Western Operations

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

June 4, 1993

June 1993

Ms. Juliett Shin
Hazardous Materials Specialist
ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY
80 Swan Way, Room 200
Oakland California 94621

Clayton Project No. 45040-08

Dear Ms. Shin:

On behalf of Harsch Investment Corp., Kamur Industries, Inc., and Texaco Refining and Marketing, Clayton is pleased to present the enclosed Remedial Action Plan (RAP) for the sites located at the southeast corner of the South Shore Shopping Center in Alameda, California for your review, comment, and approval.

We appreciate your patience and understanding while this document was in development. If you have any question please call me at (510) 426-2616, or Dariush Dastmalchi at (510) 426-2609.

Sincerely,

Anthony S. McElligott, P.E.
Supervisor, Remediation
Western Operations

ASM/dd
pc: Mr. Bernard Levy, Harsch
Mr. Robert Leste, Harsch
Mr. Bob Robles, Texaco
Mr. Murray Stevens, Kamur Industries
Mr. Frank Hamedi-Fard, Soil Tech Engineering

Western Operations

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

Remedial Action Plan
for
South Shore Shopping Center
at the
Corner of Park Avenue and Shore Line Drive
Alameda, California

Clayton Project No. 45040.08
June 4, 1993

CONTENTS

CONTENTS
(continued)

Figures

Appendices

1.0 INTRODUCTION

Clayton Environmental Consultants, Inc. (Clayton) was retained by Harsch Investment Corp. (Harsch), Texaco Refining and Marketing, Inc., (Texaco) and Kamur Industries, Inc. (Kamur) to prepare a remedial action plan (RAP) for soil and groundwater remediation for three areas located in the South Shore Shopping Center at the corner of Park Street and Shore Line Drive in Alameda, California (Figure 1). The three areas are a former dry cleaner site, a former Texaco Gas Station, and the former South Shore Car Wash. Although the three sites can be remediated separately, reporting has been combined to simplify project tracking at the request of the Alameda County Health Care Services Agency, Department of Environmental Health, State Water Resources Control Board Division of Clean Water Programs UST Local Oversight Program (ACHCSA). In addition, because the groundwater at the three sites is amenable to similar aboveground treatment methods, the three principal parties, listed below, have agreed to share resources. The principals and points-of-contact are as follows:

Mr. Robert K. Leste
Director of Shopping Centers, Bay Area
HARSCH INVESTMENT CORP.
235 W. MacArthur Blvd., Suite 630
Oakland, CA 94611

Mr. Bernard Levy
Vice President
HARSCH INVESTMENT CORP.
1121 S.W. Salmon Street
Portland, OR 97208

Mr. Bob Robles
Environmental Protection Coordinator
TEXACO REFINING AND MARKETING, INC.
10 Universal City Plaza
Universal City, California 91608

Mr. Murray Stevens
KAMUR INDUSTRIES, INC.
2351 Shore Line Drive
Alameda, California 94501

Clayton is acting as the lead environmental engineering consulting firm, and is coordinating activities at the three sites. In addition to using Clayton, Texaco and Kamur have other outside technical consultants. Texaco is being assisted by CEECON, and Kamur is being assisted by Soil Tech Engineering. The points-of-contact at the consulting firms are as follows:

Mr. Frank Hamedi-Fard
General Manager
SOIL TECH ENGINEERING
298 Brokaw Road
Santa Clara, CA 95050

Mr. Michael Hodges
President/Engineering Manager
CEECON, INC.
1517 Palmetto Avenue, Suite 4
Pacifica, California 94044

Mr. Anthony S. McElligott, P.E.
Supervisor, Remediation Services
CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
1252 Quarry Lane
P.O. Box 9019
Pleasanton, California 94566

Questions regarding the sites should be directed to Mr. McElligott of Clayton at the address above, by facsimile at (510)-426-0106, or by phone at (510) 426-2616.

