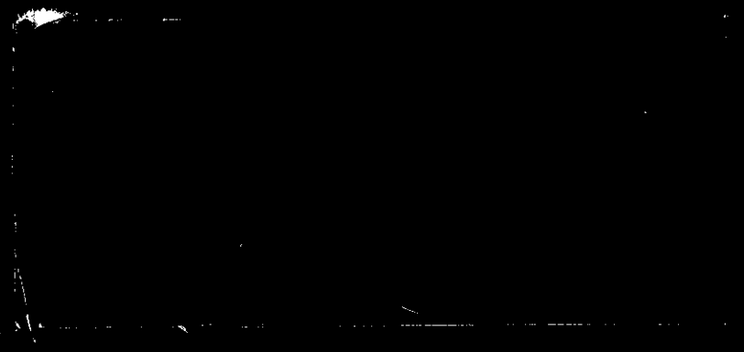
Harding Lawson Associates

Engineering and Environmental Services



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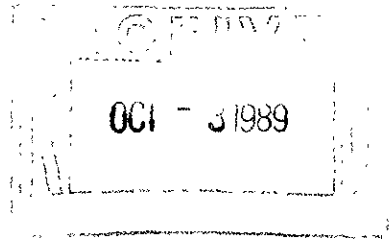

A Report Prepared for

1600 63rd Street Associates
San Rafael, California

GROUND-WATER QUALITY INVESTIGATION
1600 63RD STREET
EMERYVILLE, CALIFORNIA

HLA Job No. 18452,016.02

OCT 1989

by

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415/892-0821

October 2, 1989

Harding Lawson Associates

Transmittal/Memorandum

To: Wareham Development Group
1120 Nye Street, Suite 400
San Rafael, California 94901

Attention: Mr. Richard K. Robbins, President

From: Edd Clark
Date: October 2, 1989
Subject: Ground-Water Quality Investigation Report
Job No.: 18452,020.02

Remarks: Enclosed herein are two copies of Harding Lawson Associates report Ground-Water Quality Investigation, 1600 63rd Street, Emeryville, California. This report fulfills the requirements of Alameda County for a ground water investigative report for this property. It contains the site description and history, a report of the field investigation procedures and results, ground water usage and quality in the vicinity of the site and our conclusions and recommendations based on the findings of the report. It also contains a report on the sampling and analyses of waste products from the field investigations and on the mode and location of their disposal.

At the time of completion of this report the second of four planned samplings of ground water from the 5 wells installated had just been completed. A verbal report on the results of the laboratory analyses of these samples will be available in a week or two.

Thanks you for your patience in receiving this report. If you have any questions, please call.

EC/jmg/ec076#3

cc: Mr. David Mishell
Mr. Sheldon Basch
Mr. Mark Scher (2)

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1.0 INTRODUCTION

This report, prepared by Harding Lawson Associates (HLA), presents the results of our preliminary evaluation of ground-water quality at the 1600 63rd Street site (site) in Emeryville, California. The work was performed in accordance with HLA's proposals *Phase II Site Characterization Review Federal Express*, dated December 12, 1988 and *Revised Scope of Work*, dated April 7, 1989 as well as HLA letter *Revised Fee Estimate and Service Agreement*, dated May 3, 1989. HLA received a service agreement, signed by Mr. Mark Scher of 1600 63rd Street Associates, on June 20, 1989, authorizing us to perform this investigation.

The purpose of this investigation was to provide additional site characterization and to evaluate the quality of ground water beneath the site. Additionally, HLA will monitor and report on ground-water quality quarterly for one year. These are the tasks in HLA's estimate of the minimum amount of additional work the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) would require following its review of previous site reports prepared by Peter Kaldveer and Associates, Inc. (PKA), Oakland, California, and Engineering Science (ES), Berkeley, California. The evaluation of site ground-water quality consisted of drilling, installation, development, and sampling of five ground-water monitoring wells and included a survey of the well elevations relative to mean sea level.

Although not included in the initial proposal or revised scope of work, HLA also provided consultation, sampling, permitting, and logistics services for the appropriate laboratory analyses and disposal of waste materials from the installation, development, and sampling of the ground-water monitoring wells installed during this investigation. Included in this report are the results of the laboratory analyses of the ground-water

monitoring wells installed during the investigation. Included in this report are the results of the laboratory analyses of the sample materials and a description of the disposal methods and locations.

This report presents the results of an area well survey and a search for reported contaminant releases in the vicinity of the site and provides the results of initial ground-water monitoring and sample analyses with our conclusions and recommendations.

2.0 BACKGROUND

2.1 Regional Hydrogeology

Emeryville is located on the gently west sloping coastal plain on the eastern side of the San Francisco Bay, a north-trending structural depression in the Coast Range Geomorphic Province. This plain lies between the Berkeley Hills to the east and the waters of the San Francisco to the west, and is underlain by approximately 500 feet of unconsolidated to semiconsolidated alluvial, alluvial fan, and estuarine deposits. These deposits are underlain by the Franciscan Formation. Ground water beneath the plain is generally confined to the courser-grained units of the alluvial deposits and flows westerly toward the Bay.

2.2 Site Description and History

The Emeryville site comprises a 2.75 acre parcel bordered by 63rd Street to the south, 64th Street to the north, Overland Avenue and the Southern Pacific Railroad (SP) right-of-way to the west, and City of Emeryville Fire Station No. 2 to the east (Plate 1). The property is primarily surrounded by industrial complexes, some of which are currently being redeveloped as office space and commercial and light industrial businesses.

The property was originally developed as a tallow manufacturing plant by Peterson Manufacturing Company in 1914 (*ES, 1988*). In 1987, the plant was shut down and the parcel was purchased by 1600 63rd Street Associates, Inc. The manufacturing plant was dismantled in the fall of 1987. Construction of a Federal Express building began in October 1988 and was completed in early 1989. Federal Express currently operates a shipping facility at the site.

2.3 Previous Site Investigation

Between December 1986 and February 1987, PKA performed site characterization and soil testing at the site. PKA identified four underground storage tanks, seven aboveground storage tanks, several sumps, two burn pit areas, and a water supply well on site. Six borings were drilled as part of the PKA investigation to evaluate subsurface soil conditions resulting from past plant operations. Laboratory analyses of the soil samples collected from these borings detected up to 190 parts per million (ppm) of waste oil, 1,600 ppm of gasoline, 380 ppm of diesel, and 1,300 ppm oil and grease.

ES conducted additional site characterization between September 1987 and May 1988. Characterization included:

- Installing and sampling three ground-water monitoring wells and 12 soil borings
- Sampling the contents of aboveground storage tanks and sumps
- Performing an underground storage tank investigation
- Investigating and abandoning a water well on site.

During March, April, and May 1988, prior to HLA's involvement in the project, all borings and monitoring wells installed by ES were abandoned and all aboveground and underground storage tanks and sumps were removed. Plant Reclamation of Richmond, California, removed and disposed the storage tanks. ES also supervised the excavation, remediation and replacement of the soils at the site which contained greater than 1,000 ppm of petroleum hydrocarbons. Plate 2 identifies the locations of underground and aboveground storage tanks and sumps and the locations of soil borings and monitoring wells installed during earlier investigations. Table 1 summarizes the remedial activities performed by ES. HLA performed a third party review of ES's

report on their remedial activities and site investigation and was later requested by 1600 63rd Street Associates to proceed with a ground-water investigation.

Since discovery of contamination at the site in 1987, related work has been performed under the jurisdiction of the Hazardous Materials Division of the Alameda County Department of Health. Wareham Development Group, i.e. 1600 63rd Street Associates, Inc., has voluntarily requested and sponsored the work. They are not responding to any hazardous materials regulatory agency order at this time. The scope of work performed by HLA on this project has been approved by the County Department of Health Services (DHS).

3.0 FIELD INVESTIGATION

Field work included drilling six soil borings, completing five of the borings as ground-water monitoring wells, and developing, sampling, and measuring water levels in the wells. Field activities were performed in accordance with standard HLA field procedures and a site safety plan.

3.1 Drilling and Soil Sampling

Between April 30 and June 25, 1989, six soil borings were drilled on the property and five were completed as monitoring wells (Plate 5). The borings were drilled to depths of 15.5 to 33.5 feet using a CME 55 truck-mounted drill rig equipped with 10-3/4-inch-diameter hollow-stem augers. The five borings completed as monitoring wells were drilled through the first saturated water-producing zone and at least 2 feet into the underlying aquitard. Borings were logged by an HLA geologist under the supervision of a registered geologist. Soils were described in accordance with the Unified Soil Classification System (Appendix A, Plate A-1).

Soil samples were collected using a modified California split-barrel sampler equipped with clean stainless steel tubes. Samples were screened in the field for organic vapors with an organic vapor analyzer (OVA). Soil samples from MW-2 exhibiting petroleum staining or odors or OVA readings of 10 ppm or higher were selected for chemical analyses. These samples were retained in the stainless steel sample tubes. The ends of each tube were covered with aluminum foil-lined plastic caps, taped, and labeled. These samples were stored in a refrigerated environment for delivery to the analytical laboratory under chain of custody.

The soil samples were analyzed by Curtis & Tompkins, Ltd., Emeryville, California, for TPH light by EPA Test Method 8015/5030, TPH heavy by EPA Test

Method 8015/3550, aromatic volatile organics by EPA Test Method 8020, halogenated volatile organics by EPA Test Method 8010, semivolatile organics by EPA Test Method 8270, and priority pollutant metals, and organochlorine pesticides and PCBs by EPA Method 8080. Curtis & Tompkins is a state-certified laboratory for these analyses.

3.2 Monitoring Well Installation

The monitoring wells were located to provide upgradient and downgradient ground-water characterization, assess ground-water flow direction and gradient, and to evaluate ground-water characteristics. The monitoring wells were constructed with 4-inch-diameter flush-threaded PVC casing and screen. The screen was machine-slotted with 0.01-inch slots. Lonestar 2-16 sand was poured into the annular space between the well casing and the inside of the hollow-stem augers as the augers were withdrawn from the boring. The sand pack was placed from the bottom of the boring to a minimum of 2 feet above the top of the screen. A 2-foot bentonite pellet seal was placed above the sand pack. The annulus of each well above the bentonite seal was filled with a cement-bentonite grout. The wells were completed at grade with locking well covers and traffic boxes. The wells were surveyed for location and elevation by Kisto, Salvo and Rie Associates, a California licensed surveyor, on July 26, 1989. Boring logs and well completion diagrams are presented in Appendix A.

The well screens were installed to straddle the first saturated coarse gravel unit. These units were selected so that the wells would monitor ground-water quality in the units that would have the greatest potential to transmit ground water through the subsurface. The well screens were not extended appreciably above the upper surface of the aquifer because 1) it is considered to be the uppermost significant path of ground-

water migration, and 2) upward extended screens may have become conduits for chemicals in the soil to enter the ground water.

3.3 Monitoring Well Development and Ground-Water Sampling

Monitoring wells were developed on June 18, 25, and 30, 1989. The wells were developed by purging five to ten well volumes of water from the wells with a submersible pump. Field measurements of pH, conductivity, temperature, and turbidity were taken of the water during purging. After field parameters had stabilized for at least two consecutive readings, purging was discontinued and the submersible pump was removed from the well. Ground-water samples for chemical analyses were then collected with a stainless steel bailer and decanted into containers appropriate for the laboratory analyses to be performed. Samples were stored in a refrigerated environment and delivered to Curtis & Tompkins under chain of custody.

Ground-water samples were analyzed for TPH light by EPA Test Method 8015/5030, TPH heavy by EPA Test Method 8015/3550, volatile organics by EPA Test Method 8240, semivolatile organics by EPA Test Method 8270, priority pollutant metals, and organochlorine pesticides and PCBs by EPA Test Method 8080.

Water levels were measured on August 3, 1989, using an electronic oil-water probe.

3.4 Decontamination

All downhole drilling and sampling equipment was decontaminated prior to use. The hollow-stem augers were steam cleaned between borings. Soil and ground-water samplers and water-level measuring equipment were washed in a low phosphorous soap

solution and double rinsed with tap water between samples to prevent cross contamination.

3.5 Waste Material Storage and Sampling

Drill cuttings, purge water, and decontamination fluids were placed in 55-gallon steel drums and temporarily stored on site in a locked steel containment facility. Drill cuttings from each boring were stored in a separate set of drums. Well purge water was combined and stored separately. Decontamination fluids were also combined and stored together.

Grab samples of these materials were collected and analyzed to evaluate proper disposal methods, as required by the state. Soil samples were collected from each drum from Wells MW-1, MW-2, MW-3, and MW-4, and Boring B-1. The samples from each boring were composited by the laboratory and one composite sample for each well was analyzed. Each sample from the drums of soil cuttings from the MW-5 boring was analyzed separately.

One sample of purge water was collected from each drum of water produced on each day. These samples were composited by the laboratory and one composite sample was analyzed for each day's purge. One sample of decontamination fluid was collected from each drum of fluid produced throughout the job. These samples were composited by the laboratory and one composite sample was analyzed.

Samples of the soil cuttings, purge water and decontamination fluids from all wells and borings, were analyzed for TPH light by EPA Test Method 8015/5030, TPH heavy by EPA Test Method 8015/3550, volatile organics by EPA Test Method 8240, and

PCBs by EPA Test Method 8080. The soil samples from Wells MW-2, 4, and 5 as well as the purge water from two of the days were additionally analyzed for semivolatile organics, base/neutral, and acid extractables by EPA Test Method 8270.

4.0 RESULTS OF FIELD INVESTIGATION

4.1 Site Hydrogeology

Review of boring logs (Appendix A) from this investigation indicate the site is underlain by up to 5 feet of fill consisting of dark brown gravels and silty gravels. No fill was encountered in the boring for Well MW-3. The fill was underlain by dark gray to black or gray-green clay and green-gray, gray, or brown silt to a depth of about 9 to 14 feet in the borings for Wells MW-1, MW-2, MW-4, and MW-5. In these wells this unit is underlain by an upper sand and gravel unit consisting of green-gray or gray-brown silty sand, silty gravel, and sand with interbedded clay lenses to a depth of between 12 and 20 feet. This upper sand and gravel unit is thickest in Well MW-2, near the site's northern boundary, and is absent in Well MW-3, near the site's eastern boundary. In Well MW-3 the interbedded clay and silt underlying the fill extends to a depth of about 20 feet.

In Wells MW-1, MW-2, and MW-4, visible ground water was first encountered at 12, 14, and 13.8 feet, respectively. In Wells MW-3 and MW-5, ground water was first encountered in a lower sand and gravel unit at 20.5 and 25 feet, respectively. In all wells the ground-water level rose after completing the wells. This indicates that the ground water contained in the aquifers is probably confined with a potentiometric water surface between 4 and 7 feet below ground. The water levels in the wells are presented in Table 2 and the water level contours are presented on Plate 3. The ground-water gradient and flow direction was calculated from this data to be 0.01 foot/foot to the west.

4.2 Soil Samples

Because soil remediation was reportedly accomplished by ES and the primary purpose of this investigation was ground-water quality assessment, only samples of soil exhibiting the highest OVA measurements were submitted to an analytical laboratory for chemical analyses. Two samples from MW-2 were analyzed because odors from the boring and OVA readings during drilling indicated that soil in this boring contained appreciably more chemicals than soil in the other borings. Table 3 summarizes the concentrations of compounds that were detected in these two samples.

Concentrations of 15 mg/kg of gasoline and 212 mg/kg of diesel were reported in the sample collected at 5 feet below ground level. The other sample did not contain detectable concentrations of petroleum hydrocarbons. Neither sample contained detectable concentrations of halogenated or aromatic volatile organics, semivolatile organics, or organochlorine pesticides and PCBs. Concentrations of priority pollutant metals detected in the samples are below levels which would classify the material as hazardous waste and are within the range that these constituents normally occur in soils. Lead appears to be slightly elevated but is still within the background range. Copies of the laboratory data reports are presented in Appendix B.

4.3 Ground-Water Samples

Ground-water samples from all five monitoring wells were submitted for the analyses indicated in Section 3.3 (Table 4). The only organic compounds detected in the ground water were TPH as gasoline in MW-2 at 300 parts per billion (ppb). Priority pollutant metals were detected in the ground water but below Department of Health Services Drinking Water Standards. Copies of the laboratory data reports are presented in Appendix B.

4.4 Waste Material Disposal

Table 5 lists the results of laboratory analyses of the drill cuttings and well development water. The materials were disposed of by Crosby and Overton, a state licensed hazardous waste handler in accordance with state regulations. The soils produced from Well MW-1 and Boring B-1, a total of five drums, were shipped to Casmalia Resources, Class I landfill in Casmalia, California, for disposal. The soils produced from Wells MW-2, a total of three drums, were disposed of at the Amador County Class II landfill, in Ione, California. The soil cuttings from Wells MW-3, MW-4, and MW-5, a total of 10 drums, were disposed at the West Contra Costa County Sanitary Class III Landfill in Richmond, California. No measurable quantities of chemicals were found in fluids from the well development and decontamination processes. After receiving permission from Mr. Dennis Byron of the Alameda County Department of Environment Health, all of the purge water and decontamination fluids, a total of 16 drums, were disposed of into the storm sewer. Copies of waste manifests are presented in Appendix C.

5.0 GROUND-WATER USAGE AND QUALITY IN VICINITY OF SITE

5.1 Ground-Water Usage

A literature search was performed to assess ground-water usage within 1 mile of the site. Well information was obtained from the California State Department of Water Resources (DWR), County of Alameda Public Works Agency, and Alameda County Department of Environmental Health.

Within 1 mile of the site, 38 wells were identified by the agencies (Table 6, Plate 4). There is a possibility that other unrecorded wells also exist in the area. Of the recorded wells, at least 4 are known to have been abandoned or destroyed. The majority of the wells were installed for ground-water monitoring purposes. Other uses of wells in the area include industrial process water supply and for cathodic protection. There are no recorded domestic drinking water wells in the area.

5.2 Ground-Water Investigations

A literature search was performed to evaluate whether there are any sources or potential sources of ground-water contamination which may impact the site. The Fuel Leaks and Toxic Cases lists provided by the RWQCB and Hazardous Substance Storage Container Information for Alameda County were used to identify known or potential sources of ground-water contamination in the area. Agency information is presented on Tables 7 and 8.

Table 7 lists the RWQCB's list of fuel leak and toxic case investigations within one mile of the site and indicates the agency's rating of severity of the contamination. Plate 5 shows their approximate location relative to the site. Four properties within 1/4 mile from the site were identified as under investigation for possible leaking

petroleum hydrocarbon underground storage tanks (Table 8). These sites are listed below.

Henry Horn and Sons
1301 65th Avenue
Emeryville, California

A fuel leak investigation, approximately 1/4 mile northeast of the site, where the ground water has been impacted. No information on the areal extent or concentration of the contaminates was available. However, this location is not directly upgradient of the site and has a low potential to impact the site.

Hollis Street Project
6050 Hollis Street
Emeryville, California

A fuel leak investigation approximately 0.2 mile north-northeast of the site, where the soil has been impacted, but the impact on ground water has not been assessed. This location is not directly upgradient of the site and has a low potential to impact the site.

HFH Ltd.
6400 Hollis Street
Emeryville, California

A fuel leak investigation, approximately 0.1 mile northeast of the site where the impact on ground water is negligible or non-existent. This location is relatively close to the site and nearly in the upgradient directions. However, the lack of ground-water impacts indicates this case has a low potential to impact the site.

GET Construction Company
1351 Ocean Avenue
Emeryville, California

A fuel leak investigation, approximately 0.2 mile northeast of the site, where the soil has been impacted, but the impact on ground water has not been assessed. This location is a moderate distance from the site and is not directly upgradient. Despite the fact that the ground-water impacts have not been assessed, the distance and direction to site indicate there is a low potential to impact the site.

5.3 Underground Storage Tanks

Within 1 mile of the site over 200 registered underground storage tanks have been identified (Table 8, Plate 6). In addition to the 4 underground tanks which were located at the site, 9 tanks are located within 1/4 mile of the site. The chemicals stored in these tanks within 1/4 mile include waste oil, diesel fuel, ethyl alcohol, and unleaded gasoline. Four cases of leaking underground fuel tanks have been identified with 1/4 mile of the site, but all are judged to have a low potential to impact the site.

6.0 CONCLUSIONS

On the basis of the results of the ground-water investigation, HLA concludes that:

- The fact that TPH, but no BTEX, was detected in soil from MW-2 indicates that the release in that area probably occurred some time ago. Concentrations of diesel and gasoline in the soil are below the levels that the County has generally required remediating.

- Chemicals were identified in water samples from only one well, MW-2, at levels of 300 parts per billion of total petroleum hydrocarbons as gasoline. No DOHS action levels in water exist for gasoline. The fact that no BTEX was detected indicates the release probably occurred some time ago, as with the soil. The chemicals encountered during this investigation were minimal and restricted to the vicinity of MW-2. As no BTEX was detected in the ground water, it would appear that no remediation will be required.

- Chemicals in the ground-water appear to be associated with chemicals in soil in the area of MW-2.

- Ground-water flow is to the west, therefore Monitoring Wells MW-2 and MW-4 are downgradient wells.

- The site is located in an area which has been used for heavy industrial purposes since the turn of the century. Past industrial practices may have resulted in impacts to the soil and ground water which are not yet discovered and not under investigation. In addition, the types and amounts of chemicals stored in the area indicate that a potential exist for future ground-water degradation from off-site sources.

7.0 RECOMMENDATIONS

On the basis of the results of this ground-water investigation, HLA recommends the following actions:

- Continue to monitor and sample the wells quarterly and review the ground-water gradient fluctuations and chemical data.
- Reevaluate the site area after a year of sampling and analyses.

8.0 REFERENCES

Engineering-Science, 1988. *Site Characterization for Soil and Groundwater Contamination at 1600 63rd Street Site, Emeryville, California.* December.

Goldman, Harold B., 1969. *Geologic and Engineering Aspects of San Francisco Bay Fill.* California Division of Mines and Geology.

Kaldveer, Peter and Associates, Inc., 1981. *Site Characterization, Proposed Office Building at Peterson Manufacturing Site, Emeryville, California.* December.

_____, 1987. *Soil Testing, Proposed Office Building at Peterson Manufacturing Site, Emeryville, California.* February.

_____, 1987. *Foundation Investigation, Federal Express Building at Peterson Manufacturing Site, Emeryville, California.* April.

