS STREET  
OAKLAND, CALIFORNIA**

HLA Job No. 18452,038.02

by

  
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September 25, 1990



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Plate 1 Vicinity Map

Plate 2 Site Plan

Photographs

DISTRIBUTION

## 1.0 INTRODUCTION AND SCOPE OF WORK

This report presents the results of a Phase I Preliminary Hazardous Materials Site Assessment (PSA) conducted by Harding Lawson Associates (HLA) for property at 2855 Cypress Street, Oakland, California (Plate 1), which is referred to as the "site" in this report. The purpose of this assessment was to provide information about the site and surrounding area relative to the potential presence of hazardous/toxic materials on or beneath the site.

The PSA was authorized by Mr. Dan Nourse of the Wareham Property Group (Wareham), on behalf of the owner, Mr. Richard K. Robbins, Wareham, is being refinanced. Project tasks were conducted in accordance with the scope of services presented in HLA's letter dated June 28, 1990, and consisted of the following activities:

- o Reviewed available documents and aerial photographs related to historical use of the site and adjacent properties
- o Conducted an onsite review and offsite reconnaissance to assess visible evidence of the generation, use, storage, and/or disposal of hazardous materials
- o Reviewed regulatory agency lists and available reports for information pertaining to soil and groundwater contamination at and in the vicinity of the site
- o Evaluated findings and prepared this report.

## 2.0 SITE DESCRIPTION

The site is bordered to the north by commercial businesses and residences, to the south by 26th Street, to the west by Wood Street, and to the east by Cypress Street. The "Cypress Structure" (an elevated section of Interstate Highway 80) was present east of the site; however, it collapsed during the October 17, 1989 Loma Prieta earthquake, and was subsequently demolished and removed. The site and surrounding areas are zoned general manufacturing. The site was previously zoned for residential.

The property is occupied by a one-story brick building with a mezzanine; the building is 142,915 square feet. The building is divided into twelve lease spaces with four of the spaces occupied at the time of the site visit (Plate 2). The foundation is poured-in-place concrete. The two onsite parking areas are paved with asphalt.

### 2.1 Topography

The site is at an elevation of approximately 17 feet above mean sea level (MSL) and is relatively flat. The regional surface topography slopes gradually to the west toward San Francisco Bay.

### 2.2 Geology and Hydrology

The site is situated on flatlands, approximately 1 mile east of San Francisco Bay. Published literature indicates that in the Oakland area, artificial fill of varying composition is common along the margins of the bay (*Radbruch & Case, 1967*). The fill materials are generally underlain by bay mud composed of unconsolidated olive gray, blue gray, or black silty clay. The bay mud is typically plastic, varies from soft to stiff, and sometimes contains organic remains. Permeability is generally low, except where lenses of sand or peat occur. The bay mud is mainly derived from the sediment load carried by the Sacramento and San Joaquin rivers and deposited in the bay over the past

10,000 years (*Nelly et al., 1979*). Bay mud is underlain by Quaternary (Pleistocene to recent) marine and continental sediments. Bedrock occurs beneath these Quaternary sediments and generally consists of rocks of the Franciscan Formation. The Franciscan Formation is a complex assemblage of deformed and altered sediments, volcanics, and ultramafic rocks (*Radbruch & Case, 1967*).

Site-specific geologic information was unavailable; however, at 2792 Cypress Street, approximately 0.2 mile south of the site, soils down to a depth of 20 feet consisted predominantly of clay layers and sand layers (*Miller Environmental, 1990*).

The regional direction of groundwater flow is west to northwest toward San Francisco Bay. Site-specific hydrologic data were unavailable; however, the depth to groundwater at 2792 Cypress Street reportedly ranged from 9.1 to 9.6 feet bgs in March 1990.