2.0 BACKGROUND

In 1989, Harsh contracted Woodward-Clyde Consultants, Inc. to conduct a Phase I environmental assessment of the southeast corner of South Shore Shopping Center. The property was occupied by five businesses at the time. These businesses were:

- Pet Hospital
- Dry Cleaner/Laundromat
- South Shore Car Wash
- Goodyear Tire Shop
- Texaco Service Station

Figure 2 shows the location of these businesses. The former dry cleaner and the former Pet Hospital sites are currently a parking lot for the Lyon's restaurant (Figure 3). Lyon's restaurant is now located on the former Texaco site, and the former South Shore Car Wash site is covered by the newly constructed South Shore Car Wash. The Goodyear building has been remodeled to accommodate a Big 5 sporting goods store.

The following subsections provide brief background reports regarding contaminated soil and groundwater for the former dry cleaner, former South Shore Car Wash, and former Texaco sites.

2.1 FORMER DRY CLEANER SITE

Early in 1989, Harsch contracted with Woodward-Clyde Consultants (WCC) to conduct a Phase I environmental site assessment for the area occupied by the five businesses listed in Section 2. Based on their recommendations to conduct a sampling and analysis program, WCC installed soil borings and groundwater monitoring wells. The results of this Phase II investigation (WCC report, July 18, 1989) indicated that soil near the dry cleaner site was not contaminated, and that groundwater near the dry cleaner and the car wash was contaminated with low levels of 1,2-dichloroethene (DCE), tetrachloroethene (PCE), trichloroethene (TCE), benzene, and gasoline.

In early November 1989, during the demolition of the former dry cleaner building, the demolition contractor punctured two tanks containing dry cleaning fluid, causing the release of an estimated 10 to 50 gallons of fluid. On November 22, 1989, WCC oversaw the excavation of contaminated soil, using a portable organic vapor analyzer (OVA) to define the extent. Eight soil samples were collected along the perimeter and bottom of the excavation. One side wall sample indicated residual contamination; additional soil was removed from this area, guided by use of an OVA. No additional soil samples were collected. Approximately 20 cubic yards of material were removed and disposed of offsite (see WCC report dated February 1, 1990).

Clayton subsequently collected seven soil samples on November 5, 1990 to define the extent of shallow soil contamination at the former dry cleaner site. A concentration of 0.07 mg/kg of PCE was detected in one soil sample. PCE was not detected in the other soil samples. Ms. Cynthia Chapman of the ACHCSA stated verbally that no further investigation was required for soils at this site.

From November 1990 to April 1993 Harsh has been conducting quarterly groundwater monitoring at the subject property. Some of the original wells have been abandoned, and several new wells have been installed. Figure 3 shows the locations of all monitoring wells currently located on or adjacent to the site.

On February 24, 1992, Clayton supervised the installation of seven 2-inch monitoring wells (MW-15, MW-16, MW-17, MW-18, MW-19, MW-20 and MW-21). These wells were installed to better assess the vertical and horizontal extent of chlorinated hydrocarbon contamination in groundwater beneath the former dry cleaning site (Figure 3).

From March 23 to April 3, 1992, Clayton conducted an aquifer test by pumping approximately 13,000 gallons of groundwater from monitoring well MW-7B. This test was conducted to define the site's hydraulic parameters including the amount of water the site may generate around MW-7B. It was also conducted to determine the effect of pumping on chlorinated hydrocarbon concentrations in MW-7B.

On March 31, 1992, a groundwater sample collected from monitoring well MW-7B showed a reduction in the following compounds:

Contaminant	Before Pumping	After Pumping
Tetrachloroethene	3,200 µg/L	1,100 µg/L
Trichloroethene	390 µg/L	290 µg/L
Cis-1,2-dichloroethene	<40 µg/L	60 µg/L

However, the last quarterly sampling results showed chlorinated hydrocarbon concentrations in monitoring well MW-7B similar to concentrations prior to the pumping. The last quarterly report is included in Appendix A.

2.2 FORMER TEXACO SERVICE STATION SITE

Texaco owned and operated four underground storage tanks (USTs). The USTs at the site included:

- One 6,000-gallon gasoline UST
- Two 4,000-gallon gasoline USTs
- One 550-gallon waste oil UST

The laboratory results presented in WCC's February 1990 report show soil and shallow groundwater had been impacted by petroleum hydrocarbons in the range of gasoline and diesel.

In January 1991, McLaren Hart supervised excavation and soil sample collection on and around the former UST locations and former pump islands. Based on the soil sample analytical results, McLaren Hart recommended that a soil vapor extraction system be installed to reduce in situ hydrocarbon concentrations below the 100 mg/kg clean up level verbally requested by the ACHCSA.