TABLES

Table 1. Summary of Remedial Activities Performed by Engineering Science

Activity	Dates Performed
Underground Storage Tank Closure	
UST-1 Removal	4/7/88
UST-1 Soil Excavation	4/15/88
UST-1 Ground-Water Samples	4/29/88
UST-2 Removal	4/7/88
UST-2 Soil Excavation	4/12/88
UST-2 Ground-Water Samples	4/27/88
UST-3 Removal	4/7/88
UST-3 Soil Excavation	4/12/88
UST-3 Ground-Water Samples	4/27/88
UST-4 Removal	4/7/88
UST-4 Soil Excavation	4/12/88
UST-4 Ground-Water Samples	5/5/88
Sump TF-S Removal	3/1/88
Sump LC-S Removal	3/1/88
Sump LM-S Removal	3/1/88
Sump SC-S Removal	3/1/88
Sumps SP-Sa and b Removal	3/7/88
Soil Excavations	
Fuel Island	5/17/88 - 5/19/88
West End of Plant	5/9/88
Near UST-1	4/9/88
Land Farming of Soil	4/19/88
Monitoring Well Closure	2/11/88
Water Well Closure	5/12/88

Table 2. Ground-Water Elevations, 8/3/89

Well	Top of Casing (ft. MSL)*	Depth to Water 8/3/89 (ft)	Water Level (ft. MSL)
MW-1	15.12	5.99	9.13
MW-2	14.43	6.66	7.77
MW-3	15.90	4.06	11.84
MW-4	14.04	7.10	6.94
MW-5	15.21	4.35	10.86

* ft. MSL = feet above mean sea level

Table 3. Results of Chemical Analyses of Soil Samples

Harding Lawson Associates

Chemical	Well Depth	MW-2 5	MW-2 9.5
Parameters		Concentrations in mg/kg (ppm)	
Total Volatile Hydrocarbons			
Gasoline		12	<50
Extractable Hydrocarbons			
Gasoline		15	<10
Kerosene		<10	<10
Diesel		212	<10
Priority Pollutant Metals			
Arsenic		<2.5	4.2
Barium		72	170
Total Chromium		11	17
Cobalt		8.1	8.9
Copper		6	16
Lead		5	48
Nickel		21	15
Vanadium		5.5	16
Zinc		15	64
All Other Title 22 Metals		N/D	N/D
EPA Method 8010 Halogenated Volatile Organics			
All compounds in test method		<0.005	<0.005
EPA Method 8020 Aromatic Volatile Organics			
All compounds in test method		<0.005	<0.005
EPA 8270 Semivolatile Organics-Base/Neutral and Acid Extractables			
All compounds in test method		N/D	N/D
EPA 8080 Organochlorine Pesticides and PCBs			
All compounds in test method		N/D	N/D

N/D - not detected at detection limit -varies with compounds see chemical data sheets

Table 4. Results of Chemical Analyses of Ground-Water Samples

Harding Lawson Associates

Well Sample Number	MW-1 89250601	MW-2 8926502	MW-3 89250602	MW-4 8926504	MW-5 89253005
Chemical Parameters					
Total Volatile Hydrocarbons	Concentrations in ug/L				
Gasoline	<50	300	<50	<50	<50
Extractable Hydrocarbons	Concentrations in mg/L				
Gasoline	<0.5	<0.5	<0.5	<0.5	<0.5
Kerosene	<0.5	<0.5	<0.5	<0.5	<0.5
Diesel	<0.5	<0.5	<0.5	<0.5	<0.5
Priority Pollutant Metals	Concentrations in mg/L				
Barium	0.13	0.12	0.06	0.17	<0.01
Copper	0.01	<0.01	0.01	0.02	<0.01
Nickel	0.08	<0.01	<0.01	<0.01	<0.01
Zinc	0.06	0.07	0.07	0.1	0.07
All Other Title 22 Metals	N/D	N/D	N/D	N/D	N/D
EPA Method 601 Halogenated Volatile Organics	Concentrations in ug/L				
All compounds in test method	<1	N/A	<1	N/A	N/A
EPA Method 602 Aromatic Volatile Organics	Conentrations in ug/L				
All compounds in test method	<1	N/A	<1	N/A	N/A
EPA Method 624: Volatile Organics	Concentrations in ug/L				
All compounds in test method	N/A	N/D	N/A	N/D	N/D
EPA 8270 Semivolatile - Base/Neutral and Acid Extractables	Concentrations in ug/L				
All compounds in test method	N/D	N/D	N/D	N/D	N/D
EPA 8080 Organochlorine Pesticides and PCBs	Concentrations in ug/L				
All compounds in test method	<0.5	<0.5	<0.5	<0.5	<0.5

N/D - not detected at detection limit -varies with compound; see chemical data sheets
N/A - not analyzed

Table 5. Results of Chemical Analyses for Disposal of Investigation Materials

Chemical Parameters	Sample	8906FE01-8906FE04	8906FE05-8906FE07	8906FE08-8906FE09	8906FE10	8906FE11	89007A	89008B	89009C	8927001A-8927003C	8927004A-8927006C	89253018	89253025
	Source	MW-3 Soil 4 drums	MW-1 Soil 3 drums	B-1 Soil 2 drums	Decon Water 4 drums	Purge Water 4 drums	MW-5 Soil 1 drum	MW-5 Soil 1 drum	MW-5 Soil 1 drum	MW-2 Soil 3 drums	MW-4 Soil 3 drums	Purge Water 4 drums	Purge Water 4 drums
	Concentrations in mg/kg (ppm) for soil and mg/L for water												
Total Volatile Hydrocarbons													
Gasoline		<10	<10	37	<0.05	<0.05	<10	<10	<10	44	<10	<.05	<.05
Extractable Hydrocarbons													
Gasoline		N/A	N/A	N/A	N/A	N/A	<10	<10	<10	<10	<10	<0.5	<0.5
Kerosene		<10	<10	29	<0.5	<0.5	<10	<10	<10	180	<10	<0.5	<0.5
Diesel		<10	63	800	<0.5	<0.5	<10	<10	<10	<10	<10	<0.5	<0.5
EPA Method 8240 Volatile Organics													
Trichloroethylene		N/D	N/D	N/D	N/D	N/D	N/D	N/D	0.027	N/D	N/D	N/D	N/D
Toluene		N/D	0.089	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
All other 8240 compounds		N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
EPA 8270 Semivolatile Organics-Base/Neutral and Acid Extractables													
All 8270 compounds		N/A	N/A	N/A	N/A	N/A	N/D	N/D	N/D	N/D	N/D	N/D	N/D
EPA 8080 Organochlorine Pesticides and PCBs													
All 8080 compounds		<1	<1	<1	<0.0005	<0.0005	<1	<1	<1	<1	<1	<0.0005	<0.0005
Disposal Method		Class III	Class I	Class I	Storm Drain	Storm Drain	Class III	Class III	Class III	Class II	Class III	Storm Drain	Storm Drain

N/D - not detected at detection limit -varies with compound; see chemical data sheets
N/A - not analyzed

TABLE 6. GROUND-WATER WELLS WITHIN A MILE OF THE SITE
(KEYED TO PLATE 4)

		OWNER OR BUSINESS NAME	WELL LOCATION		YEAR DRILLED		USE	
	1	VEGETABLE OIL CO.	5TH & HEINZ ST	BERKELEY	NA		NA	ABANDONED
	2	PRESTO-LITE CO.	45TH ST	EMERYVILLE	10/08		NA	
	3	A/C TRANSIT	45TH & SAN PABLO AV	EMERYVILLE	1/87		MONITORING	
	4	SHELL DEVELOPMENT CO.	53RD & HORTON ST	EMERYVILLE	10/34		MONITORING	
	5	CETUS CORP.	1400 53RD ST	EMERYVILLE	12/86		MONITORING	
#	6	WAREHAM DEVELOPMENT	63RD ST	EMERYVILLE	12/87	2	MONITORING	
#	7	CHARLES GENSLER	1301 65TH ST	EMERYVILLE	6/88		MONITORING	
#	8	BENEFIT CAPITOL CORP.	1650 65TH ST	EMERYVILLE	7/87		MONITORING	ABANDONED 1/
	9	TW CORDOR & CO.	67TH & BAY ST	EMERYVILLE	7/48		NA	
	10	AUGUST SANTOS	5702B ADELINE ST	OAKLAND	8/77		INDUSTRIAL	
	11	CAPT & MRS ELWOOD MEADO	1440 ASHBY AVE	BERKELEY	10/86		MONITORING	
	12	OLIVER & COMPANY	1035 CARLETON ST	BERKELEY	5/87		MONITORING	
	13	CROWLEY & HERRING INVEST	5800 CHRISTIE AVE	EMERYVILLE	NA		MONITORING	
	14	WEATHERFORD BMW	5903 CHRISTIE AVE	EMERYVILLE	NA		MONITORING	
	15	NA	N OF FOLGER AVE	EMERYVILLE	8/30,8/88	2	MONITORING	
#	16	FRANCIS COLLINS	6050 HOLLIS AVE	EMERYVILLE	NA		MONITORING	
	17	ARTISTS COOP	4250 HORTON ST	EMERYVILLE	NA		MONITORING	
	18	CITY OF EMERYVILLE	4520 HORTON ST	EMERYVILLE	7/87	2	MONITORING	DESTROYED
	19	RIFKIN PROPERTIES	4549 HORTON ST	EMERYVILLE	NA		MONITORING	
#	20	HFH LTD - ANDY GETZ	1351 OCEAN AVE	EMERYVILLE	NA		MONITORING	
	21	COBURN CONSTRUCTION	1006 PARDEE ST	BERKELEY	5/87		MONITORING	
	22	AMERICAN RUBBER CO.	1145 PARK AVE	EMERYVILLE	NA		NA	
	23	DEL MONTE CORP. PLANT 35	1250 PARK AVE	EMERYVILLE	5/86	7	MONITORING	
	24	NA	POWELL & DOYLE	EMERYVILLE	2/88		MONITORING	
	25	MOBIL GAS STATION	1700 POWELL ST	EMERYVILLE	NA		MONITORING	
	26	SHELL GAS STATION	1800 POWELL ST	EMERYVILLE	NA		MONITORING	
	27	GOLDSMITH & LATHROP PRO	2000 POWELL ST	EMERYVILLE	NA		MONITORING	
	28	SHERWIN WILLIAMS CO.	1450 SHERWIN ST	EMERYVILLE	6/29		NA	
	29	NA	VALLEJO & 62ND ST	EMERYVILLE	8/76		CATHODE	

Ground-water well within 1/4 mile of the site

TABLE 7. FUEL LEAK AND TOXIC CASE INVESTIGATION SITES WITHIN A MILE OF THE SITE (KEYED TO PLATE 5)

Harding Lawson Associates

		OWNER OR BUSINESS NAME	BUSINESS LOCATION		FUEL LEAKS CODE (1)
	1	MILES LABS/CUTTER *	4TH & PARKER ST	BERKELEY	
	2	CUTTER LABORATORIES	7TH & PARKER	BERKELEY	B3
	3	COLGATE PALMOLIVE *	SEVENTH & CARLETON	BERKELEY	
	4	CARLETON BUSINESS CENTER **	2700 7TH ST	BERKELEY	B3
	5	CHRONICLE DEPOT	2817 7TH ST	BERKELEY	B3
	6	TEMESCAL *	2850 7TH ST	BERKELEY	
	7	A/C TRANSIT	45TH & SAN PABLO AVE	EMERYVILLE	B3
	8	KAISER ENGINEERS	1140 45TH ST	EMERYVILLE	B3
	9	ARTISTS COOPERATIVE	1420 45TH ST	EMERYVILLE	U3
	10	CITY OF EMERYVILLE	1420 45TH ST	EMERYVILLE	A3
	11	A/C TRANSIT	47TH & SAN PABLO AVE	EMERYVILLE	A3
	12	BERKELEY FARMS	1313 53RD AVE	EMERYVILLE	C
	13	L & M PLATING *	920 54TH AVE	OAKLAND	
#	14	PETERSON MANUFACTURING CO.	1600 63RD ST	EMERYVILLE	A3
	15	EMERYVILLE MARKET PLAZA	64TH & LACOSTE	EMERYVILLE	A1
	16	GARRETT FREIGHT LINES **	64TH & LACOSTE	EMERYVILLE	B3
	17	BAY CENTER PROJECT	65TH & CHRISTIE	EMERYVILLE	A2
	18	OLIVER	1200 65TH ST	OAKLAND	B3
#	19	HENRY HORN & SONS	1301 65TH ST	EMERYVILLE	A2
	20	EMERYVILLE BAYFRONT/US PO	1650 65TH ST	EMERYVILLE	B3
	21	MCGUIRE & HESTER	796 66TH AVE	OAKLAND	A2
	22	FABCO	1249 67TH ST	OAKLAND	B3
	23	TEXACO	840 ASHBY AVE	BERKELEY	B3
	24	SUPER-7	901 ASHBY AVE	BERKELEY	A2
	25	MAC BEATH HARDWARE	930 ASHBY AVE	BERKELEY	B3
	26	MACOULEY FOUNDRY **	811 CARLETON ST	BERKELEY	B3
	27	STUDIO COMPLEX	1025 CARLETON ST	BERKELEY	B3
	28	OLIVER & CO.	1035 CARLETON ST	BERKELEY	B3
	29	WEATHERFORD BMW	5903 CHRISTIE AVE	EMERYVILLE	B3
	30	PIE NATIONWIDE **	5500 EASTSHORE FWY	EMERYVILLE	B1
	31	GRING PEST CONTROL	741 FOLGER ST	BERKELEY	B3
	32	DURKEE-WAREHAM	700 HEINZ ST	BERKELEY	A3
	33	PG&E MATERIALS DIST. CENTER *	4525 HOLLIS ST	EMERYVILLE	
#	34	HOLLIS ST PROJECT	6050 HOLLIS ST	EMERYVILLE	B3
#	35	HFH LTD	6400 HOLLIS ST	EMERYVILLE	C
	36	SHELL	4250 HORTON ST	EMERYVILLE	B3
	37	NA	4543 HORTON ST	EMERYVILLE	A1
	38	LIFKIN REALTY PARTNERS	4549 HORTON ST	EMERYVILLE	U3
	39	CHEVRON EMERYVILLE TERMINAL	LANDREGAN & POWELL	EMERYVILLE	
	40	MICHAEL AND PELTON *	5743 LANDREGAN ST	EMERYVILLE	
	41	U.C. BERKELEY *	MURRAY/FOLGER/7TH S	BERKELEY	
	42	FOLGER MURPHY PROPERTY	1020 MURRAY ST	EMERYVILLE	B3
	43	BAYOX	1171 OCEAN AVE	OAKLAND	B3
	44	UNION CARBIDE	1171 OCEAN AVE	OAKLAND	A2
#	45	GET CONSTRUCTION CO.	1351 OCEAN ST	EMERYVILLE	B3
	46	COBURN CONSTRUCTION	1006 PARDEE ST	BERKELEY	A3
	47	UPRIGHT INC.	1013 PARDEE ST	BERKELEY	C
	48	LES PAUL	1199 PARK AVE	EMERYVILLE	A3

TABLE 7. FUEL LEAK AND TOXIC CASE INVESTIGATION SITES WITHIN A MILE OF THE SITE (KEYED TO PLATE 5)

	OWNER OR BUSINESS NAME	BUSINESS LOCATION		FUEL LEAKS CODE (1)
49	DEL MONTE PLANT #35 **	1250 PARK AVE	EMERYVILLE	A3
50	ELECTRICAL COATINGS *	1421 PARK AVE	EMERYVILLE	
51	MACAULAY FOUNDRY	PARKER ST	BERKELEY	B3
52	WESTINGHOUSE ELECTRICAL *	2899 PELADEAU	EMERYVILLE	
53	SCHWABACKER-FREY	5733 PELADEAU	EMERYVILLE	B3
54	BAY EXPORT SERVICE	717 POTTER ST	BERKELEY	A2
55	CHEVRON ASPHALT PLT & TERM. *	1520 POWELL ST	EMERYVILLE	
56	MOBIL	1700 POWELL ST	EMERYVILLE	B3
57	SHELL	1800 POWELL ST	EMERYVILLE	A2
58	MOORE PROPERTY	3155 SACRAMENTO ST	BERKELEY	C
59	PAHLMEYER FAMILY TRUST	2700 SAN PABLO AVE	BERKELEY	B3
60	NOMURA BROS.	2720 SAN PABLO AVE	BERKELEY	A3
61	BERKELEY HYDRAULIC SERVICE	2734 SAN PABLO AVE	BERKELEY	B3
62	MEYER SOUND *	2832 SAN PABLO AVE	BERKELEY	
63	BERKELEY BUSINESS CENTER	2900 SAN PABLO AVE	BERKELEY	B3
64	BERKELEY CAR WASH	2995 SAN PABLO AVE	BERKELEY	B3
65	BERKELEY FARMS	4550 SAN PABLO AVE	EMERYVILLE	C
66	BOLINS SERVICE GARAGE	6335 SAN PABLO AVE	OAKLAND	B3
67	PCC	6400 SAN PABLO AVE	OAKLAND	U3
68	UNIV. OF CALIFORNIA	6701 SAN PABLO AVE	BERKELEY	U3
69	PFIZER PIGMENTS	4650 SHELLMOUND ST	EMERYVILLE	A3
70	A & J TRUCKING	5600 SHELLMOUND AVE	EMERYVILLE	B3
71	NIELSON PROPERTY	5800 SHELLMOUND ST	EMERYVILLE	B3

* Toxic Case Investigation

** Toxic Case and Fuel Leak Investigation

Investigation within 1/4 mile of the site

(1) Fuel Leaks Codes:

A - Cases with identified groundwater impact.

B - Cases with identified soil impact but unknown groundwater impact.

C - Cases where water quality impacts, or threatened impacts, are negligible or non-existent.

U - Cases where the impact is unknown.

In all cases except "A" cases, the 1,2,3 designations are based on the location of the site relative to the groundwater sensitivity.

1 - Groundwater recharge

2 - Groundwater use without recharge

3 - Limited groundwater usage

The following matrix defines the numeric designation for "A" cases:

Groundwater Area	Free Product	Diss. Conc. >100 ppb	Diss. Conc. <100 ppb
Recharge	A1	A1	A2
Use w/o recharge	A1	A2	A3
Limited	A2	A3	A3

TABLE 8. UNDERGROUND STORAGE TANKS WITHIN A MILE OF THE SITE (CONTINUED)
(KEYED TO PLATE 6)

		OWNER OR BUSINESS NAME	TANK LOCATION	CROSS STREET		NUMBER OF TANKS	CHEMICALS STORED
	1	MILES LABORATORIES	4TH & PARKER ST	7TH ST	BERKELEY	8	3 DIESEL, 2 ACETONE, WASTE(ACETONE), 2 METHYL/ETHYL ALCOHOL
	2	COLGATE-PALMOLIVE CO.	2700 SEVENTH ST	ASHBY	BERKELEY	4	2 WASTE(INDUST. WATER), UNLEADED, DIE
	3	COBURN CONSTRUCTION	2741 9TH ST	NA	BERKELEY	1	NONE
	4	EMERYVILLE DIVISION NO. 2	1140 45TH ST	SAN PABLO	EMERYVILLE	8	3 DIESEL, OIL, REGULAR, WASTE(OIL), 2 NO
	5	EQUIPMENT ASSOCIATES CO.	1250 45TH ST	SAN PABLO	EMERYVILLE	1	DIESEL
	6	CETUS CORP.	1400 53RD ST	HOLLIS	EMERYVILLE	1	NONE
	7	CALIFORNIA SYRUP & EXTRAC	1375 55TH ST	DOYLE	EMERYVILLE	3	3 NONE
#	8	WEATHERFORD MOTORS	1710 59TH ST	POWELL	EMERYVILLE	1	WASTE(OIL)
#	9	PETERSON MFG CO.	1600 63RD ST	HOLLIS	EMERYVILLE	4	2 DIESEL, NONE, FUEL OIL
#	10	RIEVES CONTAINER CO.	1410 64TH ST	HOLLIS	EMERYVILLE	1	DIESEL
#	11	TRANSO ENVELOPE CO	1600 64TH ST	NA	EMERYVILLE	1	ETHYL ALCOHOL
	12	DELTA LINES	65TH ST	EASTSHORE F	EMERYVILLE	9	2 REGULAR, 5 DIESEL, MOTOR OIL, NONE
	13	OLIVER RUBBER CO, PLANT 1	1200 65TH ST	VALLEJO	OAKLAND	5	3 HYDROCARBONS, TOLUENE, REGULAR
#	14	RYERSON STEEL	1465 65TH ST	HOLLIS	EMERYVILLE	1	DIESEL
	15	AA JOHNSON & SON	1164 66TH ST	SAN PABLO	OAKLAND	2	REGULAR, DIESEL
	16	CALAG PRODUCTS	1275 66TH ST	VALLEJO	EMERYVILLE	3	2 REGULAR, DIESEL
	17	FABCO DIVISION	1249 67TH ST	SAN PABLO	OAKLAND	2	WASTE(OIL), UNLEADED
	18	COPPER & BRASS SALES	1295 67TH ST	HOLLIS	EMERYVILLE	1	DIESEL
	19	CHALLENGE MANUFACTURING	1308 67TH ST	HOLLIS	OAKLAND	2	2 NONE
	20	CLEARPRINT PAPER CO.	1482 67TH ST	HOLLIS	EMERYVILLE	4	3 SOLVENTS, NONE
	21	COULTER STEEL AND FORGE C	1494 67TH ST	BAY	EMERYVILLE	3	QUENCH OIL, REGULAR, NONE
	22	ARTHUR & MILDRED WEISBUR	840 ASHBY AVE	NA	BERKELEY	4	NONE, 2 UNLEADED, DIESEL
	23	SUPER 7 #24302	901 ASHBY AVE	NA	BERKELEY	4	REGULAR, UNLEADED, PREMIUM, NONE
	24	SP OPERATOR	1200 ASHBY AVE	NA	BERKELEY	3	PREMIUM, REGULAR, UNLEADED
	25	ABBOT, COLE & DEGRAF	6603 BAY ST	66TH ST	EMERYVILLE	3	UNLEADED, REGULAR, DIESEL
	26	HC MACAULAY FOUNDRY CO.	811 CARELTON ST	SEVENTH	EMERYVILLE	1	UNLEADED
	27	PORTER COATINGS	5900 CHRISTIE AV	POWELL	EMERYVILLE	10	10 NONE
	28	WEATHERFORD BMW	5903 CHRISTIE AV	CHRISTIE	EMERYVILLE	1	NONE
	29	A & J TRUCKING CO.	6150 CHRISTIE ST	POWELL	EMERYVILLE	1	DIESEL
	30	KING-KNIGHT CO.	6202 CHRISTIE AV	POWELL	EMERYVILLE	2	DIESEL, WASTE(OIL)
	31	CLEMENTINA LTD.	5521 DOYLE ST	NA	EMERYVILLE	2	REGULAR, DIESEL

TABLE 8. UNDERGROUND STORAGE TANKS WITHIN A MILE OF THE SITE (CONTINUED)
(KEYED TO PLATE 6)