### 3.0 SITE HISTORY

In 1940, a section of land including the site was reserved by the California, Arizona and Santa Fe Railway Company for new or existing railroad tracks. Property use information from 1940 to 1975 was unavailable. Aerial photographs show that the building existed in 1934, although the exact date of construction is not known. From approximately 1975 to 1982, the site was owned by the International Harvester Company, a manufacturer of heavy agricultural equipment. Richard K. Robbins of Cypress General Partnership purchased the property in 1982 and leased space to Liberty Radiator Corporation and International Harvester Company. The site was purchased by Richard K. Robbins of Wareham in 1983. From 1983 to present, Wareham has leased the site to various commercial companies and general manufacturers, as discussed in Section 4.1.

#### 3.1 Aerial Photograph Review

Historical and current land uses of the site and adjacent areas were reviewed by examining aerial photographs taken in 1934, 1947, 1953, 1959, 1971, 1979, 1983, 1988, and 1989. In all of the photographs, the site appears as it does today. The areas surrounding the site are industrial with interspersed residential areas. Aboveground tanks, displaced piles of soil, and bulk materials are present on these industrial properties. The areas of heaviest industry are upgradient, to the east and southeast, of the site.

In the 1934 photograph, properties upgradient of the site include a container company and various industrial facilities. A two-lane paved road (Cypress Street) is present. Properties downgradient of the site include an automobile salvage yard to the

southwest and aboveground storage tanks and drums at the industry to the west. The property to the northwest is vacant. Railroad tracks are present west of the site.

No significant changes were observed in photographs from 1947 and 1953. In 1959, industrial activities had spread to the northwest, downgradient of the site. A trucking company and paper manufacturer replaced previously vacant property. Interstate Highway 80 had been constructed and trees had been planted along the highway in a small section to the north.

No significant changes were observed in photographs from 1971, 1979, 1983, and 1988. In the 1989 photograph, the building was intact seven days after the October earthquake; however, the adjacent section of Interstate 80 had been destroyed. The parking area adjacent to 26th Street had heavy staining from an unknown liquid which appeared to have flowed out of Space 8, at the south end of the site. Heavier soil staining was present on the surrounding industrial properties. Piles of bulk highway materials were present in the street and on surrounding industrial properties.

#### 4.0 INVESTIGATION ACTIVITIES AND FINDINGS

HLA conducted a site visit, performed a driveby reconnaissance of the area within 1/4 mile of the site, and reviewed appropriate regulatory agency lists and reports.

##### 4.1 Site Visit

A site visit was conducted by HLA and Ms. Robyn Makaruk of Wareham on July 6, 1990, to review areas of potential environmental concern related to the use of hazardous materials at the site. The 12 lease spaces are shown on the Site Plan, Plate 2.

Space 1, approximately 6,100 square feet, was previously occupied by Liberty Radiator Corporation, which stored hazardous materials onsite. There was no evidence of leaks or spills in the areas where tanks and hazardous materials were stored. Ms. Makaruk did not know what types of materials had been stored. Thermal system insulation suspected of containing asbestos was observed, although Ms. Makaruk stated that asbestos had been previously removed in this area. Upon visual inspection, most of the pipes had new fiberglass jackets; however, pipes in the offices and restrooms were older and insulated with a suspected asbestos-containing material.

Great Pacific, a polyethylene extruder, occupies Spaces 4, 5, and 5A, approximately 17,000 square feet. Great Pacific uses an average of 1 cylinder, approximately 25 gallons, of liquified petroleum per month to operate machinery. A supplier picks up empty cylinders and recycles them. There was no evidence that the material has been improperly used, leaked, or spilled. No other hazardous materials or wastes were observed.

Southland Packaging, a packaging contractor, occupies Space 8, approximately 11,000 square feet. Southland Packaging uses an average of three cylinders (approximately 25 gallons each) of liquified petroleum and one 50-gallon drum of motor

oil per month to operate machinery. A supplier picks up empty cylinders and drums and recycles them. The three cylinders of liquified petroleum were stored properly and there was no evidence of leakage. A 50-gallon drum of motor oil was lying on its side atop two unstable wooden pallets and was leaking onto the floor (Photo 1). The drum is stored in violation of fire marshall codes. There was no evidence of the heavy staining which was observed in the 1989 aerial photograph.