Periodic groundwater sampling from the monitoring wells on this site indicate the presence of low concentrations of gasoline, diesel, and chlorinated hydrocarbons (see Appendix A).

In February 1993, Clayton installed monitoring well MW-22 to assess the extent of the contamination from the former Texaco site. It was drilled south of the Lyon's Restaurant (built on the former Texaco site) across Shoreline Drive. Monitoring well MW-22 was permitted by the East Bay Regional Parks District and was constructed on park property.

The soil sample collected during the installation of monitoring well MW-22 contained 0.007 milligrams per kilogram (mg/kg) toluene.

The analytical report for the soil and groundwater samples from monitoring well MW-22 is included in Appendix A.

2.3 SOUTH SHORE CAR WASH (KAMUR INDUSTRIES)

In July 1990, Zacor Corporation removed three USTs (10,000-gallon each) from the former South Shore Car Wash. The total petroleum hydrocarbons as gasoline (TPH-G) concentration in soil samples collected from former UST pits ranged from 360 to 9,500 mg/kg.

Subsequent soil sample analyses indicated moderate levels of TPH-G and other gasoline constituents.

The ACHCSA requested a preliminary soil and groundwater investigation including the removal of contaminated soil and further delineation of the extent of petroleum hydrocarbons in soil and groundwater.

In February and March 1991, Soil Tech Engineering, Inc. (STE report dated July 2, 1991) performed a preliminary subsurface investigation at the former South Shore Car Wash.

The soil and groundwater samples collected from the site revealed the following:

- The highest concentration of gasoline and its constituents were detected in groundwater samples from monitoring wells MW-10 and MW-12.
- The concentration of 1,2-DCE in groundwater samples from monitoring wells MW-10 (350 µg/L), MW-11 (8 µg/L) and MW-12 (450 µg/L) exceeded the State of California Drinking Water Standard.
- The soil samples collected southeast and east of the former USTs contained TPH-G concentrations ranging from 1,800 to 11,000 mg/kg.
- In March 1993 two monitoring wells (MW-24 and MW-25) were installed north of the former South Shore Car Wash site. The laboratory analysis revealed 33,000 µg/L of gasoline in the groundwater sample collected from MW-25. Other gasoline constituents were also present in the sample (See Appendix A).

3.0 FORMER GOODYEAR BUILDING (BIG 5 SPORTING GOODS)

The laboratory results presented in WCC's February 1990 report show that three of the five shallow soil samples collected beneath the building contained oil and grease concentrations ranging from 30 to 340 mg/kg.

In February 1993 Clayton installed monitoring well MW-23 to determine the possible extent of contamination from operation of the hydraulic lifts in the former Goodyear Service Station. This well is estimated to be upgradient from the building, and no soil or groundwater contamination was detected in the samples collected from this well. Low levels of total oil and grease (by Standard Methods 5520 C&F) have been detected in monitoring well MW-12. Residual oil and grease soil contamination is not being addressed until the gasoline plume has been remediated to appropriate levels. At that time it will be determined whether groundwater has been impacted by oil and grease, and if so, if remediation is necessary.

4.0 EXISTING REMEDIATION SYSTEM

A groundwater and a soil vapor extraction system is currently installed at the sites. The groundwater extraction system consists of 11 monitoring wells (MW-2 through MW-5B and MW-7B through MW-13). Monitoring wells MW-2, MW-3, MW-4, MW-5B and MW-9 are located on the former Texaco site. Monitoring wells MW-7B and MW-8B were placed at the former dry cleaning site. Monitoring wells MW-10, MW-11, MW-12, and MW-13 are located at the former South Shore Car Wash site.

The vapor extraction system includes 14 vapor points and the associated piping. Five vapor extraction points are installed at the former South Shore Car Wash site and

nine vapor points are located at the former Texaco site. No vapor points were installed at the former dry cleaning site.

The 11 monitoring wells and the nine vapor extraction points on the Texaco site are manifolded together and run to the treatment pad behind Lyon's. This was done to facilitate installation of a remediation system at a later date with minimal disruption of onsite business activities. The five vapor extraction points on the former South Shore Car Wash site are connected to the Christy boxes of monitoring wells MW-12, the recovery well, and MW-13. The groundwater and soil vapor extraction lines were laid in trenches and are constructed of 2-inch diameter PVC piping. A three quarter to one inch diameter PVC electrical conduit is also laid in the trenches. The wells and the piping were secured in concrete and steel traffic boxes.