		OWNER OR BUSINESS NAME	TANK LOCATION	CROSS STREET		NUMBER OF TANKS	CHEMICALS STORED
	32	JUDSON STEEL CORP.	4200 EASTSHORE	SHELLMOUND	EMERYVILLE	7	HEATER OIL, 3 REGULAR, 3 DIESEL
	33	RYDER/PIE NATIONWIDE	5500 EASTSHORE	NA	EMERYVILLE	9	WASTE(NONE), 3 NONE, MOTOR OIL, LUBRICATING OIL, 2 REGULAR , DIESEL
	34	GARRETT FREIGHTLINES	6400 EASTSHORE	CHRISTIE	EMERYVILLE	2	DIESEL, REGULAR
	35	GRING PEST CONTROL SERVIC	741 FOLGER AVE	ASHBY	BERKELEY	2	NONE, UNLEADED
	36	PQ CORP.	801 GRAYSON ST	SEVENTH	BERKELEY	3	2 HEATER OIL, REGULAR
	37	MOREHOUSE FOODS	4221 HOLLIS ST	PARK	EMERYVILLE	1	UNLEADED
	38	PG&E MATERIALS DIST. CENTE	4525 HOLLIS ST	NA	EMERYVILLE	2	2 NONE
	39	OWENS TRUCKING & CONCRET	5812 HOLLIS ST	POWELL	EMERYVILLE	2	REGULAR, DIESEL
#	40	EMERYVILLE FIRE DEPT.	6303 HOLLIS ST	63RD ST	EMERYVILLE	3	2 DIESEL, UNLEADED
#	41	WAREHOUSE	6450 HOLLIS ST	OCEAN-64TH	EMERYVILLE	1	NONE
	42	MCGRATH STEEL CO.	6655 HOLLIS ST	67TH ST	EMERYVILLE	4	2 UNLEADED, DIESEL, WASTE(NONE)
	43	WEYERHAUSER CO.	4050 HORTON	PARK	EMERYVILLE	1	NONE
	44	CETUS CORP-PROCESS DEV.U	4595 HORTON ST	53RD ST	EMERYVILLE	2	2 BUTYL ALCOHOL
	45	COMMERCIAL & INDUST. SUPP	4055 HUBBARD ST	PARK	EMERYVILLE	1	DIESEL
#	46	JT THORPE & SON	1351 OCEAN AVE	DOYLE	EMERYVILLE	1	DIESEL
	47	LJ KRUSE CO.	920 PARDEE ST	NA	BERKELEY	2	WASTE(OIL), UNLEADED
	48	AMERICAN RUBBER MFG CO.	1145 PARK AVE	EMORY	EMERYVILLE	4	SOLVENTS, TOLUENE, DIESEL, REGULAR
	49	PEPSI COLA BOTTLING CO.	1150 PARK AVE	SAN PABLO	EMERYVILLE	4	2 REGULAR, 2 DIESEL
	50	DEL MONTE CORP PLANT 35	1250 PARK AVE	HARLAN	EMERYVILLE	3	WASTE(NONE), 2 REGULAR
	51	REDEVELOPMENT AGENCY	1333 PARK AVE	HOLLIS	EMERYVILLE	1	UNLEADED
	52	CHROMEX DIVISION	1400 PARK AVE	HOLLIS	EMERYVILLE	3	WASTE(OIL+WATER), CROMIC OXIDE, NAOH
	53	ELECTRO-COATINGS	1421 PARK AVE	HOLDEN	EMERYVILLE	10	CHROMIC ACID, HCL, WASTE(CR PLATING 5 CHROMIUMM, PHOSPHATES, NAOH
	54	STUART AUTO PRODUCTS	1461 PARK AVE	HORTON	EMERYVILLE	2	UNLEADED, NONE
	55	PELLEGRINI REFRIGERATION	1550 PARK AVE	HALLECK	EMERYVILLE	1	UNLEADED
	56	WESTINGHOUSE DIST. CENTE	5815 PELADEAU ST	POWELL	EMERYVILLE	1	UNLEADED
	57	*1240 POWELL BUILDING*	*1240 POWELL ST*	NA	*EMERYVILLE*	1	*UNLEADED*
	58	AIRCO SUPPLY CO.	1350 POWELL ST	HOLLIS	EMERYVILLE	1	UNLEADED
	59	UNION OIL SS-3434	1400 POWELL ST	HOLLIS	EMERYVILLE	5	WASTE(OIL+WATER), WASTE(OIL), UNLEAD PREMIUM, DIESEL
	60	MOBIL OIL CORP.	1700 POWELL ST	CHRISTIE	EMERYVILLE	3	UNLEADED, REGULAR, NONE
	61	BAY SUPER SHELL	1800 POWELL	I80	EMERYVILLE	4	WASTE(OIL), PREMIUM, REGULAR, UNLEAD

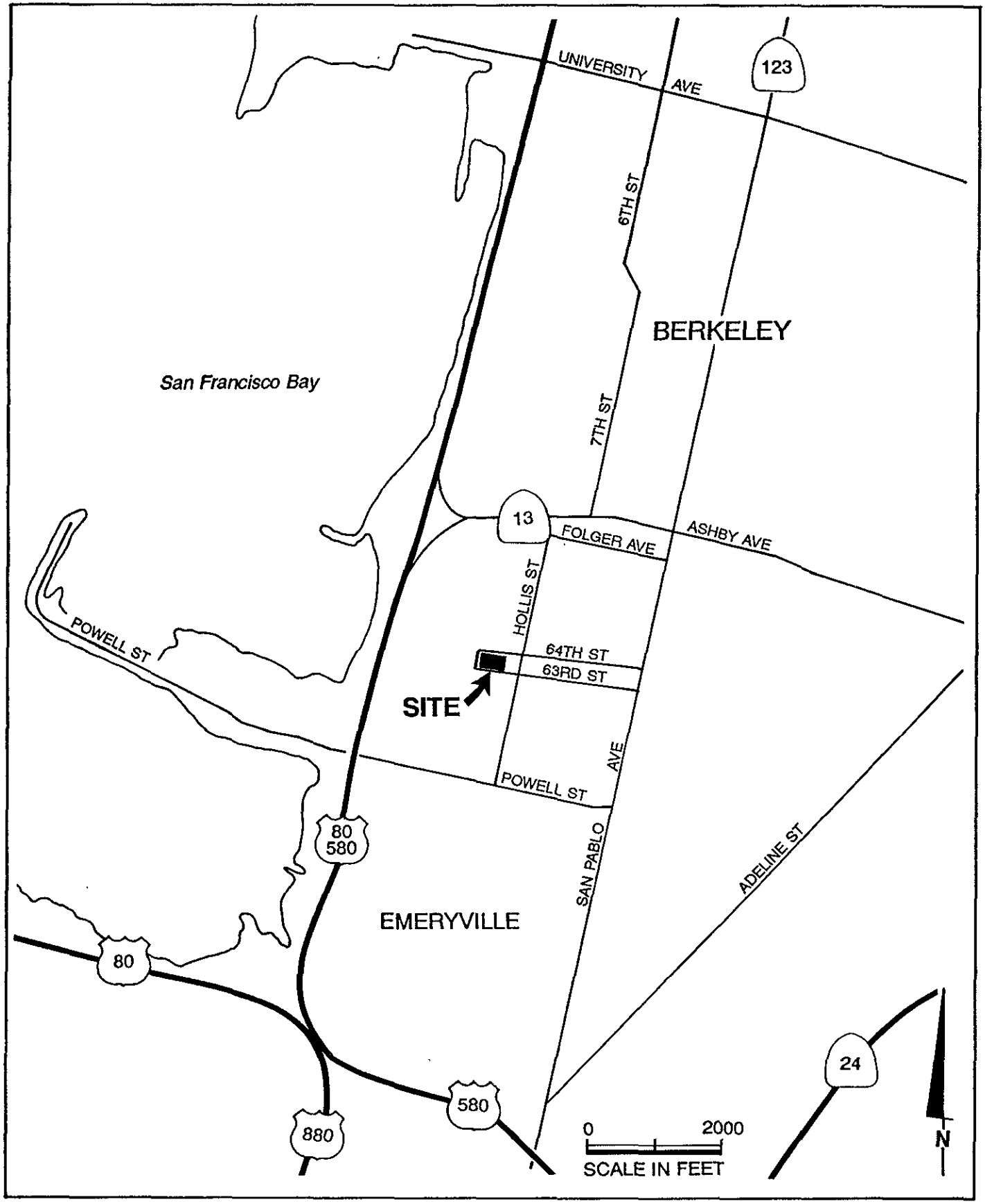
TABLE 8. UNDERGROUND STORAGE TANKS WITHIN A MILE OF THE SITE (CONTINUED)
(KEYED TO PLATE 6)

	OWNER OR BUSINESS NAME	TANK LOCATION	CROSS STREET		NUMBER OF TANKS	CHEMICALS STORED
62	WATERGATE TOWER III	2000 POWELL ST	I80	EMERYVILLE	2	2 NONE
63	EMERYVILLE MARINA	3310 POWELL ST	ANCHOR	EMERYVILLE	4	2 DIESEL, 2 REGULAR
64	HANK SCHRAMM	3310 POWELL ST	I80	EMERYVILLE	1	DIESEL
65	CROWN MINI-MART	2700 SAN PABLO A	CARLETON	BERKELEY	4	REGULAR, UNLEADED, PREMIUM, WASTE(
66	NOMURA BROS.	2720 SAN PABLO A	PARDEE	BERKELEY	3	2 UNLEADED, WASTE(OIL)
67	HYDRAULIC SERVICES	2734 SAN PABLO A	NA	BERKELEY	2	NONE, UNLEADED
68	RENT A TRAILER SYSTEM	2748 SAN PABLO A	GRAYSON	BERKELEY	1	REGULAR
69	CHEVRON USA - 90194	2995 SAN PABLO A	ASHBY	BERKELEY	3	3 NONE
70	EMERYVILLE FIRE DEPT.	4331 SAN PABLO A	43RD ST	EMERYVILLE	1	DIESEL
71	BERKELEY FARMS	4501 SAN PABLO A	67TH ST	EMERYVILLE	3	NONE, UNLEADED, REGULAR
72	BERKELEY FARMS	4550 SAN PABLO A	45TH ST	EMERYVILLE	2	REGULAR, DIESEL
73	(FORMER) SHELL OIL CO.	5315 SAN PABLO A	NA	OAKLAND	1	NONE
74	MYERS DRUM CO.	6549 SAN PABLO A	65TH ST	OAKLAND	4	REGULAR, 2 WASTE(NAOH), WASTE(OIL)
75	OAKLAND-TIGHTHEAD	6549 SAN PABLO A	65TH ST	OAKLAND	5	2 DIESEL, REGULAR, WASTE(OIL), WASTE(NAOH/PAINT)
76	MYERS DRUM CO.	4500 SHELLMOUN	POWELL	EMERYVILLE	2	WASTE(NAOH/PAINT), WASTE(PAINT)
77	PFIZER INC.	4650 SHELLMOUN	POWELL	EMERYVILLE	18	11 DIESEL, REGULAR, WASTE(OIL), 4 FE OXIDE, BROMIDE/MOLYBDENUM
78	A & J TRUCKING CO.	5600 SHELLMOUN	CHRISTIE	EMERYVILLE	1	REGULAR
79	POWER MACHINE CO	5768 SHELLMOUN	CHRISTIE	EMERYVILLE	1	UNLEADED
80	LATHROP CONSTRUCTION CO.	5817 SHELLMOUN	CHRISTIE	EMERYVILLE	1	REGULAR
81	CETUS CORP.	1403 STANFORD	HOLLIS	EMERYVILLE	1	NONE

Underground storage tanks within 1/4 mile of the site

ILLUSTRATIONS

13599



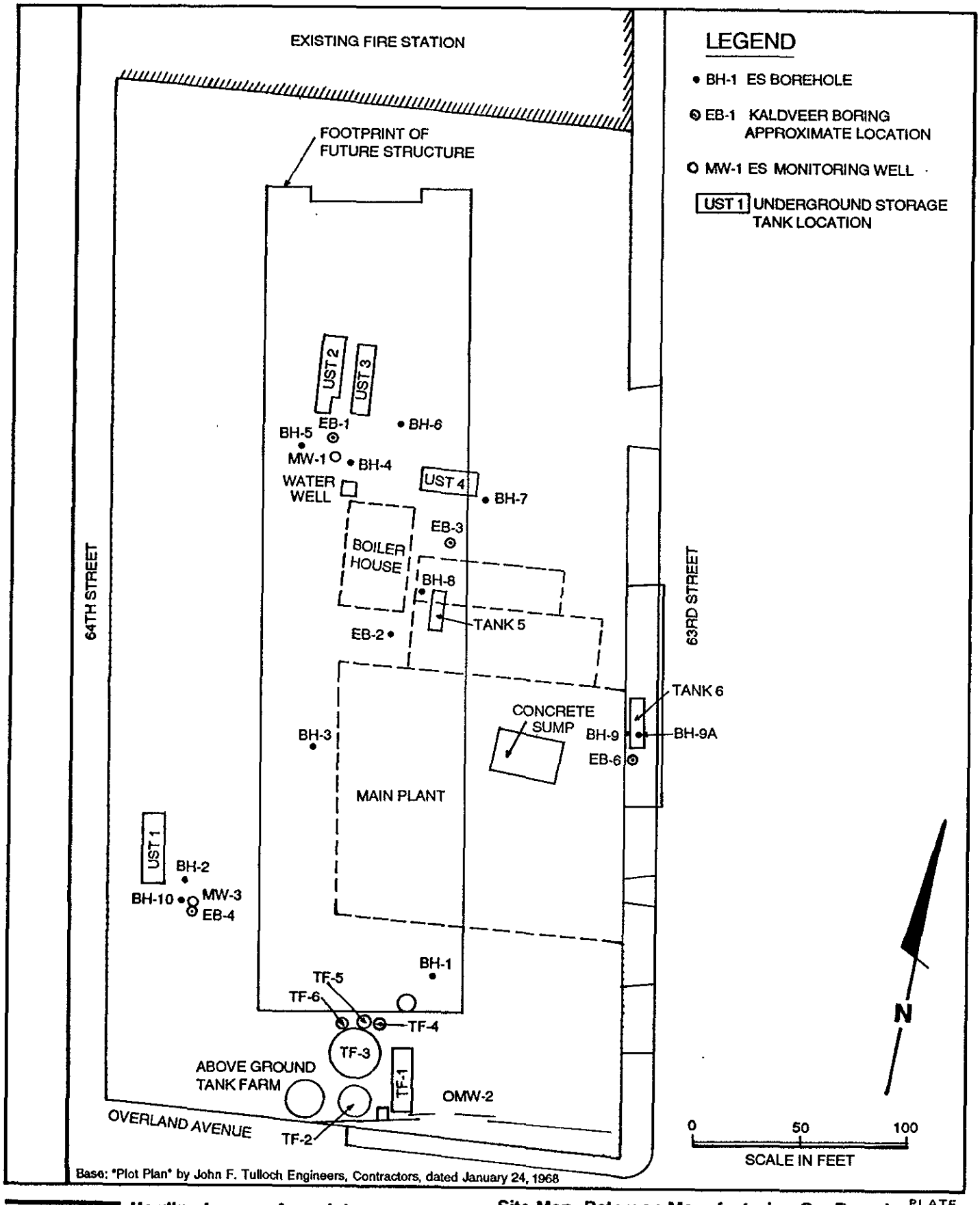
Harding Lawson Associates
Engineering and
Environmental Services

Site Location Map
1600 - 63rd Street Associates, Inc.
Emeryville, California

PLATE
1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	18452,016.02		8/89		

14913



Base: "Plot Plan" by John F. Tulloch Engineers, Contractors, dated January 24, 1968

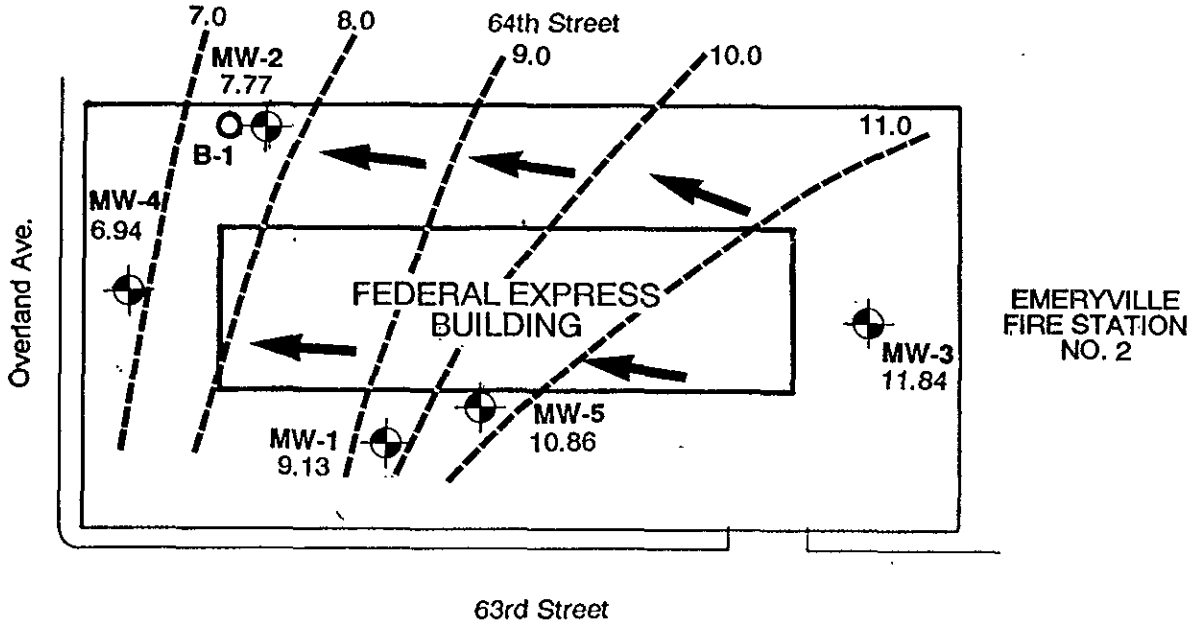
Harding Lawson Associates
Engineering and Environmental Services

Site Map- Peterson Manufacturing Co. Parcel
1600-63rd Street Associates, Inc.
Emeryville, California

PLATE **2**

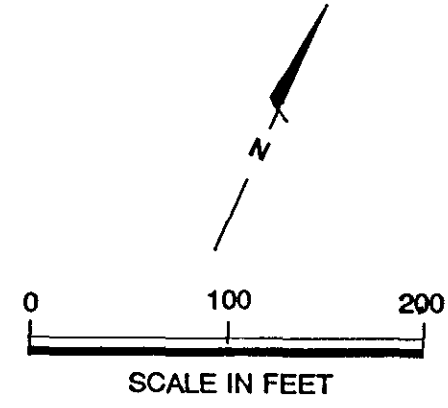
DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
CVD	18452,016.02		9/89	

14548



EXPLANATION

- MW-1 / 9.13 — Monitoring Well, Water Level 8/3/89
- B-1 — Boring (abandoned)
- Ground-Water Flow Direction
- 10.0 — Water-Level Contour (relative to mean sea level)



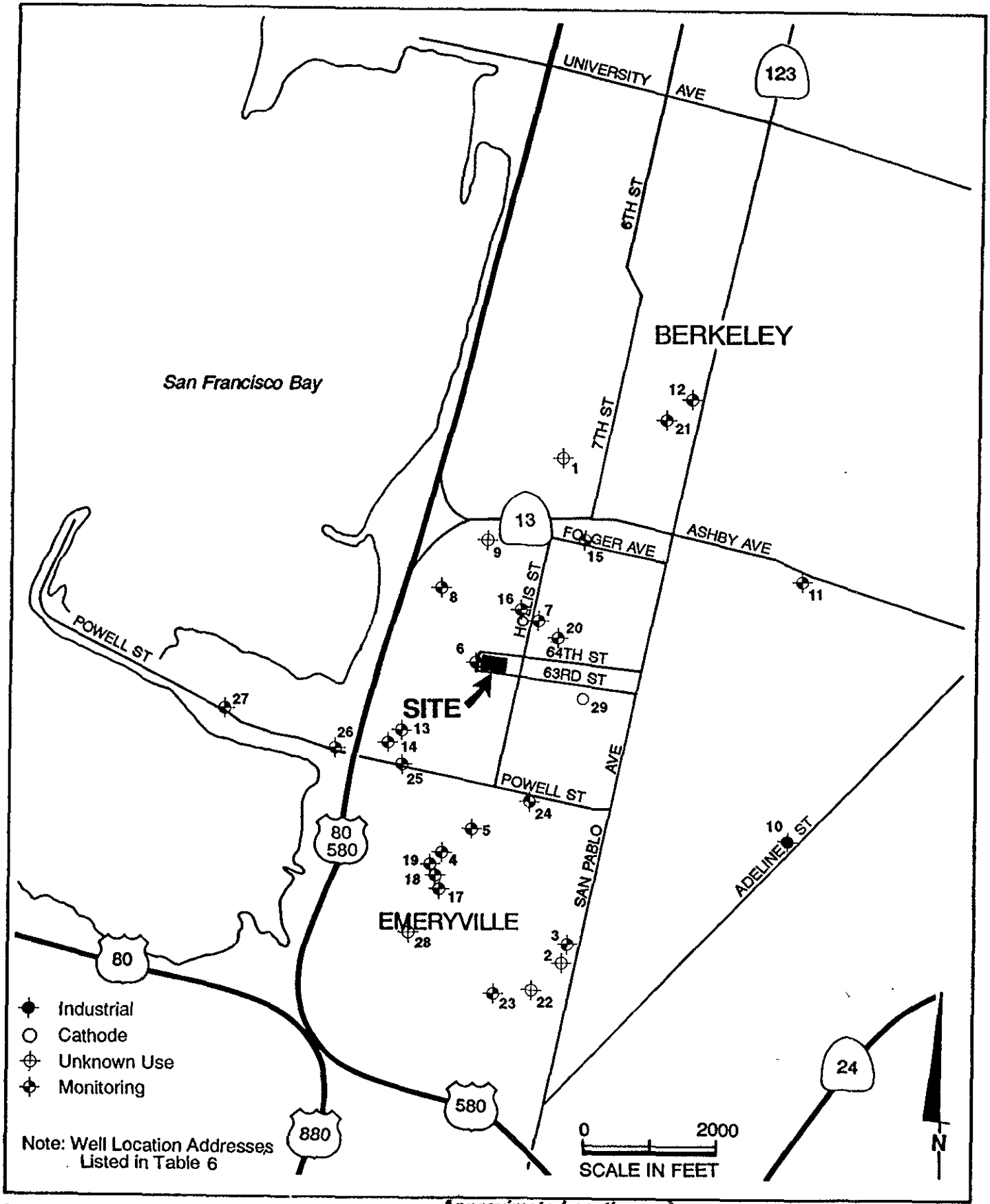
Harding Lawson Associates
Engineering and Environmental Services

Monitoring Well Locations and Water Level Elevations
1600-63rd Street Association, Inc.
Emeryville, California

PLATE **3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
JU	18452,016.02		8/89	