Space 9, approximately 9,200 square feet, is vacant. An underground storage tank (UST) was observed inside near the entrance. Ms. Makaruk believed the tank contained gasoline. She stated that the tank had not been used since Wareham purchased the property in 1983. The tank is not registered and has not been inspected by any local regulatory agency or fire department. Building records did not reveal any information about the underground tank.

Joinery Structures, a woodworking company, currently occupies Space 10, approximately 5,400 square feet. Several household- and industrial-type paints, thinners, oils, and wood stains were observed on a shelf in the rear of the shop. The containers were in poor condition and the materials have been allowed to leak and contact other containers. Some of the containers were not labeled or could not be identified (Photograph 2).

In addition to the suspected asbestos-containing material in Space 1, there are several cast iron fire doors in the building which may also contain asbestos in the cores of the doors. No other hazardous materials or wastes were observed in vacant Spaces 1A, 2, 3, 6, 7, 11, and 12.



#### 4.2 Study Area Reconnaissance

Reconnaissance of a 1/4-mile radius study area around the site was performed on July 6, 1990, to observe the presence of hazardous materials or wastes that could potentially impact subsurface conditions at the site. The area upgradient (east) of the site is the area most likely to affect conditions beneath the site; this area is predominantly commercial and heavy industry. The areas to the north and south are industrial and residential, and the area to the west is primarily light industry. Areas downgradient and crossgradient also have the potential to impact the site because groundwater flow conditions may be influenced by manmade structures (e.g., sewer lines and conduits). According to regulatory agency lists (Section 4.3), several properties in the study area are the subject of investigations or cleanups for hazardous materials and wastes.

Several industries and facilities in the study area were observed to be using or storing known or suspected hazardous materials/waste.

R & O Trucking Company is directly north across 32nd Street from the site. A truck repair shop and warehouse are on the property. Stained soil and various unidentified materials were observed in the adjacent lot; old trailers, corroded truck parts, and unlabeled drums are also present on the lot.

Directly west of the site at 2601 Wood Street, hazardous and flammable materials are stored. Several pallets of drums with Department of Transportation (DOT) hazardous material labels were observed. Three aboveground tanks are present. The site appeared to be very clean.

A vacant lot adjacent to 2601 Wood Street is currently used as a junk yard. There is a wooden fence around the property. Hazardous materials were not observed;

however, a large quantity of metal and trash were present. The site is approximately 0.1 mile west of the site.

Farther north, on Wood Street, a company named Aeroquip stores several unlabeled drums and containers. An aboveground tank was also observed. The site is approximately 0.1 mile from the site.

Upgradient of the site, several residences on Ettie and Hannah streets were observed to be auto repair businesses, or had various materials stored in their yards or on adjacent lots. These materials included cars, heaters, and appliances, and the general appearance of these residences was poor. Stressed vegetation was also observed.

Chemicals for Research, at Poplar and 30th streets (approximately 0.2 mile southeast of the site), stores flammable and hazardous materials. No evidence of mismanaged hazardous materials was observed.

#### 4.3 Review of Regulatory Agency Records

This section presents a summary of available information provided by government agencies. In addition to reviewing agency lists that contain general information about sites that have had reported problems with hazardous materials, available agency files were reviewed for detailed information on sites that appeared on these lists. These sites are shown on Plate 1. The following regulatory agencies and corresponding lists and files were reviewed:

- o **U.S. Environmental Protection Agency (U.S. EPA) National Priorities List (NPL) for Uncontrolled Hazardous Waste Sites, November 1989**

The NPL provides a list of federal Superfund sites. There are no properties in the study area on this list.

o **U.S. EPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), January 1990**

CERCLIS lists properties which may become Superfund sites. There is one property in the study area on this list.