5.0 SCOPE OF WORK

The objective of this remediation program is to remove or reduce the gasoline and its constituents and chlorinated hydrocarbons beneath the subject sites to levels acceptable to the ACHCSA and the Regional Water Quality Control Board (RWQCB). The tasks required to perform these activities are described in the following subsections. This RAP will be submitted to the ACHCSA and the RWQCB for review before implementation.

5.1 HEALTH AND SAFETY PLAN

A health and safety plan will be prepared for the work outlined in this RAP in accordance with the requirements of Title 29 of the Code of Federal Regulations, Section 1910.120 (29 CFR 1910.120), and Title 8 of the California Code of Regulations, Section 5192 (8 CCR 5192).

5.2 PHASE I - INTERIM REMEDIATION

In the first phase of remediation, the aboveground soil vapor and groundwater treatment system will be installed. The treatment system, designed by California Environmental Engineers and Contractors (CEECON) uses an aeration tank to strip volatile organic compounds (VOCs) from the groundwater. The resulting vapor, as well as extracted soil vapor, are then treated in either an internal combustion engine or by granular activated carbon, depending on the concentration of VOCs in the vapor stream(s). The configuration and operation of soil vapor and groundwater treatment system is described in more detail in Section 6. Drawings of the system are provided in Appendix B.

? How effective?

Soil vapor and groundwater will be initially extracted from monitoring well MW-5B only. Monitoring well MW-5B is a 15 foot deep, 4-inch diameter well located on the south side of the former Texaco site (see Figure 2). Within one month of setup, soil vapor and groundwater will also be extracted from MW-7B, which will be modified to extend to the bottom of the water bearing zone. Although we do not expect to find dense non-aqueous phase liquids (DNAPLs), this modified well will be designed to address DNAPLs.

One or two piezometers and soil vapor pressure monitoring points will be installed near each extraction well involved in the interim remediation (MW-5B and MW-7B).

The purpose of operating the soil vapor and groundwater extraction and treatment system will be to determine, prior to any full scale remediation, the following:

- The effectiveness of soil vapor and groundwater extraction in reducing contaminant levels, which includes the extent of the zones of influence created by soil vapor and groundwater extraction, and the need to deepen and/or increase the diameter of any existing extraction wells
- The operating characteristics of the aboveground treatment system
- The sustainable rate of soil vapor and groundwater extraction

We propose to extract soil vapor and groundwater, operate the treatment system, and collect operating data over an initial period of about three months. At the conclusion of this period, we will suspend extraction activities for about two weeks to allow the groundwater elevation and contaminant concentrations to stabilize. We will then collect groundwater, and possibly soil vapor, samples for laboratory analysis.

Groundwater will be analyzed by the following U.S. Environmental Protection Agency Methods:

- EPA Method 8015 for total petroleum hydrocarbons as diesel (TPH-D)
- EPA Method 8015 for total petroleum hydrocarbons as gasoline (TPH-G)
- EPA Method 8020 for benzene, toluene, xylenes and ethylbenzene (BTXE)
- EPA Method 8010 for chlorinated hydrocarbons

5.3 PROBLEM ASSESSMENT REPORT

Using the information previously developed by Clayton, Soil Tech, Woodward-Clyde, and McLaren-Hart, and the results of the interim remediation, Clayton will develop a problem assessment report (PAR).

The PAR will document all investigations conducted on the sites, provide the regulatory agencies with the defined horizontal and vertical extent of contamination, and report the results of the interim remediation.

5.4 FEASIBILITY STUDY

A feasibility study will be performed to evaluate the results of the interim remediation. Based on these results, an expanded system will be designed and implemented to address the remainder of the contamination on the sites.

The purpose of the feasibility study will be to evaluate, based on the operating data generated during the interim remediation, the technical and cost effectiveness of different groundwater extraction methods (e.g., large bore wells, trenches), soil vapor

extraction methods (e.g., vapor wells, well points, trenches) and groundwater discharge options (i.e., sanitary sewer, storm drain, landscape immigration).