14546



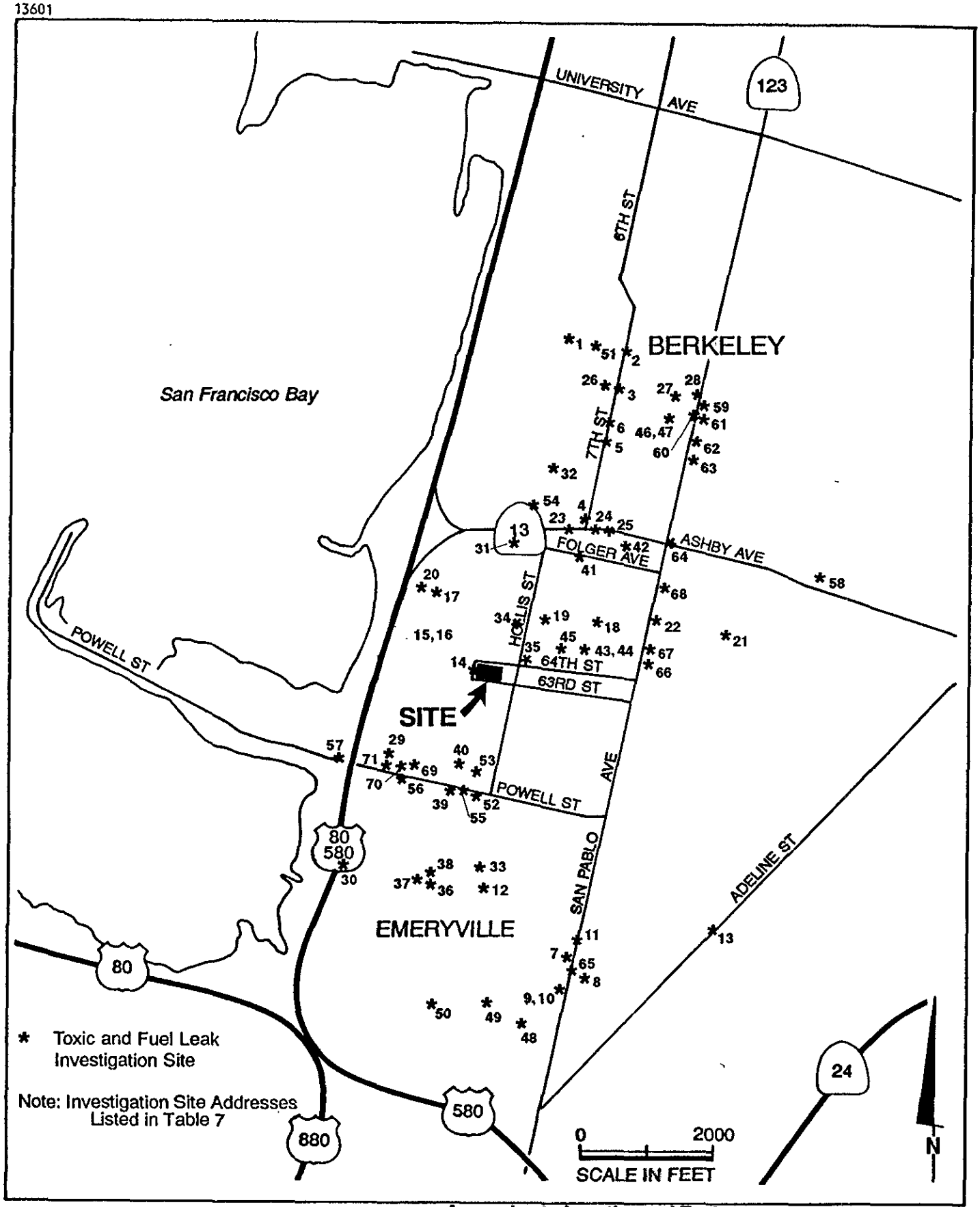
Harding Lawson Associates
Engineering and Environmental Services

Approximate Locations of Ground-Water Wells within 1 Mile of 1600-63rd Street
1600 - 63rd Street Associates, Inc.
Emeryville, California

PLATE **4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
LZ	18452,016.02		7/89		

13601



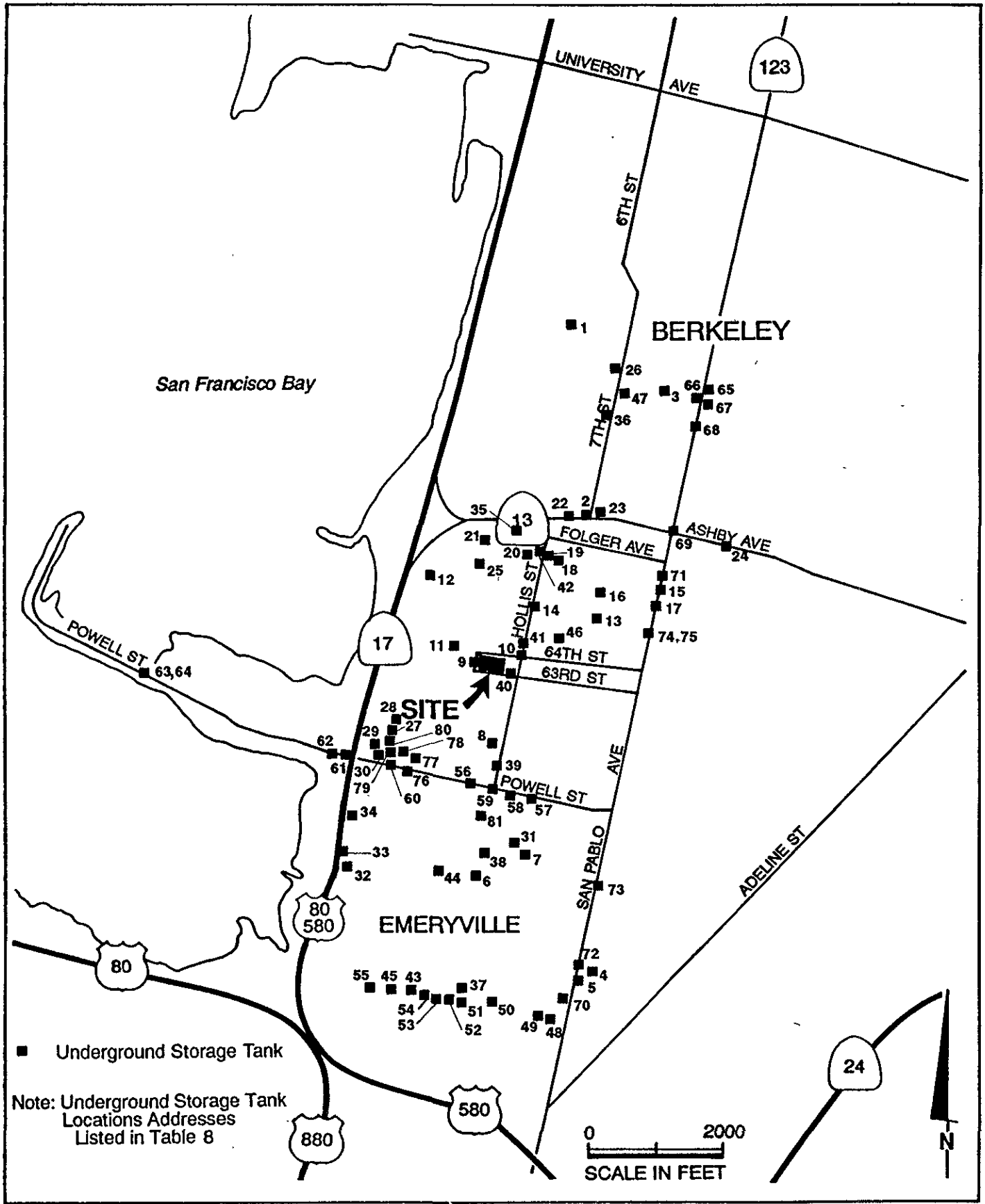
Harding Lawson Associates
Engineering and Environmental Services

Approximate Locations of Toxic and Fuel Leak Investigation Sites within 1 Mile of 1600-63rd Street
1600 - 63rd Street Associates, Inc.
Emeryville, California

PLATE **5**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
LZ	18452,016.02		7/89		

14547



Harding Lawson Associates
Engineering and Environmental Services

Approximate Locations of Underground Storage Tanks within 1 Mile of 1600-63rd Street
1600 - 63rd Street Associates, Inc.
Emeryville, California

PLATE **6**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
LZ	18452,016.02		7/89		

Appendix A

BORING LOGS AND WELL COMPLETION DIAGRAMS

MAJOR DIVISIONS				TYPICAL NAMES
COARSE–GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN No 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
			GP	POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, SILTY GRAVELS WITH SAND
			GC	CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
			SP	POORLY GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS WITH OR WITHOUT GRAVEL
			SC	CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE–GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SANDS AND GRAVELS
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS
			OL	ORGANIC SILTS OR CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC SILTS OR CLAYS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION – ASTM D2487-85

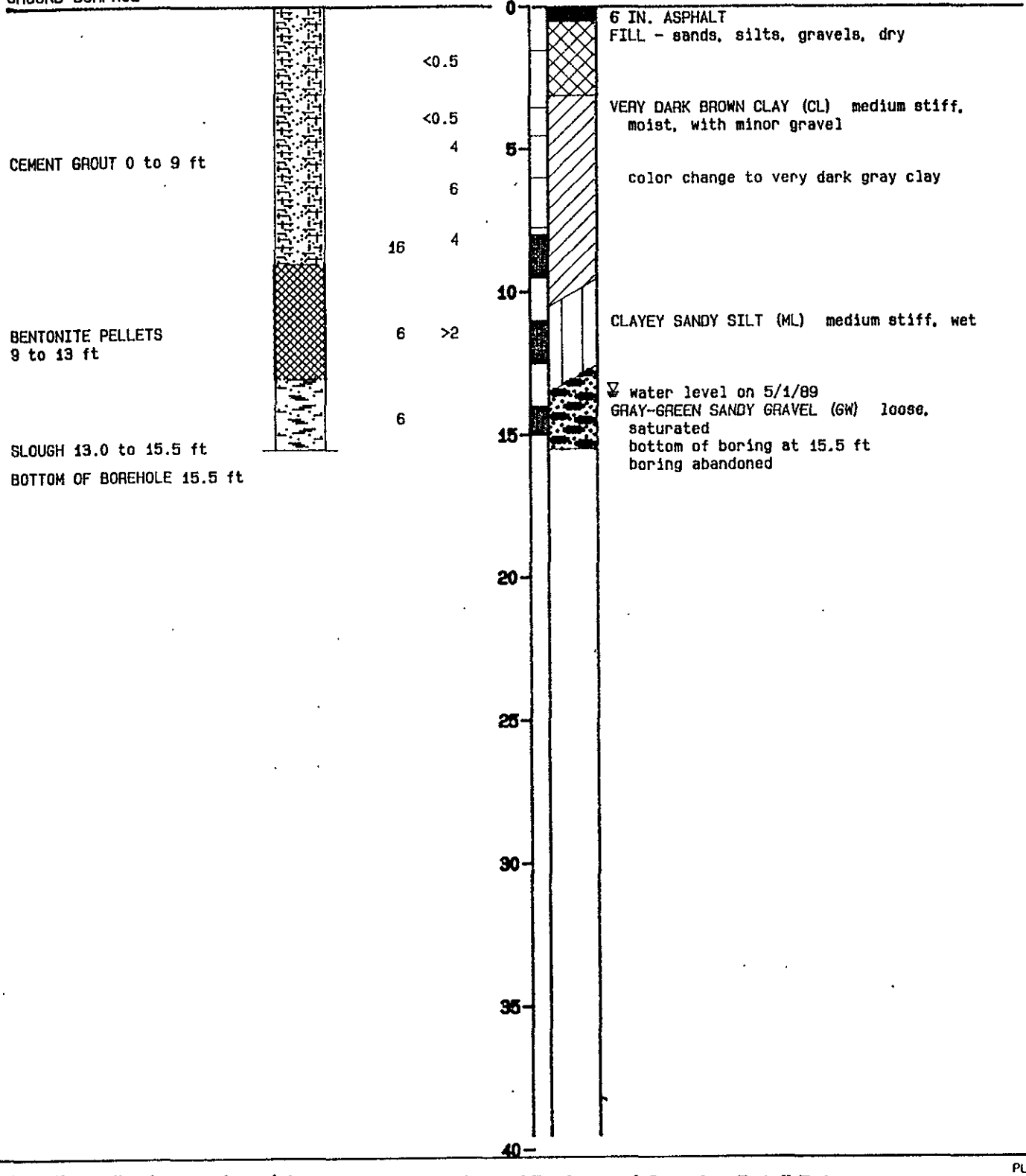
Perm — Permeability
Consol — Consolidation
LL — Liquid Limit (%)
PI — Plastic Index (%)
G_s — Specific Gravity
MA — Particle Size Analysis
■ — "Undisturbed" Sample
⊠ — Bulk or Classification Sample

	Shear Strength (psf)	Confining Pressure	
TxUU (FM) or (S)	3200	(2600)	— Unconsolidated Undrained Triaxial Shear (field moisture or saturated)
TxCU (P)	3200	(2600)	— Consolidated Undrained Triaxial Shear (with or without pore pressure measurement)
TxCD	3200	(2600)	— Consolidated Drained Triaxial Shear
SSCU (P)	3200	(2600)	— Simple Shear Consolidated Undrained (with or without pore pressure measurement)
SSCD	3200	(2600)	— Simple Shear Consolidated Drained
DSCD	2700	(2000)	— Consolidated Drained Direct Shear
UC	470		— Unconfined Compression
LVS	700		— Laboratory Vane Shear

KEY TO TEST DATA

Equipment 10" HSA

Elevation 15.0 ft Date 5/1/89



PLATE

A-2

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring and Grouting Detail B-1
1600-63rd Street Associates, Inc.
Emeryville, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	18, 452, 016.02		9/89		

Top of PVC Casing Elevation 15.12 ft MSL

GROUND SURFACE

TOP OF CASING 0.5 ft below ground level

10 IN. DIAMETER BOREHOLE 0 to 23.5 ft

4 IN. DIAMETER SCH. 40 PVC BLANK CASING 0.5 to 13 ft

BENTONITE/CEMENT SEAL 1 to 8.5 ft

BENTONITE PELLET SEAL 8.5 to 10.5 ft

SANDPACK (Monterey 2/16) 10.5 to 22 ft

4 IN. DIAMETER SCH. 40 PVC SLOTTED SCREEN (0.010" slot size) 13 to 18 ft

SILT TRAP 18 to 18.5 ft

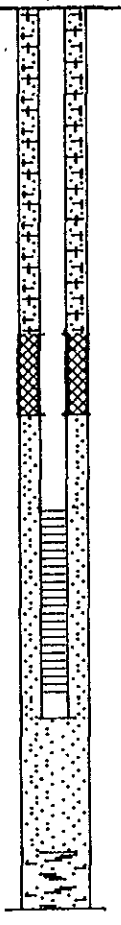
BOTTOM WELL CAP at 18.5 ft

SILT TRAP 18 to 18.5 ft

SLOUGH 22.0 to 23.5 ft

BOTTOM OF BOREHOLE 23.5 ft

See below for Well Top Detail



Sample	Blows/foot	OVA Readings (ppm)
	10	10-20
	10	5-10
	3	0.5
	8	0.5
	4	0.5
	3	0.5
	8	0.0

Depth (ft): 0, 5, 10, 15, 20, 25, 30, 35, 40

Equipment 10" HSA

Elevation 15.1 ft Date 4/30/89

3 IN. ASPHALT
FILL - gravel and sand, hard, dry

VERY DARK GRAY SILTY SANDY CLAY (CL) medium stiff, moist

GRAY-GREEN SILTY GRAVELLY CLAY (CL) stiff, moist

color change to gray-brown

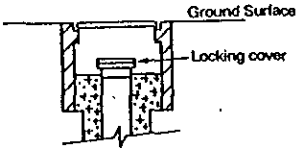
▽ water level on 4/30/89
color change to light olive-brown

GRAY-BROWN SAND (SP) loose, saturated
LIGHT OLIVE-BROWN SILTY CLAY (CL) medium stiff, saturated

GRAY-BROWN SANDY GRAVEL (GP) loose, saturated
GRAY-BROWN SAND (SP) medium dense, saturated
DARK BROWN SILTY CLAY (CL) soft, saturated
GRAY-BROWN CLAY (CL) soft, moist

YELLOW-BROWN CLAYEY SILT (ML) medium stiff, wet
bottom of boring at 23.5 ft

WELL TOP DETAIL



NOT TO SCALE

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring and Well Completion Detail MW-1
1600-63rd Street Associates, Inc.
Emeryville, California

PLATE **A-3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	18,452,016.02		9/89		

Top of PVC Casing Elevation 14.43 ft MSL

GROUND SURFACE

See below for Well Top Detail

TOP OF CASING 0.5 ft below ground level

10 IN. DIAMETER BOREHOLE 0 to 26 ft

4 IN. DIAMETER SCH. 40 PVC BLANK CASING 0.5 to 12.5 ft

BENTONITE/CEMENT SEAL 1 to 8.5 ft

BENTONITE PELLET SEAL 8.5 to 10.5 ft

SANDPACK (Lonestar 2/16) 10.5 to 23 ft

4 IN. DIAMETER SCH. 40 PVC SLOTTED SCREEN (0.010" slot size) 12.5 to 20.5 ft

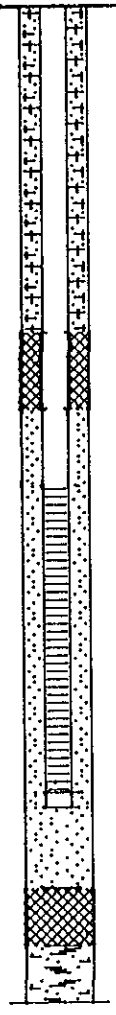
SILT TRAP 20.5 to 20.9 ft

BOTTOM WELL CAP at 20.9 ft

HOLE CLEANED OUT TO 24.5 ft

BENTONITE PELLETS 23.0 to 24.5 ft

SLOUGH 24.5 to 26.0 ft



Depth (ft)	Sample	Blows/foot	OVA Readings (ppm)
		4	200
		7	500
		20	600
		15	400
		16	300
		7	100
		6	75
		11	40
		NA	0

Equipment 10" HSA

Elevation 15.0 ft Date 6/18/89

0 – 6 IN. ASPHALT
FILL - DARK BROWN SILTY GRAVEL (GM)

5 – BLACK SANDY CLAY (CL) stiff, moist, 10-15% very fine-grained sand

color change to dark gray

10 – GREEN-GRAY CLAYEY SILT (ML) medium stiff, moist

GREEN-GRAY CLAYEY SILTY GRAVEL (GM) medium dense, wet, subangular to subrounded gravel, 40% silt, 10% clay

▽ water level on 6/18/89

15 – DARK GRAY SILTY SAND (SM) medium dense, saturated, very fine-grained sand

20 – LIGHT OLIVE-GRAY SANDY CLAYEY SILT (ML) medium stiff, wet

DARK GRAY CLAYEY SILT (SM) loose, saturated

LIGHT OLIVE-GRAY SANDY CLAYEY SILT (ML) medium stiff, wet

25 – LIGHT OLIVE-GRAY SILTY CLAY (CL) stiff, moist, 5% very fine sand

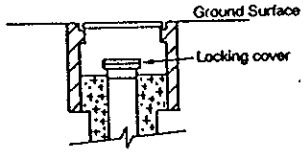
bottom of boring at 26.0 ft

30 –

35 –

40 –

WELL TOP DETAIL



NOT TO SCALE

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring and Well Completion Detail MW-2
1600-63rd Street Associates, Inc.
Emeryville, California

PLATE **A-4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	18, 452, 016.02		9/89		

Top of PVC Casing Elevation 15.90 ft MSL

Equipment 10" HSA

Elevation 16.5 ft Date 5/1/89

GROUND SURFACE	See below for Well Top Detail	Blows/foot	OVA Readings (ppm)	Depth (ft)	Sample
TOP OF CASING 0.5 ft below ground level				0	
10 IN. DIAMETER BOREHOLE 0 to 29 ft			0	5	
		11	0		
4 IN. DIAMETER SCH. 40 PVC BLANK CASING 0.5 to 20 ft		5		10	
BENTONITE/CEMENT SEAL 1 to 15 ft		6	0		
		6		15	
BENTONITE PELLET SEAL 15 to 18 ft		6	0		
SANDPACK (Lonestar 2/16) 18 to 27 ft		11		20	
4 IN. DIAMETER SCH. 40 PVC SLOTTED SCREEN (0.010" slot size) 20 to 25		6	0		
SILT TRAP 25 to 25.5 ft		8		25	
BOTTOM WELL CAP at 25 ft					
HOLE CLEANED OUT TO 27 ft		11	0		
SLOUGH 27.0-29.0 ft				30	
				35	
				40	

VERY DARK GRAY CLAY (CL)

GRAY AND YELLOW-BROWN CLAYEY SANDY SILT (ML) medium stiff, wet

GRAY-BROWN CLAY (CL) medium stiff, wet

LIGHT OLIVE-BROWN CLAYEY SILT (ML) medium stiff

DARK BROWN CLAY (CL) medium stiff, moist

GRAY-BROWN SILTY CLAY (CL)

▽ water level on 5/1/89

YELLOW-BROWN CLAYEY SANDY SILTY GRAVEL (GM) medium dense, saturated

OLIVE-BROWN CLAYEY SILT (ML) medium stiff, saturated

RED-BROWN SAND (SP) loose, saturated

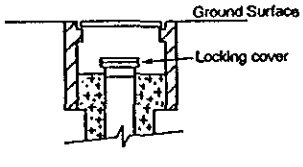
GRAY-BROWN CLAYEY SILT (ML) medium stiff, saturated, trace gravel

DARK GRAY-BROWN CLAY (CL) medium stiff, moist

DARK GRAY-BROWN GRAVELLY CLAY (CL) stiff, moist

bottom of boring at 29.0 ft

WELL TOP DETAIL



NOT TO SCALE

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring and Well Completion Detail MW-3

1600-63rd Street Associates, Inc.

Emeryville, California

PLATE **A-5**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	18, 452, 016.02		9/89		

Top of PVC Casing Elevation 14.04 ft MSL

Equipment 10" HSA

Elevation 14.5 ft Date 6/18/89

GROUND SURFACE

See below for Well Top Detail

TOP OF CASING 0.5 ft below ground level

10 IN. DIAMETER BOREHOLE
0 to 31 ft

4 IN. DIAMETER SCH. 40 PVC BLANK CASING 0.5 to 22 ft

BENTONITE/CEMENT SEAL
1 to 18 ft

BENTONITE PELLET SEAL
18 to 20 ft

SANDPACK (Monterey 2/16)
20 to 30 ft

4 IN. DIAMETER SCH. 40 PVC SLOTTED SCREEN
(0.010" slot size)
22 to 29 ft

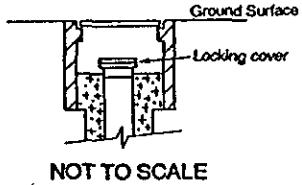
SILT TRAP 29 to 29.5 ft
BOTTOM WELL CAP at 29.5 ft.