- Zero Waste Systems  
1450 32nd Street  
Approximately 0.15 mile east (upgradient) of the site

The site previously stored flammable liquids, acids, and inorganic and organic solvents. Spills have occurred at the site and an inspection is pending. This site is also listed on the California Department of Health Services (DHS) abandoned sites list, which indicates that unspecified acid solvent and organic solvent spills have occurred and have drained into local storm sewer systems. Spilled materials were reportedly absorbed with sawdust. No additional information was available.

o **Expenditure Plan for the Hazardous Substance Cleanup Bond Act of 1984 (State Bond Expenditure Plan), January 1989**

The State Bond Expenditure Plan is compiled by the DHS and lists hazardous waste sites targeted for cleanup. There are no properties in the study area on this list.

o **Hazardous Waste and Substances Sites List (Cortese List), March 1990**

The Cortese List is compiled by the California State Office of Planning and Research and lists hazardous waste/substance sites within the state. There are three properties in the study area on this list identified as having tank leaks. The properties are upgradient or crossgradient, and therefore, have the potential to impact the site.

- E&R Auto Wrecker  
3230 Ettie Street  
Approximately 0.1 mile east of the site

One fuel UST was removed in February 1988. Groundwater and soil monitoring was not conducted. No additional information was available.

- Kantors Furniture  
2525 Cypress Street  
Approximately 0.2 mile south of the site

No agency file was available for this property.

- Pacific Supply  
1735 24th Street  
Approximately 0.2 mile southwest of the site

One fuel UST was removed in February 1989. Soil samples collected beneath the tank contained up to 30 ppm gasoline, 240 ppm diesel, 2.8 ppm benzene, 690 ppb toluene, 130 ppm ethyl benzene, and 810 ppm xylenes. No additional information was available.

o **Department of Health Services (DHS) Abandoned Sites List, May 1990**

The DHS Abandoned Sites List contains hazardous materials/waste sites that could be considered potential State Bond Expenditure Plan sites. There are five properties in the study area on this list; the following four properties have an "NFA" (No Further Action) designation:

- Master Transportation  
1451 34th Street  
Approximately 0.2 mile east of the site
- McDermott Sealy  
1577 32nd Street  
Approximately 0.1 mile east of the site
- Tipper Blonco Company  
2450 Cypress Street  
Approximately 0.25 mile south of the site
- Peterson & Olson  
1719 28th Street  
Approximately 0.25 mile southeast of the site

The remaining property in the study area on this list is currently under investigation:

- Zero Waste Systems  
1450 32nd Street  
Approximately 0.15 mile east of the site

This property was previously discussed (CERCLIS list).

o **California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) Fuel Leaks List for Alameda County, March 1990**

This list provides the names and addresses of sites with reported fuel leaks from USTs. There are four properties in the study area on this list; these properties are upgradient or crossgradient.

- Kantor's Furniture (Kantor's Distribution)  
2525 Cypress Street  
Approximately 0.2 mile south of the site

- E&R Auto Wreckers  
3230 Ettie Street  
Approximately 0.1 mile east of the site
- Pacific Supply  
1735 24th Street  
Approximately 0.2 mile southwest of the site

These three properties were previously discussed (Cortese List).

- Kalmer A.C.  
2792 Cypress Street  
Approximately 0.1 mile south of the site

No agency file was available for this property.

- o **California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) Toxics Cases, Site Management System, Alameda County, January 10, 1990**

The listed cases include properties where toxic materials incidences have occurred. There are no properties in the study area on this list.

- o **State Water Resources Control Board (SWRCB) Hazardous Substance Storage Container Information for June 1988**

The SWRCB Hazardous Substance Storage Container Information for Alameda County identifies underground containers (e.g., USTs); the list identifies the owner and provides information on container type, year installed, capacity, piping, leak detection, and the chemical composition of the product reported to be stored in the container. Tank condition or information about leaks is not provided. Most of these USTs contain petroleum products such as leaded and unleaded gasoline, diesel, oil, kerosene, and waste oil.