5.5 PHASE II - FINAL REMEDIATION SYSTEM DESIGN

Using the results of the interim remediation system and the feasibility studies, the final remediation systems to be used to address all three sites will be developed. At this time, we expect that the aboveground system will remain as proposed here, with perhaps modification to allow for higher than anticipated groundwater or soil vapor extraction rates. The primary emphasis of this design step is expected to be on the extraction systems and cleaned groundwater disposal.

5.6 FINAL REMEDIAL ACTION PLAN

The results of the interim remediation, the feasibility studies, and the final remediation system design tasks will be used to modify, if necessary, this RAP into the Final RAP. The Final RAP will be the plan followed to address soil and groundwater contamination for all sites through closure. This document will guide implementation of the site cleanups.

5.7 IMPLEMENT FINAL RAP

With the concurrence of the ACHCSA and the RWQCB (as appropriate), we will implement construction, startup, and operation of the selected soil vapor and/or groundwater extraction system for each site, operate the aboveground treatment system, and monitor the overall effectiveness of the cleanups.

As the cleanups progress, we expect that some sites will reach their remediation goals sooner. As these sites do, we will notify the regulatory agencies our intent to suspend active remediation of those sites and begin verification monitoring toward site closure.

6.0 SOIL VAPOR AND GROUNDWATER COLLECTION AND TREATMENT PLAN

Groundwater from the well(s) or the trench system will be extracted using a submersible pump. Soil vapor will be extracted from the vapor points and well(s) using a vacuum pump. The contaminated air and groundwater will be transported through a PVC piping network (previously installed at the site for this purpose) to the treatment system, located behind the Lyon's restaurant (Figure 3).

6.1 VAPOR TREATMENT SYSTEM

The vapor extraction system includes the initial use of an internal combustion engine (ICE) followed by the eventual use of a vapor extraction blower and vapor phase activated carbon.

The vapor extraction system will use the existing monitoring wells and vapor extraction points, installed earlier at the sites. Each well head will be equipped with vacuum gages, samples ports, and shut-off valves so that the flow out of each well can be

monitored and adjusted to allow for maximum extraction and remediation of the petroleum and chlorinated hydrocarbons.

A six cylinder ICE will be installed onsite and operated as a short term emission control device. Petroleum and chlorinated hydrocarbon concentrations from soil vapor and groundwater from MW-5B and MW-7B are not expected to be high enough to justify use of the ICE for more than an initial safety precaution. Based on gasoline concentrations and recent soil gas analysis for the car wash site, we expect to remobilize the ICE when groundwater and soil vapor from the car wash site are connected to the system. The petroleum and chlorinated hydrocarbons concentration in extracted vapor are expected to decrease substantially in the first few months of operation. The layout of this trailer-mounted ICE is shown in Appendix B. After reduction of hydrocarbon concentrations in the extracted vapor and stripped groundwater, the ICE will be replaced with vapor phase activated carbon.

Construction and operation of an off-gas treatment device for abatement of volatile organics requires a permit from the Bay Area Air Quality Management District (BAAQMD). Therefore a permit will be secured from BAAQMD prior to construction and operation of the treatment system.

The City of Alameda Planning Department regulates noise levels of equipment in this situation to a sound level not to exceed 70 decibels (dBA). Therefore, the ICE will be muffled to the extent necessary that the entire treatment system complies with this requirement and any other related requirements.

6.2 GROUNDWATER TREATMENT SYSTEM

The groundwater treatment system will be a modular trailer mounted unit. The treatment system includes the following components:

- Water filters
- An aeration system
- A water hardness chemical injector
- Activated carbon polishing unit

Instrumentation and controls for the system include water indicators, transfer pumps, flow indicators, flow totalizer, and sampling ports. The system will be equipped with double containment for all water and chemical storage drums. The system can also operate without aeration treatment; extracted groundwater is treated by liquid-phase activated carbon in this case.

The treatment of the extracted groundwater will be in two stages. The first stage will consist of an aeration system including spray, tray and diffused aeration. The air removed from this aeration system will be treated by the ICE as part of the off-gas treatment system. This stage is expected to remove up to 95 percent of the petroleum and chlorinated hydrocarbons. The activated carbon will be used as secondary water treatment. Two in-line canisters of liquid phase granular activated carbon will be used for this secondary treatment. When inlet vapor phase hydrocarbon concentrations have been reduced to below 200 parts per million, the system may be modified to operate with activated carbon as the emission control device instead of the ICE.