BENTONITE PELLETS 30 to 31 ft

HOLE CLEANED OUT TO 31 ft

Depth (ft)	Sample	Blows/foot	OVA Readings (ppm)	
0				6 IN. ASPHALT FILL - MEDIUM DARK BROWN SILTY GRAVEL (GM)
5		12	150	BLACK SILTY CLAY WITH SAND (CL) soft, moist, with very fine sand
10		6	30	color change to dark gray DARK GRAY CLAYEY SILT (ML)
			TR	DARK GRAY-BROWN SILTY SAND (SM) medium dense, moist, with gravel
			TR	
		8	~0.2	DARK GRAY-BROWN CLAYEY SAND (SC) loose, wet
			5	▽ water level on 6/18/89
15		10	30	OLIVE-GRAY SANDY CLAYEY SILT (ML) soft, saturated, 10% very fine to fine sand
			0	OLIVE-BROWN SILTY CLAY (CL) stiff, wet
		11	TR	OLIVE-BROWN SILTY SAND (SM) medium dense, saturated
			0	OLIVE-BROWN SANDY SILT (ML) medium stiff, saturated
20		6	0	trace gravel from 20-20.2 ft
			TR	
		4		OLIVE-GRAY SILTY SAND (SM) loose, saturated, very fine sand
		8	0	
			0	
25		14	0	OLIVE-GRAY SILTY CLAY (CL) stiff, moist
		17	0	DARK YELLOW-BROWN SILTY SAND (SM) medium dense, saturated
			0	DARK YELLOW-BROWN SANDY GRAVEL (GM) medium dense, saturated
		13	0	OLIVE-BROWN CLAYEY SILT (ML) stiff, wet, with 5% fine gravel
			0	DARK YELLOW-BROWN SILTY SANDY GRAVEL (GM) medium dense, saturated, 40% coarse sand, 10% silt
30		12	0	OLIVE-BROWN CLAYEY SILT (ML) medium stiff, moist
		23		bottom of boring at 31 ft
35				
40				

WELL TOP DETAIL



NOT TO SCALE

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring and Well Completion Detail MW-4
1600-63rd Street Associates, Inc.
Emeryville, California

PLATE **A-6**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	18,452,016.02		9/89		

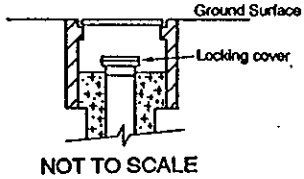
Top of PVC Casing Elevation 15.21 ft MSL

Equipment 10" HSA

Elevation 15.7 ft Date 6/25/89

GROUND SURFACE	See below for Well Top Detail	Blows/foot	OVA Readings (ppm)	Depth (ft)	Sample	
TOP OF CASING 0.5 ft below ground level .				0		2 IN. ASPHALT FILL - MEDIUM DARK BROWN SILTY GRAVEL (GP) dry
10 IN. DIAMETER BOREHOLE 0 to 33.5 ft		12		5		VERY DARK GRAY SILTY CLAY (CL) soft, dry, 10% fine sand
4 IN. DIAMETER SCH. 40 PVC BLANK CASING 0.5 to 24 ft		6	0	10		DARK BROWN CLAYEY SILT (ML) stiff, dry, with 5% fine gravel color change to olive-brown at 10.4 ft
		4	0 0			VERY DARK GRAY SILTY GRAVEL (GM) loose, moist LIGHT OLIVE-BROWN SILTY CLAY (CL) medium stiff, moist color change between 13.5 and 15.0 ft to brown
BENTONITE/CEMENT SEAL 1 to 20 ft		12	0 0	15		
		7	0 0			DARK GRAY-BROWN CLAYEY SILT (ML) medium stiff, moist
BENTONITE PELLET SEAL 20 to 22 ft		10	0 0	20		BROWN SILTY CLAY (CL) soft, moist DARK GRAY-BROWN SANDY CLAYEY SILT (ML) stiff, moist, 10% very fine to fine sand color change to gray-brown, with 40% very fine to fine sand
SANDPACK (Monterey 2/16) 22 to 33.5 ft		6	0 0	25		▽ water level on 6/25/89
4 IN. DIAMETER SCH. 40 PVC SLOTTED SCREEN (0.010" slot size) 24 to 32 ft		14				GRAY-BROWN SILTY SAND (SM) medium dense, saturated, 30-35% silt YELOW-BROWN SAND (SP) 10YR 5/4 medium dense, saturated
		24		30		DARK GRAY-BROWN SANDY CLAYEY SILT (ML) stiff, wet, 10% very fine sand DARK YELLOW-BROWN GRAVEL (GM) 10YR 3/4 medum dense, saturated, 15-25% fine to medium sand, 15% silt
BOTTOM WELL CAP at 32 ft						
		9				DARK GRAY-BROWN SANDY CLAYEY SILT (ML) stiff, moist bottom of boring at 33.5 ft
HOLE CLEANED OUT TO 33.5 ft				35		
				40		

WELL TOP DETAIL



NOT TO SCALE

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring and Well Completion Detail MW-5
1600-63rd Street Associates, Inc.
Emeryville, California

PLATE **A-7**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	18,452,016.02		9/89		

Appendix B

LABORATORY CHEMICAL DATA REPORTS AND CHAIN OF CUSTODY FORMS

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 05/01/89
DATE REPORTED: 05/15/89

LAB NUMBER: 17306

CLIENT: HARDING LAWSON ASSOCIATES - NOVATO

REPORT ON: 2 SOIL SAMPLES

JOB #: 18452 016 02

RESULTS: SEE ATTACHED

Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17306
CLIENT: HARDING LAWSON ASSOCIATES - NOVATO
JOB #: 18452 016 02

DATE RECEIVED: 05/01/89
DATE ANALYZED: 05/09/89
DATE REPORTED: 05/15/89

Total Volatile Hydrocarbons as Gasoline in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 5030 (Purge & Trap)

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)
17306-1	8904 #150	12
17306-2	8905 #295	ND(50)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

%RPD	11
Spike, % Recovery	105

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17306
CLIENT: HARDING LAWSON ASSOCIATES - NOVATO
JOB #: 18452 016 02

DATE RECEIVED: 05/01/89
DATE ANALYZED: 05/11/89
DATE REPORTED: 05/15/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSINE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
17306-1	8904 #150	15	ND(10)	212	
17306-2	8905 #295	ND(10)	ND(10)	ND(10)	

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	3
Spike: % Recovery	94

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17306-1
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452 016 02
SAMPLE ID: 8905 #150

DATE RECEIVED: 05/01/89
DATE ANALYZED: 05/02/89
DATE REPORTED: 05/15/89

Title 22 Metals in Soils & Wastes
Digestion Method: EPA 3050

METAL	RESULT mg/Kg	DETECTION LIMIT mg/Kg	METHOD
Antimony	ND	2.5	EPA 6010
Arsenic	ND	2.5	EPA 7060
Barium	72	0.5	EPA 6010
Beryllium	ND	0.5	EPA 6010
Cadmium	ND	0.5	EPA 6010
Chromium (total)	11	0.5	EPA 6010
Cobalt	8.1	0.5	EPA 6010
Copper	6.0	0.5	EPA 6010
Lead	5.0	2.5	EPA 7420
Mercury	ND	0.1	EPA 7471
Molybdenum	ND	0.5	EPA 6010
Nickel	21	0.5	EPA 6010
Selenium	ND	0.3	EPA 7740
Silver	ND	1.0	EPA 6010
Thallium	ND	2.5	EPA 6010
Vanadium	5.5	1.0	EPA 6010
Zinc	15	0.5	EPA 6010

ND = None Detected

Soluble lead - TTLC

QA/QC SUMMARY

	%RPD	%SPIKE		%RPD	%SPIKE
Antimony	<1	92	Mercury	7	92
Arsenic	7	94	Molybdenum	<1	93
Barium	1	97	Nickel	<1	102
Beryllium	<1	98	Selenium	<1	90
Cadmium	2	89	Silver	2	104
Chromium	2	103	Thallium	<1	91
Cobalt	<1	100	Vanadium	1	90
Copper	3	94	Zinc	3	103
Lead	2	102			

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17306-2
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452 016 02
SAMPLE ID: 8905 #295

DATE RECEIVED: 05/01/89
DATE ANALYZED: 05/02/89
DATE REPORTED: 05/15/89

Title 22 Metals in Soils & Wastes
Digestion Method: EPA 3050

METAL	RESULT mg/Kg	DETECTION LIMIT mg/Kg	METHOD
Antimony	ND	2.5	EPA 6010
Arsenic	4.2	2.5	EPA 7060
Barium	170	0.5	EPA 6010
Beryllium	ND	0.5	EPA 6010
Cadmium	ND	0.5	EPA 6010
Chromium (total)	17	0.5	EPA 6010
Cobalt	8.9	0.5	EPA 6010
Copper	16	0.5	EPA 6010
Lead	48	2.5	EPA 7420
Mercury	ND	0.1	EPA 7471
Molybdenum	ND	0.5	EPA 6010
Nickel	15	0.5	EPA 6010
Selenium	ND	0.3	EPA 7740
Silver	ND	1.0	EPA 6010
Thallium	ND	2.5	EPA 6010
Vanadium	16	1.0	EPA 6010
Zinc	64	0.5	EPA 6010

ND = None Detected

QA/QC SUMMARY

	%RPD	%SPIKE		%RPD	%SPIKE
Antimony	<1	92	Mercury	7	92
Arsenic	7	94	Molybdenum	<1	93
Barium	1	97	Nickel	<1	102
Beryllium	<1	98	Selenium	<1	90
Cadmium	2	89	Silver	2	104
Chromium	2	103	Thallium	<1	91
Cobalt	<1	100	Vanadium	1	90
Copper	3	94	Zinc	3	103
Lead	2	102			

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17306-1
CLIENT: HARDING LAWSON ASSOCIATES - WAREHAM
JOB #: 18452 016 02
SAMPLE ID: 8904 #150

DATE RECEIVED: 05/01/89
DATE ANALYZED: 05/03/89
DATE REPORTED: 05/15/89

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

Compound	Result ug/Kg	LOD ug/Kg
chloromethane	ND	5
bromomethane	ND	5
vinyl chloride	ND	5
chloroethane	ND	5
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
1,2-dichloroethene (total)	ND	5
chloroform	ND	5
freon 113	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
1,1,2-trichloroethane	ND	5
trans-1,3-dichloropropene	ND	5
dibromochloromethane	ND	5
2-chloroethylvinyl ether	ND	5
bromoform	ND	5
tetrachloroethene	ND	5
1,1,2,2-tetrachloroethane	ND	5
chlorobenzene	ND	5
1,3-dichlorobenzene	ND	5
1,2-dichlorobenzene	ND	5
1,4-dichlorobenzene	ND	5

ND = None Detected. Limit of detection (LOD) in last column.

QA/QC SUMMARY

Duplicate: Relative % Difference	5
Spike: Average % Recovery	96

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17306-2
CLIENT: HARDING LAWSON ASSOCIATES - WAREHAM
JOB #: 18452 016 02
SAMPLE ID: 8905 #295

DATE RECEIVED: 05/01/89
DATE ANALYZED: 05/03/89
DATE REPORTED: 05/15/89

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

Compound	Result ug/Kg	LOD ug/Kg
chloromethane	ND	5
bromomethane	ND	5
vinyl chloride	ND	5
chloroethane	ND	5
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
1,2-dichloroethene (total)	ND	5
chloroform	ND	5
freon 113	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
1,1,2-trichloroethane	ND	5
trans-1,3-dichloropropene	ND	5
dibromochloromethane	ND	5
2-chloroethylvinyl ether	ND	5
bromoform	ND	5
tetrachloroethene	ND	5
1,1,2,2-tetrachloroethane	ND	5
chlorobenzene	ND	5
1,3-dichlorobenzene	ND	5
1,2-dichlorobenzene	ND	5
1,4-dichlorobenzene	ND	5

ND = None Detected. Limit of detection (LOD) in last column.

QA/QC SUMMARY

Duplicate: Relative % Difference	5
Spike: Average % Recovery	96

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17306-1
CLIENT: HARDING LAWSON ASSOCIATES - NOVATO
JOB #: 18452 016 02
SAMPLE ID: 8904 #150

DATE RECEIVED: 05/01/89
DATE ANALYZED: 05/03/89
DATE REPORTED: 05/15/89

EPA 8020: Volatile Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/Kg	LOD ug/Kg
Benzene	ND	5
Toluene	ND	5
Ethyl Benzene	ND	5
Total Xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = None Detected. Limit of detection (LOD) in last column.

QA/QC:

Duplicate: Relative % Difference	5
Average Spike Recovery %	96

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17306-2
CLIENT: HARDING LAWSON ASSOCIATES - NOVATO
JOB #: 18452 016 02
SAMPLE ID: 8905 #295

DATE RECEIVED: 05/01/89
DATE ANALYZED: 05/03/89
DATE REPORTED: 05/15/89

EPA 8020: Volatile Aromatic Hydrocarbons in Soils & Wastes
Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/Kg	LOD ug/Kg
Benzene	ND	5
Toluene	ND	5
Ethyl Benzene	ND	5
Total Xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = None Detected. Limit of detection (LOD) in last column.

QA/QC:

Duplicate: Relative % Difference	5
Average Spike Recovery %	96

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17306-1
CLIENT: HARDING LAWSON ASSOCIATES - NOVATO
JOB #: 18452 016 02
SAMPLE ID: 8904 #150

DATE RECEIVED: 05/01/89
DATE ANALYZED: 05/03/89
DATE REPORTED: 05/15/89

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

ACID COMPOUNDS	RESULT ug/kg	LOD ug/kg
Phenol	ND	330
2-Chlorophenol	ND	330
2-Nitrophenol	ND	1650
2,4-Dimethylphenol	ND	330
2,4-Dichlorophenol	ND	330
4-Chloro-3-methylphenol	ND	330
2,4,6-Trichlorophenol	ND	330
2,4-Dinitrophenol	ND	1650
4-Nitrophenol	ND	1650
4,6-Dinitro-2-methylphenol	ND	1650
Pentachlorophenol	ND	1650
BASE/NEUTRAL COMPOUNDS		
Bis(2-chloroethyl)ether	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
1,2-Dichlorobenzene	ND	330
Bis(2-chloroisopropyl)ether	ND	330
N-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
Bis(2-chloroethoxy)methane	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	330
Hexachlorobutadiene	ND	330
Hexachlorocyclopentadiene	ND	330
2-Chloronaphthalene	ND	330
Dimethylphthalate	ND	330
Acenaphthylene	ND	330
2,6-Dinitrotoluene	ND	330
Acenaphthene	ND	330
2,4-Dinitrotoluene	ND	330
Diethylphthalate	ND	330
4-Chlorophenyl-phenylether	ND	330
Fluorene	ND	330
N-Nitrosodiphenylamine	ND	330

LABORATORY NUMBER: 17306-1
SAMPLE ID: 8904 #150

BASE/NEUTRAL COMPOUNDS	RESULT ug/kg	LOD ug/kg
4-Bromophenyl-phenylether	ND	330
Hexachlorobenzene	ND	330
Phenanthrene	ND	330
Anthracene	ND	330
Di-n-butylphthalate	ND	330
Fluoranthene	ND	330
Pyrene	ND	330
Butylbenzylphthalate	ND	330
3,3'-Dichlorobenzidine	ND	1650
Benzo (a) anthracene	ND	330
Chrysene	ND	330
Bis (2-ethylhexyl)phthalate	ND	330
Di-n-octylphthalate	ND	330
Benzo (b) fluoranthene	ND	330
Benzo (k) fluoranthene	ND	330
Benzo (a) pyrene	ND	330
Indeno (1,2,3-cd) pyrene	ND	330
Dibenzo (a,h) anthracene	ND	330
Benzo (g,h,i) perylene	ND	330
HSL COMPOUNDS		
Benzoic Acid	ND	1650
2-Methylphenol	ND	330
4-Methylphenol	ND	330
2,4,5-Trichlorophenol	ND	1650
Benzyl Alcohol	ND	330
4-Chloroaniline	ND	330
2-Methylnaphthalene	ND	330
2-Nitroanline	ND	1650
3-Nitroaniline	ND	1650
Dibenzofuran	ND	330
4-Nitroaniline	ND	1650

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SURROGATE RECOVERY:

2-Fluorophenol	114 %
Phenol-d5	91 %
2, 4, 6-Tribromophenol	46 %
Nitrobenzene-d5	111 %
2-Fluorobiphenyl	80 %
Terphenyl-d14	102 %

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17306-2
CLIENT: HARDING LAWSON ASSOCIATES - NOVATO
JOB #: 18452 016 02
SAMPLE ID: 8905 #295

DATE RECEIVED: 05/01/89
DATE ANALYZED: 05/03/89
DATE REPORTED: 05/15/89

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

ACID COMPOUNDS	RESULT ug/kg	LOD ug/kg
Phenol	ND	330
2-Chlorophenol	ND	330
2-Nitrophenol	ND	1650
2,4-Dimethylphenol	ND	330
2,4-Dichlorophenol	ND	330
4-Chloro-3-methylphenol	ND	330
2,4,6-Trichlorophenol	ND	330
2,4-Dinitrophenol	ND	1650
4-Nitrophenol	ND	1650
4,6-Dinitro-2-methylphenol	ND	1650
Pentachlorophenol	ND	1650
BASE/NEUTRAL COMPOUNDS		
Bis(2-chloroethyl)ether	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
1,2-Dichlorobenzene	ND	330
Bis(2-chloroisopropyl)ether	ND	330
N-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
Bis(2-chloroethoxy)methane	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	330
Hexachlorobutadiene	ND	330
Hexachlorocyclopentadiene	ND	330
2-Chloronaphthalene	ND	330
Dimethylphthalate	ND	330
Acenaphthylene	ND	330
2,6-Dinitrotoluene	ND	330
Acenaphthene	ND	330
2,4-Dinitrotoluene	ND	330
Diethylphthalate	ND	330
4-Chlorophenyl-phenylether	ND	330
Fluorene	ND	330
N-Nitrosodiphenylamine	ND	330

LABORATORY NUMBER: 17306-2
SAMPLE ID: 8905 #295

BASE/NEUTRAL COMPOUNDS	RESULT ug/kg	LOD ug/kg
4-Bromophenyl-phenylether	ND	330
Hexachlorobenzene	ND	330
Phenanthrene	ND	330
Anthracene	ND	330
Di-n-butylphthalate	ND	330
Fluoranthene	ND	330
Pyrene	ND	330
Butylbenzylphthalate	ND	330
3,3'-Dichlorobenzidine	ND	1650
Benzo (a) anthracene	ND	330
Chrysene	ND	330
Bis (2-ethylhexyl)phthalate	ND	330
Di-n-octylphthalate	ND	330
Benzo (b) fluoranthene	ND	330
Benzo (k) fluoranthene	ND	330
Benzo (a) pyrene	ND	330
Indeno (1,2,3-cd) pyrene	ND	330
Dibenzo (a,h) anthracene	ND	330
Benzo (g,h,i) perylene	ND	330
HSL COMPOUNDS		
Benzoic Acid	ND	1650
2-Methylphenol	ND	330
4-Methylphenol	ND	330
2,4,5-Trichlorophenol	ND	1650
Benzyl Alcohol	ND	330
4-Chloroaniline	ND	330
2-Methylnaphthalene	ND	330
2-Nitroanline	ND	1650
3-Nitroaniline	ND	1650
Dibenzofuran	ND	330
4-Nitroaniline	ND	1650

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SURROGATE RECOVERY:

2-Fluorophenol	81 %
Phenol-d5	83 %
2, 4, 6-Tribromophenol	82 %
Nitrobenzene-d5	74 %
2-Fluorobiphenyl	92 %
Terphenyl-d14	108 %

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 05/01/89
DATE REPORTED: 07/17/89

LAB NUMBER: 17306

CLIENT: HARDING LAWSON ASSOCIATES

REPORT ON: 2 SOIL SAMPLES

JOB #: 18452 016 02
LOCATION: WAREHAM

RESULTS: SEE ATTACHED

Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17306-1
CLIENT: HARDING LAWSON ASSOCIATES
SAMPLE ID: 8904 #150
JOB #: 18452 016 02

DATE RECEIVED: 05/01/89
DATE ANALYZED: 05/04/89
DATE REPORTED: 07/17/89

EPA 8080: Organochlorine Pesticides and PCBs in Soil & Wastes
Extraction Method: EPA 3550 - Sonication

COMPOUND	Result (ug/kg)	Detection Limit (ug/kg)
alpha-BHC	ND	50
beta-BHC	ND	50
gamma-BHC	ND	50
delta-BHA	ND	50
Heptachlor	ND	50
Aldrin	ND	50
Heptachlor Epoxide	ND	50
Endosulfan I	ND	50
pp-DDE	ND	50
Dieldrin	ND	50
Endrin	ND	50
Endosulfan II	ND	50
pp-DDD	ND	50
Endrin Ketone	ND	50
Endosulfan Sulfate	ND	50
pp-DDT	ND	50
Chlordane	ND	500
Toxaphene	ND	500
Methoxychlor	ND	500
PCB 1016	ND	500
PCB 1221	ND	500
PCB 1232	ND	500
PCB 1242	ND	500
PCB 1248	ND	500
PCB 1254	ND	500
PCB 1260	ND	500

ND = Not detected. Limit of detection appears right column.

QA/QC:

Duplicate: Relative % Difference	20
Average Spike Recovery %	86

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17306-2
CLIENT: HARDING LAWSON ASSOCIATES
SAMPLE ID: 89005 #295
JOB #: 18452 016 02

DATE RECEIVED: 05/01/89
DATE ANALYZED: 05/04/89
DATE REPORTED: 07/17/89

EPA 8080: Organochlorine Pesticides and PCBs in Soil & Wastes
Extraction Method: EPA 3550 - Sonication

COMPOUND	Result (ug/kg)	Detection Limit (ug/kg)
alpha-BHC	ND	50
beta-BHC	ND	50
gamma-BHC	ND	50
delta-BHA	ND	50
Heptachlor	ND	50
Aldrin	ND	50
Heptachlor Epoxide	ND	50
Endosulfan I	ND	50
pp-DDE	ND	50
Dieldrin	ND	50
Endrin	ND	50
Endosulfan II	ND	50
pp-DDD	ND	50
Endrin Ketone	ND	50
Endosulfan Sulfate	ND	50
pp-DDT	ND	50
Chlordane	ND	500
Toxaphene	ND	500
Methoxychlor	ND	500
PCB 1016	ND	500
PCB 1221	ND	500
PCB 1232	ND	500
PCB 1242	ND	500
PCB 1248	ND	500
PCB 1254	ND	500
PCB 1260	ND	500

ND = Not detected. Limit of detection appears right column.

QA/QC:

Duplicate: Relative % Difference	20
Average Spike Recovery %	86

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 06/06/89
DATE REPORTED: 06/13/89

LAB NUMBER: 17531

CLIENT: HARDING LAWSON ASSOCIATES

REPORT ON: 2 WATER SAMPLES & 3 SOIL COMPOSITES:

COMPOSITE 1: 8906FE01/FE02/FE03/FE04
COMPOSITE 2: 8906FE05/FE06/FE07
COMPOSITE 3: 8906FE08/FE09

JOB #: 17452,016.02
LOCATION: 1600 63RD ST.

RESULTS: SEE ATTACHED

Jm Wong for CBG
Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17531
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
LOCATION: 1600 63rd ST.

DATE RECEIVED: 06/06/89
DATE ANALYZED: 06/07/89
DATE REPORTED: 06/13/89

Total Volatile Hydrocarbons as Gasoline in Aqueous Solutions
EPA 8015 (Modified)
Extraction Method: EPA 5030 (Purge & Trap)

LAB ID	CLIENT ID	TVH AS GASOLINE (ug/L)
17531-1C	8906FE10	ND(50)
17531-2C	8906FE11	ND(50)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

%RPD	4
Spike, % Recovery	110

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17531
CLIENT: HARDING LAWSON ASSOCIATES
JOB NUMBER: 18452,016,02
JOB LOCATION: 1600 63RD ST.