Upgradient properties are as follows:

- Allis-Chalmers Material (Kalmer A.C.)  
2792 Cypress Street  
Approximately 0.1 mile south of the site
- Cereske Electric Cable  
1688 24th Street  
Approximately 0.2 mile south of the site
- Kantor's Distribution (Kantor's Furniture)  
2525 Cypress Street  
Approximately 0.2 mile south of the site

- Cal-Trans  
3465 Ettie Street  
Approximately 0.15 mile east of the site
- Bay Area Container Transport  
3427 Ettie Street  
Approximately 0.15 mile east of the site
- Western Seafare Company  
1301 26th Street  
Approximately 0.2 mile southeast of the site
- Jack Hemsath Drayage  
1350 34th Street  
Approximately 0.25 mile east of the site
- Sea Containers West  
2818 Cypress Street  
Approximately 0.1 mile southeast of the site
- Tulloch Construction  
3428 Ettie Street  
Approximately 0.15 mile east of the site

Downgradient properties are as follows:

- C&L Trucking  
2460 Wood Street  
Approximately 0.25 mile southwest of the site
- Pacific Supply  
1735 24th Street  
Approximately 0.2 mile southwest of the site
- Russ Elliott  
2526 Wood Street  
Approximately 0.1 mile southwest of the site
- Wood Street Warehouse  
2510 Wood Street  
Approximately 0.15 mile northwest of the site

- o **California Assembly Bill 1803 (AB 1803), List of Known Polluted Wells; State Water Resources Control Board, January 23, 1989**

Contaminated wells are listed by address within each state region. There are no listed wells in the study area.

- o **California Waste Management Board (CWMB) List of Active and Inactive Landfills, March 1989**

CWMB lists known active and inactive landfills. There are no active or inactive landfills listed in the study area.

#### 4.4 Other Agency Contacts

In addition to reviewing published regulatory agency lists, HLA also contacted Captain Weyburn of the City of Oakland Fire Department regarding potential or known environmental concerns at the site and surrounding properties. Captain Weyburn recalls several hazardous waste spills and tank leaks in areas immediately upgradient of the site; specifics were not discussed. Captain Weyburn does not recall any hazardous waste spills at the site. His department was unaware of the existing UST at the site. The department requires inspection of USTs installed in the area.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

- o Leaking containers of various chemicals were observed in Space 10, and oil was observed leaking from a drum onto a concrete slab in Space 8. HLA recommends that storage of these containers be corrected by disposing of the leaking chemical containers and their contents and uprighting the drum.
- o Some materials observed in the building are suspected of containing asbestos. HLA recommends that these materials be sampled and analyzed for asbestos; if present, the material should be removed prior to any renovation or demolition of the materials, or if they are friable.
- o Several upgradient or nearby properties in the study area are listed by regulatory agencies as having hazardous material or waste releases or were observed to have hazardous materials or wastes stored on their properties in an inadequate fashion. Although there is no conclusive evidence that such offsite conditions have or will have impacted the site, there is the potential for subsurface contamination from offsite sources.
- o A UST exists in Space 9 under the building foundation. This UST has not been registered with the SWRCB or tested for tightness and monitored for type and quantity of its contents as is required. HLA recommends that the UST be placed back into service by performing the above requirements, or removing the UST or abandoning it in place if removal affects the integrity of the building structure.
- o In the 1989 aerial photograph, a stain was observed on the soil; the stain apparently originated from Space 8. The material which caused the stain is unknown. HLA recommends that the type of material be verified by previous tenants. If the material that was spilled is hazardous, or if the substance is not identified, soil samples should be collected to assess the potential contamination.