6.3 GROUNDWATER DISCHARGE

Clayton estimates that an average of approximately 3,000 gallons per day of groundwater will be pumped during the initial phase of the remediation. However, the groundwater extraction rate may increase or decrease significantly based on the additional activities or groundwater conditions beneath each site.

If the laboratory reports indicate that the water after treatment does not contain chlorinated hydrocarbons, TPH-D, TPH-G and BTXE at or above analytical detection limits, or applicable discharge limits, the water will be discharged using one or more of the following options. Other water quality parameters and discharge requirements (e.g., TDS, TSS, pH, etc.) may also have to be addressed, depending on the discharge option employed. If the treated water is not fit to discharge by the selected option, it will be retreated until discharge standards are met, or otherwise disposed of appropriately. Excursions over discharge limits will be avoided.

6.3.1 Option A: Discharge Into the Local Sanitary Sewer

Treated groundwater can be discharged directly into the local sanitary sewer. Appropriate permits from the local sanitary sewer district will be obtained before any water discharge occurs. Volume and the point of discharge will be determined by the permitting agency. This method of disposal will be used during Phase I and may, depending on the volume of groundwater to be discharged, be the method of choice for the entire remediation.

6.3.2 Option B: Discharge Into the Storm Drain

In order to discharge into the storm drain, a National Pollutants Discharge Elimination System (NPDES) permit is required. The NPDES permit can be obtained only in the following circumstances:

- If the treated groundwater cannot be discharged into the sanitary sewer; or
- After a public hearing is held.

Since the East Bay Municipal Utility District (EBMUD) appears to be willing to accept the treated groundwater, a public hearing will be required if this option proves desirable.

6.3.3 Option C: Groundwater Reclamation and Reinjection

Treated water will be used for onsite landscaping and irrigation purposes near Lyon's restaurant. Excess treated water that cannot be used onsite will be reinjected into the existing peripheral monitoring wells, or new wells if necessary. Reinjection will result in groundwater mounding that will inhibit saltwater intrusion from the San Francisco Bay and provide hydraulic control over the contaminant plumes.

Prior to implementing this option, treated groundwater will be analyzed for total dissolved solids (TDS).

Before exercising this option the necessary permits for groundwater reinjection will be secured from the RWQCB.

6.4 OPERATION AND MAINTENANCE

The site will be visited approximately twice a week for the first two weeks of the treatment system operations. During each visit the treatment system will be inspected and necessary maintenance will be performed. Once the system is operating properly, Clayton will inspect the system once every two weeks. Approximately two groundwater samples will be collected every month (one prior to treatment and one after) to determine the effectiveness of the treatment system. Additional samples may be collected to demonstrate compliance with the applicable discharge standards. Water samples will be analyzed for chlorinated hydrocarbons, TPH-D, TPH-G, BTXE, total dissolved solids (TDS), and other water quality parameters if required.

During Phase I interim remediation the monitoring wells between the extraction wells MW-5B and MW-7B and the adjacent sites will be sampled periodically to determine whether migration of known contaminants has occurred.

7.0 VERIFICATION MONITORING - QUARTERLY GROUNDWATER SAMPLING AND ANALYSIS

After conclusion of the remedial activities, one year of quarterly groundwater sampling and analysis will be conducted to demonstrate that remediation of the groundwater has been achieved. The groundwater samples will be collected from representative monitoring wells for four quarters. Groundwater samples will be analyzed for chlorinated hydrocarbons, TPH-D, TPH-G, and BTXE.

8.0 REPORTING

Quarterly progress reports will be filed with the ACHCSA and the RWQCB throughout the remediation. The PAR and Final RAP will be submitted according to the tentative schedule presented in Appendix C.

Upon completion of the remediation activities, a closure report summarizing the findings and the results of the work performed at the site will be prepare for submittal to ACHCSA and RWQCB. The report will include a discussion of the site investigation and remediation techniques, groundwater sampling, analytical results, conclusions, and recommendations.