DATE RECEIVED: 06/06/89
DATE ANALYZED: 06/07/89
DATE REPORTED: 06/13/89

Total Volatile Hydrocarbons (TVH) by EPA 8015
Extraction by EPA 5030 Purge and Trap

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)
17531: 3-6	COMP 1: FE01-04	ND(10)
17531: 7-9	COMP 2: FE05-07	ND(10)
17531: 10-11	COMP 3: FE08-09	37

ND = None Detected; Limit of detection is indicated in parentheses.

QA/QC SUMMARY

%RPD	4
%RECOVERY	111

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17531
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016,02
LOCATION: 1600 63RD ST.

DATE RECEIVED: 06/06/89
DATE ANALYZED: 06/09/89
DATE REPORTED: 06/13/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	KEROSINE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
17531: 3-6	COMP 1: FE01-04	ND(10)	ND(10)	ND(10)
17531: 7-9	COMP 2: FE05-07	ND(10)	63 **	ND(10)
17531: 10-11	COMP 3: FE08-09	29 *	800 **	ND(10)

* Fingerprint pattern does not match Hydrocarbon standards. Quantitation based on largest peaks within C9-C12 boiling range.

** Fingerprint pattern does not match Hydrocarbon standards. Quantitation based on largest peaks within C12-C22 boiling range.

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	2
Spike: % Recovery	102

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17531
CLIENT: HARDING LAWSON ASSOCIATES
PROJECT #: 18452,016,02
LOCATION: 1600 63RD ST.

DATE RECEIVED: 06/06/89
DATE ANALYZED: 06/08/89
DATE REPORTED: 06/13/89

Extractable Petroleum Hydrocarbons in Aqueous Solutions
EPA 8015 (Modified)
Extraction Method: EPA 3510

LAB ID	CLIENT ID	KEROSINE (mg/L)	DIESEL (mg/L)	OTHER (mg/L)
17531-1D	8906FE10	ND(0.5)	ND(0.5)	ND(0.5)
17531-2D	8906FE11	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

RPD, %	3
Spike: % Recovery	98

Curtis & Tompkins, Ltd.

LAB NUMBER: 17531
CLIENT: HARDING LAWSON ASSOCIATES
PROJECT #: 18452,016,02
PROJECT NAME: 1600 63RD ST.

DATE RECEIVED: 06/06/89
DATE ANALYZED: 06/08/89
DATE REPORTED: 06/13/89

POLYCHLORINATED BIPHENYLS (PCBs)
METHOD: EPA 608

LAB ID	CLIENT ID	AROCLOR	CONCENTRATION (ug/L)	MDL (ug/L)
17531-1	8906FE10	---	ND	0.5
17531-2	8906FE11	---	ND	0.5

ND = NONE DETECTED.

QA/QC SUMMARY

%RPD	9
%RECOVERY	100

Curtis & Tompkins, Ltd.

LAB NUMBER: 17531
CLIENT: HARDING LAWSON ASSOCIATES
PROJECT #: 18452,016,02
PROJECT NAME: 1600 63RD ST.

DATE RECEIVED: 06/06/89
DATE ANALYZED: 06/08/89
DATE REPORTED: 06/13/89

POLYCHLORINATED BIPHENYLS (PCBs)
METHOD: EPA 608/8080
EXTRACTION METHOD: EPA 3550-SONICATION

LAB ID	CLIENT ID	AROCLOR	CONCENTRATION (mg/Kg)	MDL (mg/Kg)
17531 3-6	COMP 1: FE01-04	---	ND	1.0
17531 7-9	COMP 2: FE05-07	---	ND	1.0
17531 10-11	COMP 3: FE08-09	---	ND	1.0

ND = NONE DETECTED; LIMIT OF DETECTION IS INDICATED IN LAST COLUMN.

QA/QC SUMMARY

%RPD	3
%RECOVERY	102

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17531-1A
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016,02
SAMPLE ID: 8906FE10

DATE RECEIVED: 06/06/89
DATE ANALYZED: 06/07/89
DATE REPORTED: 06/12/89

EPA METHOD 624: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	102%
Toluene-d8	98%
Bromofluorobenzene	104%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17531-2A
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016,02
SAMPLE ID: 8906FE11

DATE RECEIVED: 06/06/89
DATE ANALYZED: 06/07/89
DATE REPORTED: 06/13/89

EPA METHOD 624: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	103%
Toluene-d8	97%
Bromofluorobenzene	101%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17531 3-6
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016,02
SAMPLE ID: COMP 1: FE01-04

DATE RECEIVED: 06/06/89
DATE ANALYZED: 06/08/89
DATE REPORTED: 06/13/89

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES

COMPOUND	Result ug/kg	Detection Limit ug/kg
chloromethane	ND	50
bromomethane	ND	50
vinyl chloride	ND	50
chloroethane	ND	50
methylene chloride	ND	25
trichlorofluoromethane	ND	25
1,1-dichloroethene	ND	25
1,1-dichloroethane	ND	25
trans-1,2-dichloroethene	ND	25
chloroform	ND	25
1,2-dichloroethane	ND	25
1,1,1-trichloroethane	ND	25
carbon tetrachloride	ND	25
bromodichloromethane	ND	25
1,2-dichloropropane	ND	25
cis-1,3-dichloropropene	ND	25
trichloroethylene	ND	25
dibromochloromethane	ND	25
1,1,2-trichloroethane	ND	25
benzene	ND	25
trans-1,3-dichloropropene	ND	25
2-chloroethylvinyl ether	ND	50
bromoform	ND	25
1,1,2,2-tetrachloroethane	ND	25
tetrachloroethene	ND	25
toluene	ND	25
chlorobenzene	ND	25
ethyl benzene	ND	25

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	50
carbon disulfide	ND	25
2-butanone	ND	50
vinyl acetate	ND	50
2-hexanone	ND	50
4-methyl-2-pentanone	ND	50
styrene	ND	25
total xylenes	ND	25

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	102%
Toluene-d8	103%
Bromofluorobenzene	105%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17531 7-9
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016,02
SAMPLE ID: COMP 2: FE05-07

DATE RECEIVED: 06/06/89
DATE ANALYZED: 06/08/89
DATE REPORTED: 06/13/89

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES

COMPOUND	Result ug/kg	Detection Limit ug/kg
chloromethane	ND	50
bromomethane	ND	50
vinyl chloride	ND	50
chloroethane	ND	50
methylene chloride	ND	25
trichlorofluoromethane	ND	25
1,1-dichloroethene	ND	25
1,1-dichloroethane	ND	25
trans-1,2-dichloroethene	ND	25
chloroform	ND	25
1,2-dichloroethane	ND	25
1,1,1-trichloroethane	ND	25
carbon tetrachloride	ND	25
bromodichloromethane	ND	25
1,2-dichloropropane	ND	25
cis-1,3-dichloropropene	ND	25
trichloroethylene	ND	25
dibromochloromethane	ND	25
1,1,2-trichloroethane	ND	25
benzene	ND	25
trans-1,3-dichloropropene	ND	25
2-chloroethylvinyl ether	ND	50
bromoform	ND	25
1,1,2,2-tetrachloroethane	ND	25
tetrachloroethene	ND	25
toluene	89	25
chlorobenzene	ND	25
ethyl benzene	ND	25

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	50
carbon disulfide	ND	25
2-butanone	ND	50
vinyl acetate	ND	50
2-hexanone	ND	50
4-methyl-2-pentanone	ND	50
styrene	ND	25
total xylenes	ND	25

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	104%
Toluene-d8	108%
Bromofluorobenzene	96%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17531 10-11
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016,02
SAMPLE ID: COMP 3: FE08-09

DATE RECEIVED: 06/06/89
DATE ANALYZED: 06/08/89
DATE REPORTED: 06/13/89

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES

COMPOUND	Result ug/kg	Detection Limit ug/kg
chloromethane	ND	50
bromomethane	ND	50
vinyl chloride	ND	50
chloroethane	ND	50
methylene chloride	ND	25
trichlorofluoromethane	ND	25
1,1-dichloroethene	ND	25
1,1-dichloroethane	ND	25
trans-1,2-dichloroethene	ND	25
chloroform	ND	25
1,2-dichloroethane	ND	25
1,1,1-trichloroethane	ND	25
carbon tetrachloride	ND	25
bromodichloromethane	ND	25
1,2-dichloropropane	ND	25
cis-1,3-dichloropropene	ND	25
trichloroethylene	ND	25
dibromochloromethane	ND	25
1,1,2-trichloroethane	ND	25
benzene	ND	25
trans-1,3-dichloropropene	ND	25
2-chloroethylvinyl ether	ND	50
bromoform	ND	25
1,1,2,2-tetrachloroethane	ND	25
tetrachloroethene	ND	25
toluene	ND	25
chlorobenzene	ND	25
ethyl benzene	ND	25
Non-Priority Hazardous Pollutant Substances List Compounds		
acetone	ND	50
carbon disulfide	ND	25
2-butanone	ND	50
vinyl acetate	ND	50
2-hexanone	ND	50
4-methyl-2-pentanone	ND	50
styrene	ND	25
total xylenes	ND	25

QA/QC SUMMARY: SURROGATE RECOVERIES	
1,2-Dichloroethane-d4	96%
Toluene-d8	94%
Bromofluorobenzene	107%

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

JUL - 3

DATE RECEIVED: 06/19/89
DATE REPORTED: 06/29/89

LAB NUMBER: 17633

CLIENT: HARDING LAWSON ASSOCIATES

REPORT ON: 2 WATER SAMPLES

JOB #: 18452,016.02
LOCATION: WAREHAM PETERSON

RESULTS: SEE ATTACHED

Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17633
CLIENT: HARDING LAWSON ASSOCIATES
PROJECT #: 18452,016.02
LOCATION: WAREHAM PETERSON

DATE RECEIVED: 06/19/89
DATE ANALYZED: 06/21/89
DATE REPORTED: 06/29/89

Extractable Petroleum Hydrocarbons in Aqueous Solutions
EPA 8015 (Modified)
Extraction Method: EPA 3510

LAB ID	CLIENT ID	GASOLINE (mg/L)	KEROSINE (mg/L)	DIESEL (mg/L)	OTHER (mg/L)
17633-1	89250601	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
17633-2	89250602	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

RPD, %	6
Spike: % Recovery	100

Curtis & Tompkins, Ltd.

LAB NUMBER: 17633
CLIENT: HARDING LAWSON ASSOCIATES
PROJECT #: 18452,016.02
PROJECT NAME: WAREHAM PETERSON

DATE RECEIVED: 06/19/89
DATE ANALYZED: 06/22/89
DATE REPORTED: 06/29/89

POLYCHLORINATED BIPHENYLS (PCBs)
METHOD: EPA 608/8080
EXTRACTION METHOD: SEP FUNNEL

LAB ID	CLIENT ID	AROCLOR	CONCENTRATION (ug/L)	MDL (ug/L)
17633-1	89250601	---	ND	0.5
17633-2	89250602	---	ND	0.5

ND = NONE DETECTED; LIMIT OF DETECTION IS INDICATED IN LAST COLUMN.

QA/QC SUMMARY

%RPD	4
%RECOVERY	89

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17633-1
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89250601

DATE RECEIVED: 06/19/89
DATE ANALYZED: 06/20/89
DATE REPORTED: 06/29/89

Title 22 Metals in Aqueous Solutions

METAL	RESULT mg/L	DETECTION LIMIT mg/L	METHOD
Antimony	ND	0.10	EPA 6010
Arsenic	ND	0.10	EPA 6010
Barium	0.13	0.01	EPA 6010
Beryllium	ND	0.01	EPA 6010
Cadmium	ND	0.01	EPA 6010
Chromium (total)	ND	0.01	EPA 6010
Cobalt	ND	0.01	EPA 6010
Copper	0.01	0.01	EPA 6010
Lead	ND	0.10	EPA 6010
Mercury	ND	0.001	EPA 7470
Molybdenum	ND	0.01	EPA 6010
Nickel	0.08	0.01	EPA 6010
Selenium	ND	0.01	EPA 6010
Silver	ND	0.01	EPA 6010
Thallium	ND	0.01	EPA 6010
Vanadium	ND	0.01	EPA 6010
Zinc	0.06	0.01	EPA 6010

ND = None Detected

QA/QC SUMMARY

	%RPD	%SPIKE		%RPD	%SPIKE
Antimony	<1	101	Mercury	6	102
Arsenic	2	89	Molybdenum	<1	100
Barium	<1	103	Nickel	<1	109
Beryllium	2	79	Selenium	2	98
Cadmium	5	106	Silver	5	109
Chromium	5	107	Thallium	2	103
Cobalt	4	105	Vanadium	<1	98
Copper	2	104	Zinc	3	107
Lead	2	107			

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17633-2
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89250602

DATE RECEIVED: 06/19/89
DATE ANALYZED: 06/20/89
DATE REPORTED: 06/29/89

Title 22 Metals in Aqueous Solutions

METAL	RESULT mg/L	DETECTION LIMIT mg/L	METHOD
Antimony	ND	0.10	EPA 6010
Arsenic	ND	0.10	EPA 6010
Barium	0.06	0.01	EPA 6010
Beryllium	ND	0.01	EPA 6010
Cadmium	ND	0.01	EPA 6010
Chromium (total)	ND	0.01	EPA 6010
Cobalt	ND	0.01	EPA 6010
Copper	0.01	0.01	EPA 6010
Lead	ND	0.10	EPA 6010
Mercury	ND	0.001	EPA 7470
Molybdenum	ND	0.01	EPA 6010
Nickel	ND	0.01	EPA 6010
Selenium	ND	0.10	EPA 6010
Silver	ND	0.01	EPA 6010
Thallium	ND	0.10	EPA 7841
Vanadium	ND	0.01	EPA 6010
Zinc	0.07	0.01	EPA 6010

ND = None Detected

QA/QC SUMMARY

	%RPD	%SPIKE		%RPD	%SPIKE
Antimony	<1	101	Mercury	6	102
Arsenic	2	89	Molybdenum	<1	100
Barium	<1	103	Nickel	<1	109
Beryllium	2	79	Selenium	2	98
Cadmium	5	106	Silver	5	109
Chromium	5	107	Thallium	2	104
Cobalt	4	105	Vanadium	<1	98
Copper	2	104	Zinc	3	107
Lead	2	107			

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17633-1
CLIENT: HARDING LAWSON ASSOCIATES
PROJECT #: 18452,016.02
SAMPLE ID: 89250601

DATE RECEIVED: 06/19/89
DATE ANALYZED: 06/21/89
DATE REPORTED: 06/29/89

EPA 601
Purgeable Halocarbons in Water

Compound	Result ug/L	LOD ug/L
chloromethane	ND	1
bromomethane	ND	1
vinyl chloride	ND	1
chloroethane	ND	1
methylene chloride	ND	1
trichlorofluoromethane	ND	1
1,1-dichloroethene	ND	1
1,1-dichloroethane	ND	1
1,2-dichloroethene (total)	ND	1
chloroform	ND	1
freon 113	ND	1
1,2-dichloroethane	ND	1
1,1,1-trichloroethane	ND	1
carbon tetrachloride	ND	1
bromodichloromethane	ND	1
1,2-dichloropropane	ND	1
cis-1,3-dichloropropene	ND	1
trichloroethylene	ND	1
1,1,2-trichloroethane	ND	1
cis-1,3-dichloropropene	ND	1
dibromochloromethane	ND	1
2-chloroethylvinyl ether	ND	1
bromoform	ND	1
tetrachloroethene	ND	1
1,1,2,2-tetrachloroethane	ND	1
chlorobenzene	ND	1
1,3-dichlorobenzene	ND	1
1,2-dichlorobenzene	ND	1
1,4-dichlorobenzene	ND	1

ND = None Detected. Limit of detection (LOD) in last column.

QA/QC:

Duplicate: Relative % Difference	11
Average Spike Recovery %	104

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17633-2
CLIENT: HARDING LAWSON ASSOCIATES
PROJECT #: 18452,016.02
SAMPLE ID: 89250602

DATE RECEIVED: 06/19/89
DATE ANALYZED: 06/21/89
DATE REPORTED: 06/29/89

EPA 601
Purgeable Halocarbons in Water

Compound	Result ug/L	LOD ug/L
chloromethane	ND	1
bromomethane	ND	1
vinyl chloride	ND	1
chloroethane	ND	1
methylene chloride	ND	1
trichlorofluoromethane	ND	1
1,1-dichloroethene	ND	1
1,1-dichloroethane	ND	1
1,2-dichloroethene (total)	ND	1
chloroform	ND	1
freon 113	ND	1
1,2-dichloroethane	ND	1
1,1,1-trichloroethane	ND	1
carbon tetrachloride	ND	1
bromodichloromethane	ND	1
1,2-dichloropropane	ND	1
cis-1,3-dichloropropene	ND	1
trichloroethylene	ND	1
1,1,2-trichloroethane	ND	1
cis-1,3-dichloropropene	ND	1
dibromochloromethane	ND	1
2-chloroethylvinyl ether	ND	1
bromoform	ND	1
tetrachloroethene	ND	1
1,1,2,2-tetrachloroethane	ND	1
chlorobenzene	ND	1
1,3-dichlorobenzene	ND	1
1,2-dichlorobenzene	ND	1
1,4-dichlorobenzene	ND	1

ND = None Detected. Limit of detection (LOD) in last column.

QA/QC:

Duplicate: Relative % Difference	11
Average Spike Recovery %	104

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17633-1
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89250601

DATE RECEIVED: 06/19/89
DATE ANALYZED: 06/21/89
DATE REPORTED: 06/29/89

EPA 602: Volatile Aromatic Hydrocarbons in Water

COMPOUND	RESULT ug/L	DETECTION LIMIT ug/L
Benzene	ND	1
Toluene	ND	1
Ethyl Benzene	ND	1
Total Xylenes	ND	1
Chlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = None Detected

QA/QC SUMMARY

RPD %	11
SPIKE RECOVERY %	104

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17633-2
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89250602

DATE RECEIVED: 06/19/89
DATE ANALYZED: 06/21/89
DATE REPORTED: 06/29/89

EPA 602: Volatile Aromatic Hydrocarbons in Water

COMPOUND	RESULT ug/L	DETECTION LIMIT ug/L
Benzene	ND	1
Toluene	ND	1
Ethyl Benzene	ND	1
Total Xylenes	ND	1
Chlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

ND = None Detected

QA/QC SUMMARY

RPD %	11
SPIKE RECOVERY %	104

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17633-1
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
LOCATION: WAREHAM PETERSON
CLIENT ID: 89250601

DATE RECEIVED: 06/19/89
DATE EXTRACTED: 06/19/89
DATE ANALYZED: 06/22/89
DATE REPORTED: 06/29/89

EPA 625: Base/Neutral and Acid Extractables in Water
Extraction Method: EPA 3510 Liquid/Liquid

ACID COMPOUNDS	RESULT ug/L	LOD ug/L
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	5
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	ND	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 17633-1
CLIENT ID: 89250601

BASE/NEUTRAL COMPOUNDS	RESULT ug/L	LOD ug/L
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	ND	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	ND	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	5
Dibenzo (a,h) anthracene	ND	5
Benzo (g,h,i) perylene	ND	5
HSL COMPOUNDS		
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	ND	5
2-Nitroanline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY: SURROGATE RECOVERIES

Compound	%Recovery	Compound	%Recovery
2-Fluorophenol	71%	Nitrobenzene-d5	109%
Phenol-d5	109%	2-Fluorobiphenyl	114%
2,4,6-tribromophenol	73%	Terphenyl	105%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17633-2
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
LOCATION: WAREHAM PETERSON
CLIENT ID: 89250602

DATE RECEIVED: 06/19/89
DATE EXTRACTED:06/19/89
DATE ANALYZED: 06/22/89
DATE REPORTED: 06/29/89

EPA 625: Base/Neutral and Acid Extractables in Water
Extraction Method: EPA 3510 Liquid/Liquid

ACID COMPOUNDS	RESULT ug/L	LOD ug/L
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	5
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	ND	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 17633-2
CLIENT ID: 89250602

BASE/NEUTRAL COMPOUNDS	RESULT ug/L	LOD ug/L
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	ND	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	ND	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	5
Dibenzo (a,h) anthracene	ND	5
Benzo (g,h,i) perylene	ND	5
HSL COMPOUNDS		
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	ND	5
2-Nitroanline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY: SURROGATE RECOVERIES

Compound	%Recovery	Compound	%Recovery
2-Fluorophenol	55%	Nitrobenzene-d5	114%
Phenol-d5	79%	2-Fluorobiphenyl	117%
2,4,6-tribromophenol	49%	Terphenyl	117%

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 06/19/89
DATE REPORTED: 06/30/89

LAB NUMBER: 17632

CLIENT: HARDING LAWSON ASSOCIATES

REPORT ON: 2 SOIL COMPOSITES

JOB #: 18452,016.02
LOCATION: WAREHAM/PETERSON

RESULTS: SEE ATTACHED

Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17632
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
LOCATION: WAREHAM/PETERSON

DATE RECEIVED: 06/19/89
DATE REQUESTED: 06/21/89
DATE ANALYZED: 06/23/89
DATE REPORTED: 06/30/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	KEROSINE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
17632: 1-3	8927001A/8927002B/ 8927003C	ND(10)	180	ND(10)
17632: 4-6	8927004A/8927005B/ 8927006C	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	9
Spike: % Recovery	88

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17632
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
LOCATION: WAREHAM/PETERSON

DATE RECEIVED: 06/19/89
DATE REQUESTED: 06/21/89
DATE ANALYZED: 06/28/89
DATE REPORTED: 06/30/89

Total Volatile Hydrocarbons as Gasoline in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 5030 (Purge & Trap)

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)
17632: 1-3	8927001A/8927002B/ 8927003C	44
17632: 4-6	8927004A/8927005B/ 8927006C	ND(10)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

%RPD	4
Spike, % Recovery	107

Curtis & Tompkins, Ltd.

LAB NUMBER: 17632
CLIENT: HARDING LAWSON ASSOCIATES
PROJECT #: 18452,016.02
PROJECT NAME: WAREHAM/PETERSON

DATE RECEIVED: 06/19/89
DATE REQUESTED: 06/21/89
DATE ANALYZED: 06/29/89
DATE REPORTED: 06/30/89

POLYCHLORINATED BIPHENYLS (PCBs)
METHOD: EPA 608/8080
EXTRACTION METHOD: EPA 3550-SONICATION

LAB ID	CLIENT ID	AROCLOR	CONCENTRATION (mg/Kg)	MDL (mg/Kg)
17632: 1-3	8927001A/8927002B/ 8927003C	---	ND	1.0
17632: 4-6	8927004A/8927005B/ 8927006C	---	ND	1.0

ND = NONE DETECTED; LIMIT OF DETECTION IS INDICATED IN LAST COLUMN.