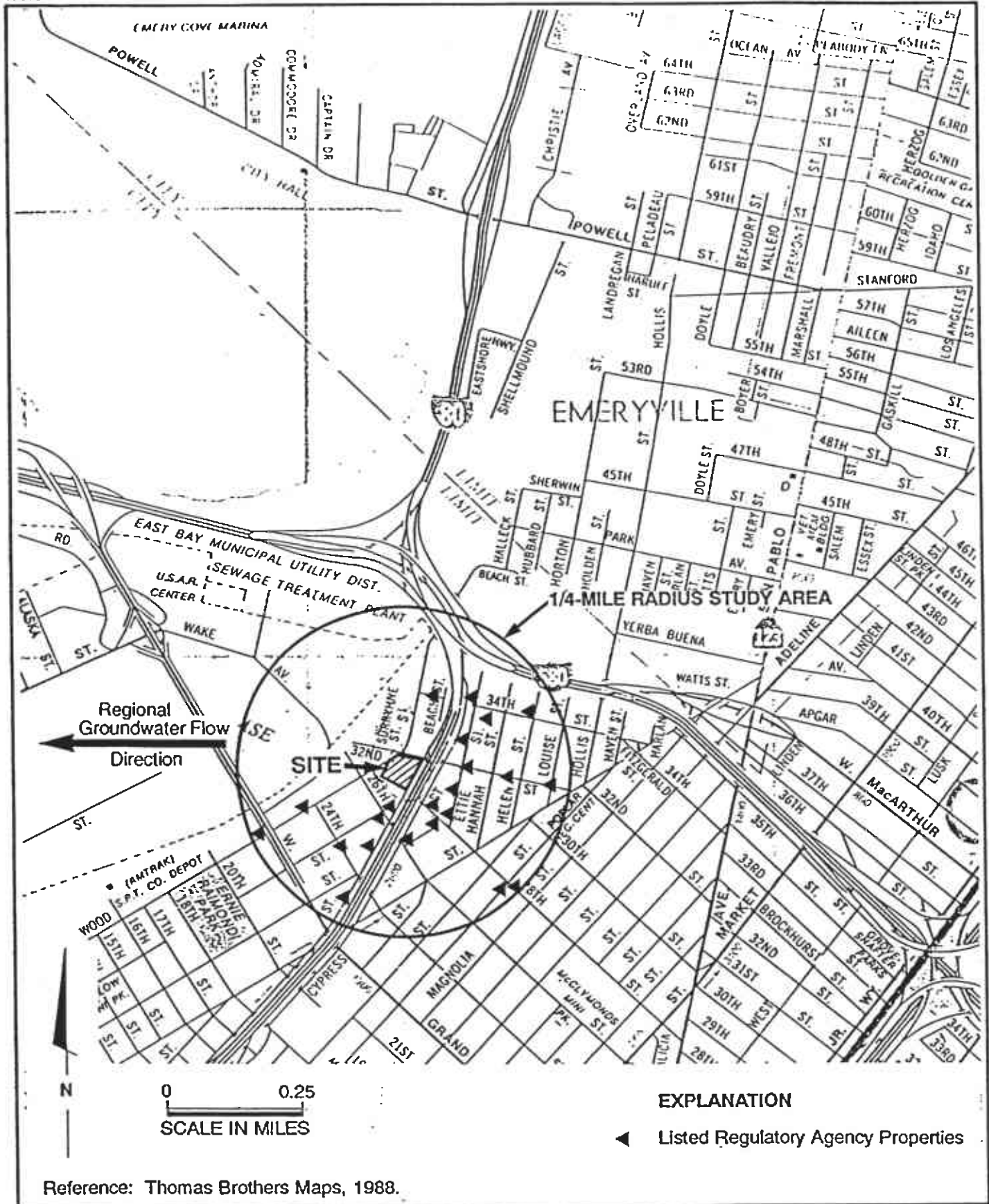


## **6.0 LIMITATIONS**

PSA activities described herein were conducted in accordance with practices and procedures generally accepted in the consulting engineering field. Our professional judgment to assess the potential for contamination is based on limited data; no other warranty is given or implied by this report. A more extensive assessment that would include a surface and/or subsurface investigation and chemical analyses of soil and/or groundwater samples would provide more definitive information concerning site-specific conditions.

## 7.0 BIBLIOGRAPHY

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Reference: Thomas Brothers Maps, 1988.