QA/QC SUMMARY

%RPD	2
%RECOVERY	96

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17632: 1-3
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 8927001A/8927002B/
8927003C

DATE RECEIVED: 06/19/89
DATE REQUESTED: 06/21/89
DATE ANALYZED: 06/27/89
DATE REPORTED: 06/30/89

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES

COMPOUND	Result ug/kg	Detection Limit ug/kg
chloromethane	ND	50
bromomethane	ND	50
vinyl chloride	ND	50
chloroethane	ND	50
methylene chloride	ND	25
trichlorofluoromethane	ND	25
1,1-dichloroethene	ND	25
1,1-dichloroethane	ND	25
trans-1,2-dichloroethene	ND	25
chloroform	ND	25
1,2-dichloroethane	ND	25
1,1,1-trichloroethane	ND	25
carbon tetrachloride	ND	25
bromodichloromethane	ND	25
1,2-dichloropropane	ND	25
cis-1,3-dichloropropene	ND	25
trichloroethylene	ND	25
dibromochloromethane	ND	25
1,1,2-trichloroethane	ND	25
benzene	ND	25
trans-1,3-dichloropropene	ND	25
2-chloroethylvinyl ether	ND	50
bromoform	ND	25
1,1,2,2-tetrachloroethane	ND	25
tetrachloroethene	ND	25
toluene	ND	25
chlorobenzene	ND	25
ethyl benzene	ND	25
Non-Priority Hazardous Pollutant Substances List Compounds		
acetone	ND	50
carbon disulfide	ND	25
2-butanone	ND	50
vinyl acetate	ND	50
2-hexanone	ND	50
4-methyl-2-pentanone	ND	50
styrene	ND	25
total xylenes	ND	25

QA/QC SUMMARY: SURROGATE RECOVERIES	
1,2-Dichloroethane-d4	101%
Toluene-d8	104%
Bromofluorobenzene	113%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17632: 4-6
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 8927004A/8927005B/
8927006C

DATE RECEIVED: 06/19/89
DATE REQUESTED: 06/21/89
DATE ANALYZED: 06/23/89
DATE REPORTED: 06/30/89

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES

COMPOUND	Result ug/kg	Detection Limit ug/kg
chloromethane	ND	50
bromomethane	ND	50
vinyl chloride	ND	50
chloroethane	ND	50
methylene chloride	ND	25
trichlorofluoromethane	ND	25
1,1-dichloroethene	ND	25
1,1-dichloroethane	ND	25
trans-1,2-dichloroethene	ND	25
chloroform	ND	25
1,2-dichloroethane	ND	25
1,1,1-trichloroethane	ND	25
carbon tetrachloride	ND	25
bromodichloromethane	ND	25
1,2-dichloropropane	ND	25
cis-1,3-dichloropropene	ND	25
trichloroethylene	ND	25
dibromochloromethane	ND	25
1,1,2-trichloroethane	ND	25
benzene	ND	25
trans-1,3-dichloropropene	ND	25
2-chloroethylvinyl ether	ND	50
bromoform	ND	25
1,1,2,2-tetrachloroethane	ND	25
tetrachloroethene	ND	25
toluene	ND	25
chlorobenzene	ND	25
ethyl benzene	ND	25
Non-Priority Hazardous Pollutant Substances List Compounds		
acetone	ND	50
carbon disulfide	ND	25
2-butanone	ND	50
vinyl acetate	ND	50
2-hexanone	ND	50
4-methyl-2-pentanone	ND	50
styrene	ND	25
total xylenes	ND	25

QA/QC SUMMARY: SURROGATE RECOVERIES	
1,2-Dichloroethane-d4	95%
Toluene-d8	105%
Bromofluorobenzene	94%

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DATE RECEIVED: 06/25/89
DATE REPORTED: 07/10/89

LAB NUMBER: 17703

CLIENT: HARDING LAWSON ASSOCIATES

REPORT ON: 2 WATER SAMPLES

JOB #: 18452,016.02
LOCATION: WAREHAM

RESULTS: SEE ATTACHED

Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17703
CLIENT: HARDING LAWSON ASSOCIATES
PROJECT #: 18452,016.02
LOCATION: WAREHAM

DATE RECEIVED: 06/25/89
DATE ANALYZED: 07/07/89
DATE REPORTED: 07/10/89

Extractable Petroleum Hydrocarbons in Aqueous Solutions
EPA 8015 (Modified)
Extraction Method: EPA 3510

LAB ID	CLIENT ID	KEROSINE (mg/L)	DIESEL (mg/L)	OTHER (mg/L)
17703-1	89262502	ND(0.5)	ND(0.5)	ND(0.5)
17703-2	89262504	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

RPD, %	5
Spike: % Recovery	107

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17703
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
LOCATION: WAREHAM

DATE RECEIVED: 06/25/89
DATE ANALYZED: 06/30/89
DATE REPORTED: 07/10/89

Total Volatile Hydrocarbons as Gasoline in Aqueous Solutions
EPA 8015 (Modified)
Extraction Method: EPA 5030 (Purge & Trap)

LAB ID	CLIENT ID	GASOLINE (ug/L)
17703-1	89262502	300
17703-2	89262504	ND(50)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	4
Spike: % Recovery	116

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17703-1
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89262502

DATE RECEIVED: 06/25/89
DATE ANALYZED: 06/28/89
DATE REPORTED: 07/10/89

Title 22 Metals in Aqueous Solutions

METAL	RESULT mg/L	DETECTION LIMIT mg/L	METHOD
Antimony	ND	0.10	EPA 6010
Arsenic	ND	0.10	EPA 6010
Barium	0.12	0.01	EPA 6010
Beryllium	ND	0.01	EPA 6010
Cadmium	ND	0.01	EPA 6010
Chromium (total)	ND	0.01	EPA 6010
Cobalt	ND	0.01	EPA 6010
Copper	ND	0.01	EPA 6010
Lead	ND	0.10	EPA 6010
Mercury	ND	0.001	EPA 7470
Molybdenum	ND	0.01	EPA 6010
Nickel	ND	0.01	EPA 6010
Selenium	ND	0.10	EPA 6010
Silver	ND	0.01	EPA 6010
Thallium	ND	0.10	EPA 7841
Vanadium	ND	0.01	EPA 6010
Zinc	0.07	0.01	EPA 6010

ND = None Detected

QA/QC SUMMARY

	%RPD	%SPIKE		%RPD	%SPIKE
Antimony	2	95	Mercury	<1	104
Arsenic	3	103	Molybdenum	<1	98
Barium	2	108	Nickel	<1	106
Beryllium	<1	106	Selenium	<1	101
Cadmium	<1	96	Silver	<1	106
Chromium	<1	106	Thallium	1	99
Cobalt	4	103	Vanadium	3	97
Copper	1	105	Zinc	6	103
Lead	<1	99			

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17703-2
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89262504

DATE RECEIVED: 06/25/89
DATE ANALYZED: 06/28/89
DATE REPORTED: 07/10/89

Title 22 Metals in Aqueous Solutions

METAL	RESULT mg/L	DETECTION LIMIT mg/L	METHOD
Antimony	ND	0.10	EPA 6010
Arsenic	ND	0.10	EPA 6010
Barium	0.17	0.01	EPA 6010
Beryllium	ND	0.01	EPA 6010
Cadmium	ND	0.01	EPA 6010
Chromium (total)	ND	0.01	EPA 6010
Cobalt	ND	0.01	EPA 6010
Copper	0.02	0.01	EPA 6010
Lead	ND	0.10	EPA 6010
Mercury	ND	0.001	EPA 7470
Molybdenum	ND	0.01	EPA 6010
Nickel	ND	0.01	EPA 6010
Selenium	ND	0.10	EPA 6010
Silver	ND	0.01	EPA 6010
Thallium	ND	0.10	EPA 6010
Vanadium	ND	0.01	EPA 6010
Zinc	0.10	0.01	EPA 6010

ND = None Detected

QA/QC SUMMARY

	%RPD	%SPIKE		%RPD	%SPIKE
Antimony	2	95	Mercury	<1	104
Arsenic	3	103	Molybdenum	<1	98
Barium	2	108	Nickel	<1	106
Beryllium	<1	106	Selenium	<1	101
Cadmium	<1	96	Silver	<1	106
Chromium	<1	106	Thallium	1	100
Cobalt	4	103	Vanadium	3	97
Copper	1	105	Zinc	6	103
Lead	<1	99			

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17703-1
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89262502

DATE RECEIVED: 06/25/89
DATE EXTRACTED: 07/05/89
DATE ANALYZED: 07/06/89
DATE REPORTED: 07/10/89

EPA 608: Organochlorine Pesticides and PCBs in Water
Extraction Method: EPA 3510

COMPOUND	RESULT ug/L	DETECTION LIMIT ug/L
alpha-BHC	ND	0.05
beta-BHC	ND	0.05
gamma-BHC	ND	0.05
delta-BHC	ND	0.05
Heptachlor	ND	0.05
Aldrin	ND	0.05
Heptachlor Epoxide	ND	0.05
Endosulfan I	ND	0.05
Dieldrin	ND	0.05
pp-DDE	ND	0.05
Endrin	ND	0.05
Endosulfan II	ND	0.05
pp-DDT	ND	0.05
Chlordane	ND	0.05
Toxaphene	ND	0.5
Methoxychlor	ND	0.5
PCB 1016	ND	0.5
PCB 1221	ND	0.5
PCB 1232	ND	0.5
PCB 1242	ND	0.5
PCB 1248	ND	0.5
PCB 1254	ND	0.5
PCB 1260	ND	0.5

ND = Not detected.

QA/QC SUMMARY:

Duplicate: Relative % Difference	11
Average Spike Recovery %	97

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17703-2
CLIENT:HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89262504

DATE RECEIVED: 06/25/89
DATE EXTRACTED:07/05/89
DATE ANALYZED: 07/06/89
DATE REPORTED: 07/10/89

EPA 608: Organochlorine Pesticides and PCBs in Water
Extraction Method: EPA 3510

COMPOUND	RESULT ug/L	DETECTION LIMIT ug/L
alpha-BHC	ND	0.05
beta-BHC	ND	0.05
gamma-BHC	ND	0.05
delta-BHC	ND	0.05
Heptachlor	ND	0.05
Aldrin	ND	0.05
Heptachlor Epoxide	ND	0.05
Endosulfan I	ND	0.05
Dieldrin	ND	0.05
pp-DDE	ND	0.05
Endrin	ND	0.05
Endosulfan II	ND	0.05
pp-DDT	ND	0.05
Chlordane	ND	0.05
Toxaphene	ND	0.5
Methoxychlor	ND	0.5
PCB 1016	ND	0.5
PCB 1221	ND	0.5
PCB 1232	ND	0.5
PCB 1242	ND	0.5
PCB 1248	ND	0.5
PCB 1254	ND	0.5
PCB 1260	ND	0.5

ND = Not detected.

QA/QC SUMMARY:

Duplicate: Relative % Difference	11
Average Spike Recovery %	97

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17703-1
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89262502

DATE RECEIVED: 06/25/89
DATE ANALYZED: 07/06/89
DATE REPORTED: 07/10/89

EPA METHOD 624: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	91%
Toluene-d8	99%
Bromofluorobenzene	99%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17703-2
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89262504

DATE RECEIVED: 06/25/89
DATE ANALYZED: 07/03/89
DATE REPORTED: 07/10/89

EPA METHOD 624: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	89%
Toluene-d8	96%
Bromofluorobenzene	103%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17703-1
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
LOCATION: WAREHAM
CLIENT ID: 89262502

DATE RECEIVED: 06/25/89
DATE EXTRACTED: 07/06/89
DATE ANALYZED: 07/08/89
DATE REPORTED: 07/10/89

EPA 625: Base/Neutral and Acid Extractables in Water
Extraction Method: EPA 3510 Liquid/Liquid

ACID COMPOUNDS	RESULT ug/L	LOD ug/L
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	5
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	TRACE	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 17703-1
CLIENT ID: 89262502

BASE/NEUTRAL COMPOUNDS	RESULT ug/L	LOD ug/L
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	TRACE	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	ND	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	5
Dibenzo (a,h) anthracene	ND	5
Benzo (g,h,i) perylene	ND	5
HSL COMPOUNDS		
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	ND	5
2-Nitroanline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY: SURROGATE RECOVERIES

Compound	%Recovery	Compound	%Recovery
2-Fluorophenol	35	Nitrobenzene-d5	49
Phenol-d5	28	2-Fluorobiphenyl	41
2,4,6-tribromophenol	66	Terphenyl	41

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17703-2
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
LOCATION: WAREHAM
CLIENT ID: 89262504

DATE RECEIVED: 06/25/89
DATE EXTRACTED: 07/06/89
DATE ANALYZED: 07/08/89
DATE REPORTED: 07/10/89

EPA 625: Base/Neutral and Acid Extractables in Water
Extraction Method: EPA 3510 Liquid/Liquid

	RESULT ug/L	LOD ug/L
ACID COMPOUNDS		
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	5
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	ND	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 17703-2
CLIENT ID: 89262504

BASE/NEUTRAL COMPOUNDS	RESULT ug/L	LOD ug/L
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	ND	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	ND	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	5
Dibenzo (a,h) anthracene	ND	5
Benzo (g,h,i) perylene	ND	5
HSL COMPOUNDS		
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	ND	5
2-Nitroanline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY: SURROGATE RECOVERIES

Compound	%Recovery	Compound	%Recovery
2-Fluorophenol	35	Nitrobenzene-d5	52
Phenol-d5	28	2-Fluorobiphenyl	44
2,4,6-tribromophenol	66	Terphenyl	46

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DATE RECEIVED: 06/25/89
DATE REPORTED: 07/10/89

LAB NUMBER: 17704

CLIENT: HARDING LAWSON ASSOCIATES

REPORT ON: 3 SOIL SAMPLES

JOB #: 18452,020.02
LOCATION: WAREHAM/PETERSON

RESULTS: SEE ATTACHED

Jim Wong for CBG
Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17704
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,020.02
LOCATION: WAREHAM/PETERSON

DATE RECEIVED: 06/25/89
DATE ANALYZED: 07/06/89
DATE REPORTED: 07/10/89

Extractable Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	KEROSINE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
17704-1	89 007A	ND(10)	ND(10)	ND(10)
17704-2	89 008B	ND(10)	ND(10)	ND(10)
17704-3	89 009C	ND(10)	ND(10)	ND(10)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	8
Spike: % Recovery	102

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17704
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,020.02
LOCATION: WAREHAM/PETERSON

DATE RECEIVED: 06/25/89
DATE ANALYZED: 06/30/89
DATE REPORTED: 07/10/89

Total Volatile Hydrocarbons as Gasoline in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 5030 (Purge & Trap)

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)
17704-1	89 007A	ND(10)
17704-2	89 008B	ND(10)
17704-3	89 009C	ND(10)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

%RPD	4
Spike, % Recovery	116

Curtis & Tompkins, Ltd.

LAB NUMBER: 17704
CLIENT: HARDING LAWSON ASSOCIATES
PROJECT #: 18452,020.02
PROJECT NAME: WAREHAM/PETERSON

DATE RECEIVED: 06/25/89
DATE ANALYZED: 07/03/89
DATE REPORTED: 07/10/89

POLYCHLORINATED BIPHENYLS (PCBs)
METHOD: EPA 608/8080
EXTRACTION METHOD: EPA 3550-VORTEX

LAB ID	CLIENT ID	AROCLOR	CONCENTRATION (mg/Kg)	MDL (mg/Kg)
17704-1	89 007A	---	ND	1.0
17704-2	89 008B	---	ND	1.0
17704-3	89 009C	---	ND	1.0

ND = NONE DETECTED; LIMIT OF DETECTION IS INDICATED IN LAST COLUMN.

QA/QC SUMMARY

%RPD	4
%RECOVERY	105

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17704-1
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,020.02
SAMPLE ID: 89 007A

DATE RECEIVED: 06/25/89
DATE ANALYZED: 07/06/89
DATE REPORTED: 07/10/89

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES

COMPOUND	Result ug/kg	Detection Limit ug/kg
chloromethane	ND	50
bromomethane	ND	50
vinyl chloride	ND	50
chloroethane	ND	50
methylene chloride	ND	25
trichlorofluoromethane	ND	25
1,1-dichloroethene	ND	25
1,1-dichloroethane	ND	25
trans-1,2-dichloroethene	ND	25
chloroform	ND	25
1,2-dichloroethane	ND	25
1,1,1-trichloroethane	ND	25
carbon tetrachloride	ND	25
bromodichloromethane	ND	25
1,2-dichloropropane	ND	25
cis-1,3-dichloropropene	ND	25
trichloroethylene	ND	25
dibromochloromethane	ND	25
1,1,2-trichloroethane	ND	25
benzene	ND	25
trans-1,3-dichloropropene	ND	25
2-chloroethylvinyl ether	ND	50
bromoform	ND	25
1,1,2,2-tetrachloroethane	ND	25
tetrachloroethene	ND	25
toluene	ND	25
chlorobenzene	ND	25
ethyl benzene	ND	25
Non-Priority Hazardous Pollutant Substances List Compounds		
acetone	ND	50
carbon disulfide	ND	25
2-butanone	ND	50
vinyl acetate	ND	50
2-hexanone	ND	50
4-methyl-2-pentanone	ND	50
styrene	ND	25
total xylenes	ND	25

QA/QC SUMMARY: SURROGATE RECOVERIES	
1,2-Dichloroethane-d4	97%
Toluene-d8	102%
Bromofluorobenzene	98%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17704-2
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,020.02
SAMPLE ID: 89 008B

DATE RECEIVED: 06/25/89
DATE ANALYZED: 07/06/89
DATE REPORTED: 07/10/89

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES

COMPOUND	Result ug/kg	Detection Limit ug/kg
chloromethane	ND	50
bromomethane	ND	50
vinyl chloride	ND	50
chloroethane	ND	50
methylene chloride	ND	25
trichlorofluoromethane	ND	25
1,1-dichloroethene	ND	25
1,1-dichloroethane	ND	25
trans-1,2-dichloroethene	ND	25
chloroform	ND	25
1,2-dichloroethane	ND	25
1,1,1-trichloroethane	ND	25
carbon tetrachloride	ND	25
bromodichloromethane	ND	25
1,2-dichloropropane	ND	25
cis-1,3-dichloropropene	ND	25
trichloroethylene	ND	25
dibromochloromethane	ND	25
1,1,2-trichloroethane	ND	25
benzene	ND	25
trans-1,3-dichloropropene	ND	25
2-chloroethylvinyl ether	ND	50
bromoform	ND	25
1,1,2,2-tetrachloroethane	ND	25
tetrachloroethene	ND	25
toluene	ND	25
chlorobenzene	ND	25
ethyl benzene	ND	25
Non-Priority Hazardous Pollutant Substances List Compounds		
acetone	ND	50
carbon disulfide	ND	25
2-butanone	ND	50
vinyl acetate	ND	50
2-hexanone	ND	50
4-methyl-2-pentanone	ND	50
styrene	ND	25
total xylenes	ND	25

QA/QC SUMMARY: SURROGATE RECOVERIES	
1,2-Dichloroethane-d4	92%
Toluene-d8	103%
Bromofluorobenzene	86%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17704-3
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,020.02
SAMPLE ID: 89 009C

DATE RECEIVED: 06/25/89
DATE ANALYZED: 07/07/89
DATE REPORTED: 07/10/89

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES

COMPOUND	Result ug/kg	Detection Limit ug/kg
chloromethane	ND	50
bromomethane	ND	50
vinyl chloride	ND	50
chloroethane	ND	50
methylene chloride	ND	25
trichlorofluoromethane	ND	25
1,1-dichloroethene	ND	25
1,1-dichloroethane	ND	25
trans-1,2-dichloroethene	ND	25
chloroform	ND	25
1,2-dichloroethane	ND	25
1,1,1-trichloroethane	ND	25
carbon tetrachloride	ND	25
bromodichloromethane	ND	25
1,2-dichloropropane	ND	25
cis-1,3-dichloropropene	ND	25
trichloroethylene	27	25
dibromochloromethane	ND	25
1,1,2-trichloroethane	ND	25
benzene	ND	25
trans-1,3-dichloropropene	ND	25
2-chloroethylvinyl ether	ND	50
bromoform	ND	25
1,1,2,2-tetrachloroethane	ND	25
tetrachloroethene	ND	25
toluene	ND	25
chlorobenzene	ND	25
ethyl benzene	ND	25

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	50
carbon disulfide	ND	25
2-butanone	ND	50
vinyl acetate	ND	50
2-hexanone	ND	50
4-methyl-2-pentanone	ND	50
styrene	ND	25
total xylenes	ND	25

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	97%
Toluene-d8	104%
Bromofluorobenzene	100%

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DATE RECEIVED: 06/30/89
DATE REPORTED: 07/14/89

LAB NUMBER: 17756

CLIENT: HARDING LAWSON ASSOCIATES

REPORT ON: 3 WATER SAMPLES

JOB #: 18452,016.02
LOCATION: WAREHAM

RESULTS: SEE ATTACHED

Laboratory Director

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17756
CLIENT: HARDING LAWSON ASSOCIATES
PROJECT #: 18452,016.02
LOCATION: WAREHAM

DATE RECEIVED: 06/30/89
DATE ANALYZED: 07/11/89
DATE REPORTED: 07/14/89

Extractable Petroleum Hydrocarbons in Aqueous Solutions
EPA 8015 (Modified)
Extraction Method: EPA 3510

LAB ID	CLIENT ID	KEROSINE (mg/L)	DIESEL (mg/L)	OTHER (mg/L)
17756-1	89253005	ND(0.5)	ND(0.5)	ND(0.5)
17756-2	89253018	ND(0.5)	ND(0.5)	ND(0.5)
17756-3	89253025	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

RPD, %	<1
Spike: % Recovery	104

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17756
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
LOCATION: WAREHAM

DATE RECEIVED: 06/30/89
DATE ANALYZED: 07/03/89
DATE REPORTED: 07/14/89

Total Volatile Hydrocarbons as Gasoline in Aqueous Solutions
EPA 8015 (Modified)
Extraction Method: EPA 5030 (Purge & Trap)

LAB ID	CLIENT ID	GASOLINE (ug/L)
17756-1	89253005	ND(50)
17756-2	89253018	ND(50)
17756-3	89253025	ND(50)

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	7
Spike: % Recovery	103

Curtis & Tompkins, Ltd.

LAB NUMBER: 17756
CLIENT: HARDING LAWSON ASSOCIATES
PROJECT #: 18452,016.02
PROJECT NAME: WAREHAM

DATE RECEIVED: 06/30/89
DATE ANALYZED: 07/10/89
DATE REPORTED: 07/14/89

POLYCHLORINATED BIPHENYLS (PCBs)
METHOD: EPA 608
EXTRACTION METHOD: EPA 3510

LAB ID	CLIENT ID	AROCLOR	CONCENTRATION (ug/L)	MDL (ug/L)
17756-1	89253005	---	ND	0.5
17756-2	89253018	---	ND	0.5
17756-3	89253025	---	ND	0.5

ND = NONE DETECTED; LIMIT OF DETECTION IS INDICATED IN LAST COLUMN.

QA/QC SUMMARY

%RPD	11
%RECOVERY	89

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17756-1
CLIENT: HARDING LAWSON ASSOCIATES
SAMPLE ID: 89253005

DATE RECEIVED: 06/30/89
DATE ANALYZED: 07/05/89
DATE REPORTED: 07/14/89

13 Priority Pollutant Metals in Aqueous Solutions

METAL	RESULT mg/L	DETECTION LIMIT mg/L	METHOD
Antimony	ND	0.1	EPA 6010
Arsenic	ND	0.1	EPA 6010
Beryllium	ND	0.01	EPA 6010
Cadmium	ND	0.01	EPA 6010
Chromium (total)	ND	0.01	EPA 6010
Copper	ND	0.01	EPA 6010
Lead	ND	0.1	EPA 6010
Mercury	ND	0.001	EPA 7470
Nickel	ND	0.01	EPA 6010
Selenium	ND	0.1	EPA 6010
Silver	ND	0.01	EPA 6010
Thallium	ND	0.1	EPA 6010
Zinc	0.09	0.01	EPA 6010

ND = None Detected

QA/QC SUMMARY

	%RPD	%SPIKE		%RPD	%SPIKE
Antimony	<1	101	Mercury	20	110
Arsenic	2	109	Nickel	4	105
Beryllium	<1	102	Selenium	<1	103
Cadmium	<1	103	Silver	<1	102
Chromium	3	108	Thallium	5	106
Copper	2	98	Zinc	3	107
Lead	1	108			

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17756-1
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89253005

DATE RECEIVED: 06/30/89
DATE ANALYZED: 07/07/89
DATE REPORTED: 07/14/89

EPA METHOD 624: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	106%
Toluene-d8	96%
Bromofluorobenzene	95%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17756-2
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89253018

DATE RECEIVED: 06/30/89
DATE ANALYZED: 07/07/89
DATE REPORTED: 07/14/89

EPA METHOD 624: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	105%
Toluene-d8	96%
Bromofluorobenzene	95%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17756-3
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
SAMPLE ID: 89253025

DATE RECEIVED: 06/30/89
DATE ANALYZED: 07/07/89
DATE REPORTED: 07/14/89

EPA METHOD 624: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Detection Limit ug/L
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5
trichlorofluoromethane	ND	5
1,1-dichloroethene	ND	5
1,1-dichloroethane	ND	5
trans-1,2-dichloroethene	ND	5
chloroform	ND	5
1,2-dichloroethane	ND	5
1,1,1-trichloroethane	ND	5
carbon tetrachloride	ND	5
bromodichloromethane	ND	5
1,2-dichloropropane	ND	5
cis-1,3-dichloropropene	ND	5
trichloroethylene	ND	5
dibromochloromethane	ND	5
1,1,2-trichloroethane	ND	5
benzene	ND	5
trans-1,3-dichloropropene	ND	5
2-chloroethylvinyl ether	ND	10
bromoform	ND	5
1,1,2,2-tetrachloroethane	ND	5
tetrachloroethene	ND	5
toluene	ND	5
chlorobenzene	ND	5
ethyl benzene	ND	5

Non-Priority Hazardous Pollutant Substances List Compounds

acetone	ND	10
carbon disulfide	ND	5
2-butanone	ND	10
vinyl acetate	ND	10
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
styrene	ND	5
total xylenes	ND	5

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	101%
Toluene-d8	100%
Bromofluorobenzene	101%

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17756-1
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
LOCATION: WAREHAM
CLIENT ID: 89253005

DATE RECEIVED: 06/30/89
DATE EXTRACTED:07/11/89
DATE ANALYZED: 07/14/89
DATE REPORTED: 07/14/89

EPA 625: Base/Neutral and Acid Extractables in Water
Extraction Method: EPA 3510 Liquid/Liquid

ACID COMPOUNDS	RESULT ug/L	LOD ug/L
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	5
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	ND	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 17756-1
CLIENT ID: 89253005

BASE/NEUTRAL COMPOUNDS	RESULT ug/L	LOD ug/L
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	ND	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	ND	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	5
Dibenzo (a,h) anthracene	ND	5
Benzo (g,h,i) perylene	ND	5
HSL COMPOUNDS		
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	ND	5
2-Nitroanline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY: SURROGATE RECOVERIES

Compound	%Recovery	Compound	%Recovery
2-Fluorophenol	44	Nitrobenzene-d5	56
Phenol-d5	40	2-Fluorobiphenyl	59
2,4,6-tribromophenol	71	Terphenyl	99

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17756-2
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
LOCATION: WAREHAM
CLIENT ID: 89253018

DATE RECEIVED: 06/30/89
DATE EXTRACTED: 07/11/89
DATE ANALYZED: 07/14/89
DATE REPORTED: 07/14/89

EPA 625: Base/Neutral and Acid Extractables in Water
Extraction Method: EPA 3510 Liquid/Liquid

ACID COMPOUNDS	RESULT ug/L	LOD ug/L
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	5
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	ND	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 17756-2
CLIENT ID: 89253018

BASE/NEUTRAL COMPOUNDS	RESULT ug/L	LOD ug/L
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	ND	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	ND	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	5
Dibenzo (a,h) anthracene	ND	5
Benzo (g,h,i) perylene	ND	5
HSL COMPOUNDS		
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	ND	5
2-Nitroanline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY: SURROGATE RECOVERIES

Compound	%Recovery	Compound	%Recovery
2-Fluorophenol	50	Nitrobenzene-d5	48
Phenol-d5	50	2-Fluorobiphenyl	50
2,4,6-tribromophenol	109	Terphenyl	83

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 17756-3
CLIENT: HARDING LAWSON ASSOCIATES
JOB #: 18452,016.02
LOCATION: WAREHAM
CLIENT ID: 89253025

DATE RECEIVED: 06/30/89
DATE EXTRACTED: 07/11/89
DATE ANALYZED: 07/14/89
DATE REPORTED: 07/14/89

EPA 625: Base/Neutral and Acid Extractables in Water
Extraction Method: EPA 3510 Liquid/Liquid

ACID COMPOUNDS	RESULT ug/L	LOD ug/L
Phenol	ND	5
2-Chlorophenol	ND	5
2-Nitrophenol	ND	25
2,4-Dimethylphenol	ND	5
2,4-Dichlorophenol	ND	5
4-Chloro-3-methylphenol	ND	5
2,4,6-Trichlorophenol	ND	5
2,4-Dinitrophenol	ND	25
4-Nitrophenol	ND	25
4,6-Dinitro-2-methylphenol	ND	25
Pentachlorophenol	ND	25
BASE/NEUTRAL COMPOUNDS		
Bis(2-chloroethyl)ether	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
Bis(2-chloroisopropyl)ether	ND	5
N-Nitroso-di-n-propylamine	ND	5
Hexachloroethane	ND	5
Nitrobenzene	ND	5
Isophorone	ND	5
Bis(2-chloroethoxy)methane	ND	5
1,2,4-Trichlorobenzene	ND	5
Naphthalene	ND	5
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	5
2-Chloronaphthalene	ND	5
Dimethylphthalate	ND	5
Acenaphthylene	ND	5
2,6-Dinitrotoluene	ND	5
Acenaphthene	ND	5
2,4-Dinitrotoluene	ND	5
Diethylphthalate	ND	5
4-Chlorophenyl-phenylether	ND	5
Fluorene	ND	5
N-Nitrosodiphenylamine	ND	5

LABORATORY NUMBER: 17756-3
CLIENT ID: 89253025

BASE/NEUTRAL COMPOUNDS	RESULT ug/L	LOD ug/L
4-Bromophenyl-phenylether	ND	5
Hexachlorobenzene	ND	5
Phenanthrene	ND	5
Anthracene	ND	5
Di-n-butylphthalate	ND	5
Fluoranthene	ND	5
Pyrene	ND	5
Butylbenzylphthalate	ND	5
3,3'-Dichlorobenzidine	ND	25
Benzo (a) anthracene	ND	5
Chrysene	ND	5
Bis (2-ethylhexyl)phthalate	TRACE	5
Di-n-octylphthalate	ND	5
Benzo (b) fluoranthene	ND	5
Benzo (k) fluoranthene	ND	5
Benzo (a) pyrene	ND	5
Indeno (1,2,3-cd) pyrene	ND	5
Dibenzo (a,h) anthracene	ND	5
Benzo (g,h,i) perylene	ND	5
HSL COMPOUNDS		
Benzoic Acid	ND	25
2-Methylphenol	ND	5
4-Methylphenol	ND	5
2,4,5-Trichlorophenol	ND	25
Benzyl Alcohol	ND	5
4-Chloroaniline	ND	5
2-Methylnaphthalene	ND	5
2-Nitroanline	ND	25
3-Nitroaniline	ND	25
Dibenzofuran	ND	5
4-Nitroaniline	ND	25

ND = None Detected, Limit of Detection (LOD) appears in right column

QA/QC SUMMARY: SURROGATE RECOVERIES

Compound	%Recovery	Compound	%Recovery
2-Fluorophenol	59	Nitrobenzene-d5	52
Phenol-d5	57	2-Fluorobiphenyl	46
2,4,6-tribromophenol	101	Terphenyl	75

Chain of Custody Form

Curtis & Tompkins, Ltd
2323 Fifth Street
Berkeley, California 94710
(415) 486-0900

Samplers: WALKER TJ

Job Description: WAREHAM
Job Number: 10452 016 02
Client Contact: ED CLARK
Recorder: TJ Walker

Matrix: Water	Soil	Waste	Oil	#Containers	Method Preserved: H_2SO_4	HNO_3	Ice	None	Other	Sample Number	Sampling Date: Yr	Mo	Dy	Time	SAMPLE NOTES	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Title 22 Metals	EPA PP Metals (#)	TPH Method- L & H	Benzene-Toluene-Xylene(s)	Oil and Grease	EPA 608/8080 Pesticides & PCB's
	X			1						8904#150	89	04	30	1230	MW-1 5'	X	X		X		XX				X
	X			1						8905#295	89	04	01	1100	MW-2 9'	X	X		X		XX				X

Laboratory Notes :

Chain of Custody Record

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: TJ Walker 05/01/89 1450	Received for Lab by (signature): 5/1/89 1450

Harding Lawson Associates
200 Rush Landing Road
P.O. Box 6107
Novato, California 94948
415/892-0821
Telecopy: 415/892-1586

CHAIN OF CUSTODY FORM

Lab: _____

Samplers: G. A. Lieberman

Job Number: 18452.016.02

Name/Location: 1600 63rd St

Project Manager: Ed Clark

Recorder: Doug A Sieber
(Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	PCB's
SO			X		1			89	06	FE01	89	06	06	1105	cuttings of MW3								
										FE02				1119	composite FE01-FE04		X				XX	X	
										FE03				1135									
										FE04				1144									
										FE05				1156	MW-1 Cuttings								
										FE06				1205	composite FE05-FE07		X				XX	X	
										FE07				1220									
										FE08				1234	composite FE08-FE09								
										FE09				1240	MW-2 Cuttings		X				XX	X	

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						5-day turnaround
						Please fax results to Ed Clark as soon as testing is complete

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
Doug Sieber		
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
Doug Sieber		6/6/89 14:3
METHOD OF SHIPMENT		

Laboratory Copy White — Project Office Copy Yellow — Field or Office Copy Pink

6533

Harding Lawson Associates
200 Rush Landing Road
P.O. Box 6107
Novato, California 94948
415/892-0821
Telecopy: 415/892-1586

CHAIN OF CUSTODY FORM

Lab: _____

Samplers: G. A. Lieberman

Job Number: 18452.016.02

Name/Location: 1600 63rd St

Project Manager: Ed Clark

Recorder: Dan Seeber
(Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylenes	Total Petrol. Hydrocarb.	PCB's
DC	X				7			8	9	06	FE1	08	90	60	61	315	Decon. water			X		X	X	X
DC	X				7			8	9	06	FE1	1	90	60	61	340	mw-1 development water			X		X	X	X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						5-day turn around
						Please Fax results to Ed Clark as soon as testing is complete

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
Dan Seeber		
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
Dan Seeber	[illegible]	6/6/89 1135
METHOD OF SHIPMENT		

Laboratory Copy White — Project Office Copy Yellow — Field or Office Copy Pink

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...ding son ciate
7655 Redwood Boulevard
P.O. Box 578
Novato, California 94948
415/892-0821
Telecopy: 415/892-0831
Telex: 340523

CHAIN OF CUSTODY FORM

Lab: Curtis+Thompkins

Samplers: David M Evans

Job Number: 18452.016.02

Name/Location: Wareham Peterson

Project Manager: Ed Clark

Recorder: David M Evans (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals Filtered	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	EPA 8015	EPA 8080 PCBs
23	X				5		1	89	25	06	01	89	06	18	11	38	MW-1	X	X		X	X			X	X
23	X				5		1	89	25	06	02	89	06	18	15	55	MW-3	X	X		X	X			X	X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						Please call Ed Clark with result Regular turnaround time

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) David M Evans	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME 6/19 1:30
METHOD OF SHIPMENT: In cooler w/ice		

Laboratory Copy White — Project Office Copy Yellow — Field or Office Copy Pink

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HLA
...ding ...son Associates
7655 Redwood Boulevard
P.O. Box 578
Novato, California 94948
415/892-0821
Telecopy: 415/892-0831
Telex: 340523

CHAIN OF CUSTODY FORM

Lab: C+T

Samplers: JEFFERY FENTON

Job Number: 18452 016 02

Name/Location: WAREHAM / PETERSON MANUFACT.

Project Manager: EDD CLARK

Recorder: _____ (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624(8240)	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene ±E	Total Petrol. Hydrocarb. ±H	PCBs
48			X		1			89	27	001A	89	06	18	0900	Comp. - 11 A								
48			X		1			89	27	002B	89	06	18	0930	Comp. - 11 B		X				X	X	X
48			X		1			89	27	003C	89	06	18	1000	Comp. - 11 C								
48			X		1			89	27	004A	89	06	18	1355	SI - 11 A								
48			X		1			89	27	005B	89	06	18	1600	Comp. - 11 B		X				X	X	X
48			X		1			89	27	006C	89	06	18	1700	- 11 C								

6/21/89 composite 1st 3 + seconds sampler and run. John at CT. Edd.

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature) David McQuaid	DATE/TIME 6-18-89 18:03
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME 6/19 8:30
METHOD OF SHIPMENT		

Laboratory Copy White — Project Office Copy Yellow — Field or Office Copy Pink

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P.O. Box 578
Novato, California 94948
415/892-0821
Telecopy: 415/892-0831
Telex: 340523

CHAIN OF CUSTODY RECORD

Lab: Curtis & Tompkins

Samplers: David M Evans

Job Number: 18452,016.02

Name/Location: Wareham

Project Manager: Ed Clark

Recorder: David M Evans (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3 filtered	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES
23	X				5		1	89	26	25028	89	06	25	1345	
23	X				5		1	89	26	25048	89	06	25	1520 +5220	

ANALYSIS REQUESTED	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals EPA	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb. Lit	# EPA 8080
		X	X	X		X		X
		X	X	X		X		X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						Please call Ed Clark with result two week turn around time.

CHAIN OF CUSTODY RECORD

	RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
	David M Evans		
	RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
	RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
	RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature)	David M Evans	DATE/TIME: 6-25-89 17:54	RECEIVED FOR LAB BY: (Signature)	DATE/TIME: 6-25-89 18:15

METHOD OF SHIPMENT: In cooler w/ice

6533

Laboratory Copy White — Project Office Copy Yellow — Field or Office Copy Pink

arol wso scott
7655 Redwood Boulevard
P.O. Box 578
Novato, California 94948
415/892-0821
Telecopy: 415/892-0831
Telex: 340523

CHAIN OF CUSTODY FORM

Lab: Curtis & Thompkins

Samplers: David M Evans

Job Number: 18452.016.02

Name/Location: Wareham

Project Manager: Ed Clark

Recorder: David M Evans (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3 filt	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals EPA	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb. EPA 8080
23	X				5		1	89	26	250	28	90	6	25	1345	MW-2		X	X	X	X	X
23	X				5		1	89	26	250	48	90	6	25	1526	MW-4		X	X	X	X	X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						Please call Ed Clark with result two week turn around time

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) David M Evans	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) David M Evans — DATE/TIME 6-25-89 17:54	RECEIVED FOR LAB BY: (Signature) — DATE/TIME 6-25-89 10:10	

METHOD OF SHIPMENT: In cooler w/ice

Laboratory Copy White — Project Office Copy Yellow — Field or Office Copy Pink

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Harding Lawson Associates
200 Rush Landing Road
P.O. Box 6107
Novato, California 94948
415/892-0821
Telecopy: 415/892-1586

CHAIN OF CUSTODY FORM

Lab: Curtis & Thompkins

Samplers: David M Evans

Job Number: 18452,016.02

Name/Location: Warehouse

Project Manager: Ed Clark

Recorder: David M Evans (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals Filtered	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb. LUFT	EPA 8080 PCBs
23	X				5		1	89	25	30 05	89	06	30	1800	Filtered MW 3			X	X			X	X
10	X				5			89	25	30 18	89	06	30	1555	decon - 6/18/89 water			X	X	X		X	X
10	X				5			89	25	30 25	89	06	30	1610	decon 6-25-89 water			X	X	X		X	X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						Two week turn around time. Please call Ed Clark w/ result

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) David M Evans	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) David M Evans — DATE/TIME 6/30/89 17:58	RECEIVED FOR LAB BY: (Signature) — DATE/TIME 6/30/89 17:50	

METHOD OF SHIPMENT: delivered in cooler w/ice

Laboratory Copy White — Project Office Copy Yellow — Field or Office Copy Pink

6533

Appendix C

HAZARDOUS WASTE MANIFESTS

State of California—Health and Welfare Agency
Form Approved OMB No. 2050—0039 (Expires 9-30-91)
Please print or type. (Form designed for use on elite (12-pitch typewriter).

BA 4644T

Department of Health Services
Toxic Substances Control Division
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: C A P 0 0 0 0 0 3 0 7 0
Manifest Document No.:
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
1600 63RD ST ASSOCIATION, INC.
1120 NYE ST. SUITE #400
SAN RAFAEL, CA 94901

LOCATION:
1600 63RD STREET
EVERYVILLE, CA

4. Generator's Phone ( )

A. State Manifest Document Number: 88672045
B. State Generator's ID: H A H 9 3 6 0 2 2 2 9 6

5. Transporter 1 Company Name: CROSBY & OVERTON
6. US EPA ID Number: C A D 9 8 1 4 6 1 0 6 4
C. State Transporter's ID:
D. Transporter's Phone: 415 633-0336

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
CASMALIA RESOURCES
P.O. BOX E
N.T.U. ROAD
CASMALIA, CA 93429

10. US EPA ID Number: C A D 0 2 0 7 4 8 1 2 5
G. State Facility's ID:
H. Facility's Phone: 805 937-8449

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. HAZARDOUS WASTE, SOLID N.O.S ORM-E NA 9189	0 1 0 5	D M	0 1 2 5 0 1 0	P	State 611 / EPA/Other EXEMPT
b.					State / EPA/Other
c.					State / EPA/Other
d.					State / EPA/Other

J. Additional Descriptions for Materials Listed Above
SOIL CONTAMINATED WITH GAS, DIESEL
1741911OCR

K. Handling Codes for Wastes Listed Above
a. b. c. d.

15. Special Handling Instructions and Additional Information
AVOID CONTACT WITH EYES AND SKIN

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: David M Evans
Signature: David M Evans
Month Day Year: 0 6 2 3 8 9
David M Evans for Agent for 1600-63rd St. Associates Inc.

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: DARRELL CANADY
Signature: Darrell Canady
Month Day Year: 0 6 2 3 8 9

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

FACILITY

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:

8022 A (1/88)
8700—22
(Rev. 9-88) Previous editions are obsolete.

Do Not Write Below This Line

Harding Lawson Associates
Environmental Services Division
200 Rush Landing Road
Novato, California 94947
(415) 892-0821

PURCHASE ORDER
No. 89-2975.02

SHOW THIS NUMBER ON ALL INVOICES, PACKAGES, DELIVERY FORMS, CORRESPONDENCE, ETC.

Crosby OVERTONE INC
VENDOR'S NAME
8430 Amelia Street
ADDRESS
Oakland CA
CITY STATE ZIP
(415) 633-0336
PHONE DATE: TIME:
Jerry Swanson.
CONFIRMING TO

SHIP TO:
200 Rush Landing Road
Novato, California 94947

BILL TO:
P.O. Box 6107
Novato, California 94948

DATE OF ORDER:	SHIP VIA:	F.O.B.:	TERMS:	☐ TAXABLE ☐ NON TAXABLE RESALE NO.:	DELIVERY DATE:

ITEM	QUANTITY ORDERED	QUANTITY RECEIVED	DATE REC'D	STOCK NUMBER/DESCRIPTION	UNIT PRICE	AMOUNT
1	6			Disposal of Clean Soil from 6 drums	75	450
2						
3						
4	3			Disposal of Soil with Over 100 ppm TPH from 3 drums		
5						
6						
7						
8						
9						
10				Not to exceed $1000.00		
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						

REQUESTOR: Peggy Llewellyn
PURCHASING AGENT:

CHARGE TO ACCT #:	JOB #	PER NUMBER:	APPROVAL SIGNATURE:
1	18452.02.02		

CROSBY & OVERTON, INC.

Nº 01504

BA No. _____

Page 1 of 1

STRAIGHT BILL OF LADING

ORIGINAL—NOT NEGOTIABLE

Shipper No. _____

Carrier No. _____

Crosby & Overton (Name of Carrier) (SCAC)

Date 8-03-89

TO: Consignee Crosby & Overton
Collect on Delivery shipments, the letters "COD" must appear before consignee's name & or as otherwise provided in Item 430, Sec. 1.

Street 8430 Amelia

Destination Oakland CA Zip Code

FROM: Shipper 1600 63rd Associates

Street Emeryville CA

Origin

Route

Vehicle Number

No. of Units & Container Type	HM	DESCRIPTION AND CLASSIFICATION (Proper Shipping Name, Class and Identification Number per 172.101, 172.202, 172.203	UN# or NA#	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
		Drums of Clean Soil		7			

PLACARDS TENDERED: YES ☐ NO ☒

REMIT C.O.D. TO ADDRESS

Note: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ _____ per _____

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labeled, and are in all respects in proper condition for transport by Rail ☐ Highway ☐ Water (DELETE NON-APPLICABLE MODE OF TRANSPORT) according to applicable inter-National and national governmental regulations
_____ Signature

COD $ N/A

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
_____ (Signature of Consignor)

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

TOTAL CHARGES: $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER 63 Associates

PER Harding & Lawson

CARRIER Crosby & Overton

PER _____

DATE 8-3-89

1

DESTINATION

FORM C6000 (7/88)

DISTRIBUTION

GROUND-WATER QUALITY INVESTIGATION
1600 63RD STREET
EMERYVILLE, CALIFORNIA
OCTOBER 2, 1989

Copy No. 1

		Copy No.
1 copy:	Wareham Development Group 1120 Nye Street, Suite 400 San Rafael, California 94901 Attention: Mr. Richard K. Robbins	1
2 copies:	Wareham Development Group 1120 Nye Street, Suite 400 San Rafael, California 94901 Attention: Mr. Mark Scher	2-3
1 copy:	Titchell, Maltzman, Mark, Bass, Ohteyer, & Mishel The Hartford Building, 29th Floor 650 California Street San Francisco, California 94108 Attention: Mr. David Mishel, Esq.	4
1 copy:	Kane Miller Corporation 555 White Plains Road Tarrytown, New York 10591-5165 Attention: Mr. Sheldon Basch	5
1 copy:	Job File	6
1 copy:	QC/Bound Report File	7

PL/EC/jjh/B9573-H

QUALITY CONTROL REVIEWER

Michael L. Siembieda
Associate Geologist