**Harding Lawson Associates**  
 Engineering and  
 Environmental Services

Vicinity Map  
 Phase I - PSA  
 2855 Cypress Street  
 Oakland, California

PLATE

**1**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
CS.N	18452,038.02		7/90	

Explanation  
Plate One  
Listed Regulatory Agency Properties  
1/4 Mile Radius Study Area

Kantors Furniture 2525 Cypress Street	Zero Waste System 1450 32nd Street
Allis-Chalmers Material Kalmar A.C. 2792 Cypress Street	Cal Trans District 3465 Ettie Street
E&R Auto Wreckers 3230 Ettie Street	Alameda Instruments 1552 Beach Street
Pacific Supply 1735 24th Street	Hemsath Pack Drayage 1390 34th Street
Master Transportation 1451 34th Street	Lindberg Heat 1549 32nd Street
McDermott Sealy 1577 32nd Street	PPG Industries 2300 Cypress Street
Tipper Blonco 2450 Cypress Street	Cereske Electric 1688 24th Street
Peterson & Olson 1719 28th Street	C&L Trucking Co. 2460 Wood Street
Sea Containers West 2818 Cypress Street	Tulloch Construction 3428 Ettie Street
Bay Area Container Transport 3427 Ettie Street	Western Seafare 1301 26th Street
Russ Elliott 2526 Wood Street	Wood Street Warehouse 2510 Wood Street

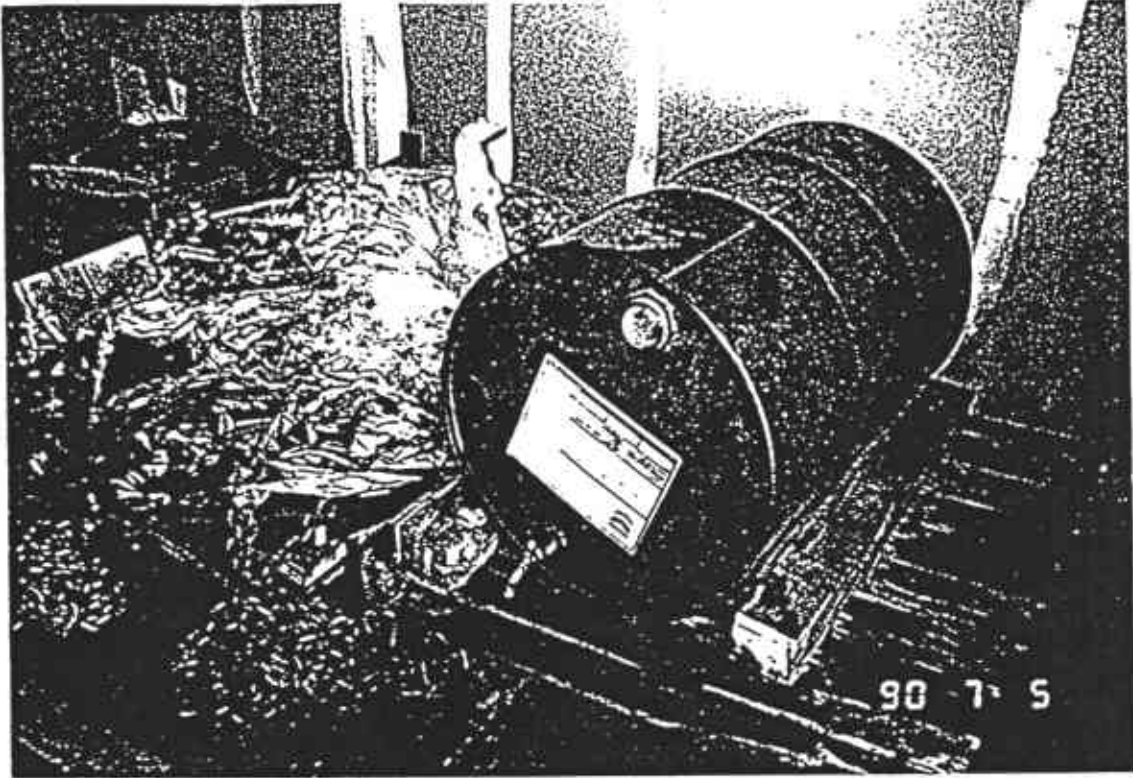


Photo One

Southland Packaging  
Leaking motor oil

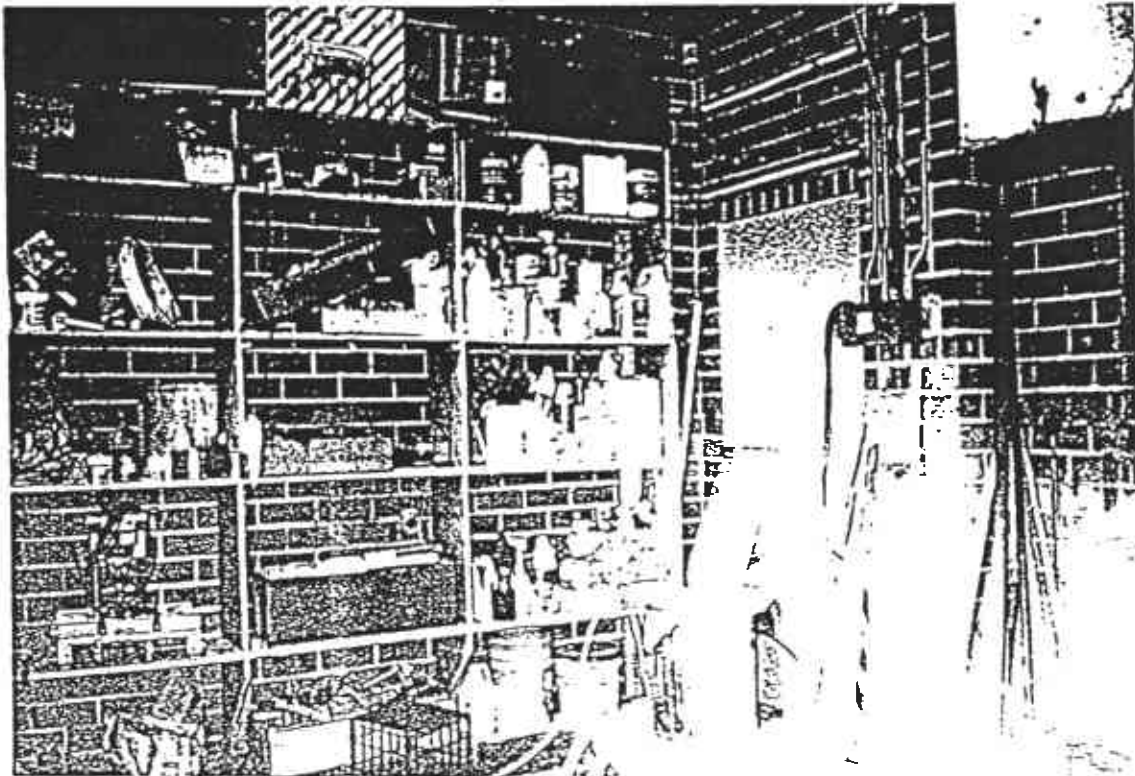


Photo Two

Inventory structures, Middlebury  
Materials materials stored

DISTRIBUTION

PHASE I  
PRELIMINARY HAZARDOUS MATERIALS  
SITE ASSESSMENT  
2855 CYPRESS STREET  
OAKLAND, CALIFORNIA

September 25, 1990

COPY NO. 1

		<u>Copy No.</u>
2 copies:	Wareham Property Group 1120 Nye Street, Suite 400 San Rafael, California 94901  Attention: Mr. Dan Nourse	1-2
1 copy:	Job File	3
1 copy:	QC/Bound Report File	4

FL/CNA/LST/mc/T13005-H