At the completion of the verification monitoring program, a report detailing the results of the program will be submitted to the ACHCSA, with copies to the RWQCB, formally requesting that they recommend site closure to the RWQCB.

9.0 SCHEDULE

The schedule of activities and reporting dates are shown in the Gantt chart in Appendix C.

This report prepared by:

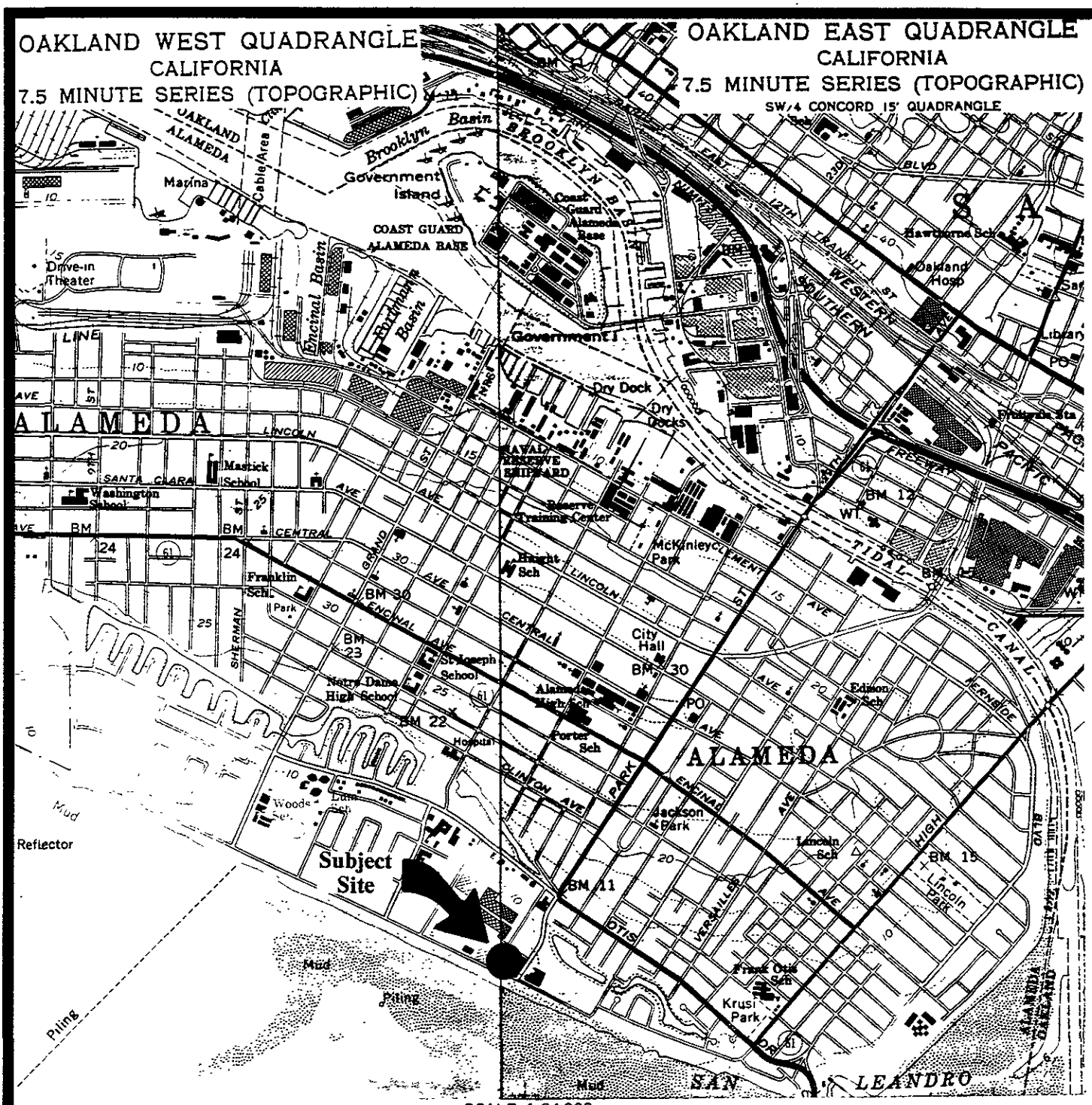
Dariush Dastmalchi
Geologist

This report reviewed by:

Anthony S. McElligott, P.E.
Supervisor, Remediation
Western Operations

June 4, 1993

FIGURES



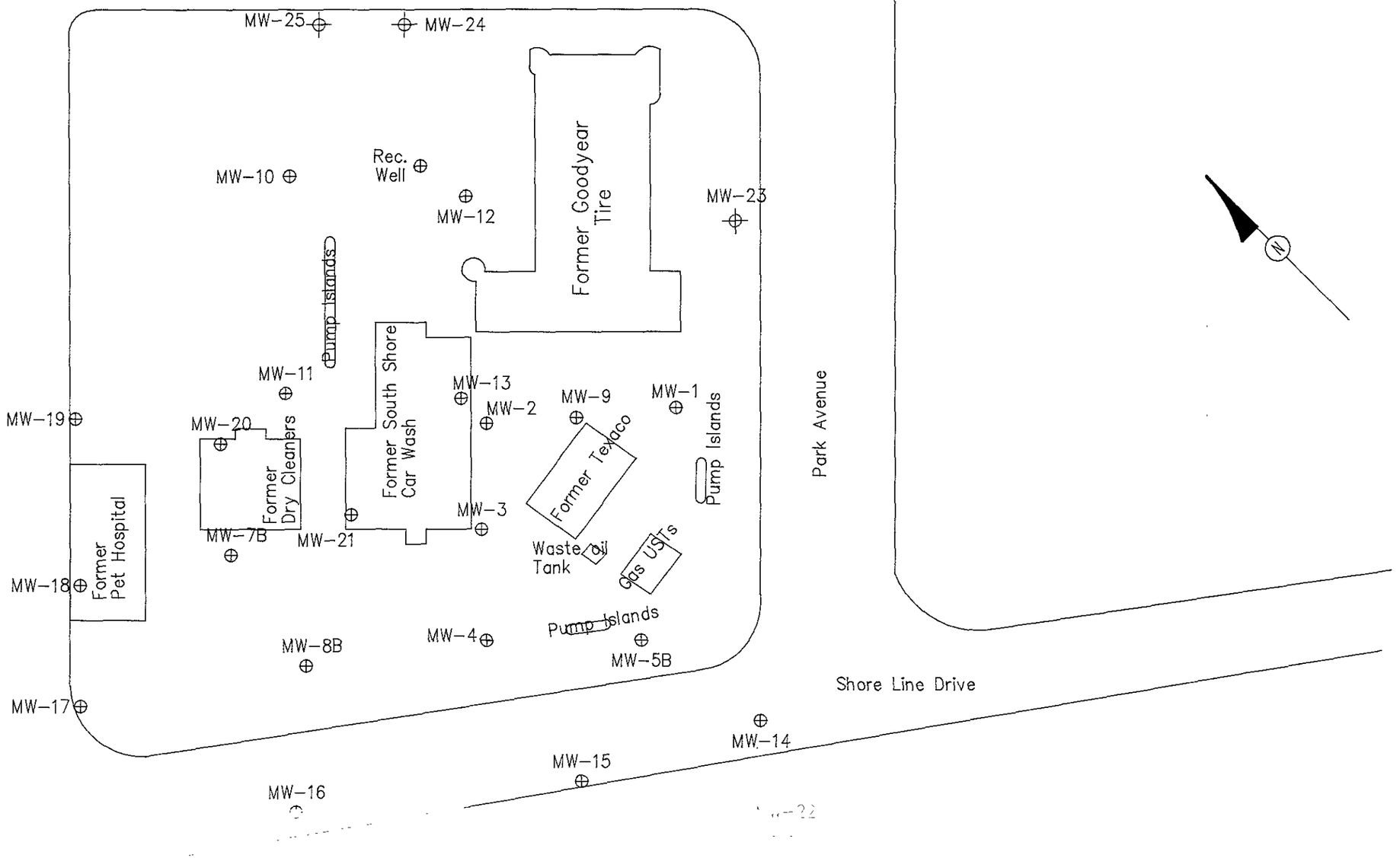
Site Location Map
PARSCH INVESTMENT CORPORATION
Park Street and Shore Line Drive
Alameda, California

Clayton Project No. 39744.01

Figure 1

Clayton
ENVIRONMENTAL CONSULTANTS

39744-01-16

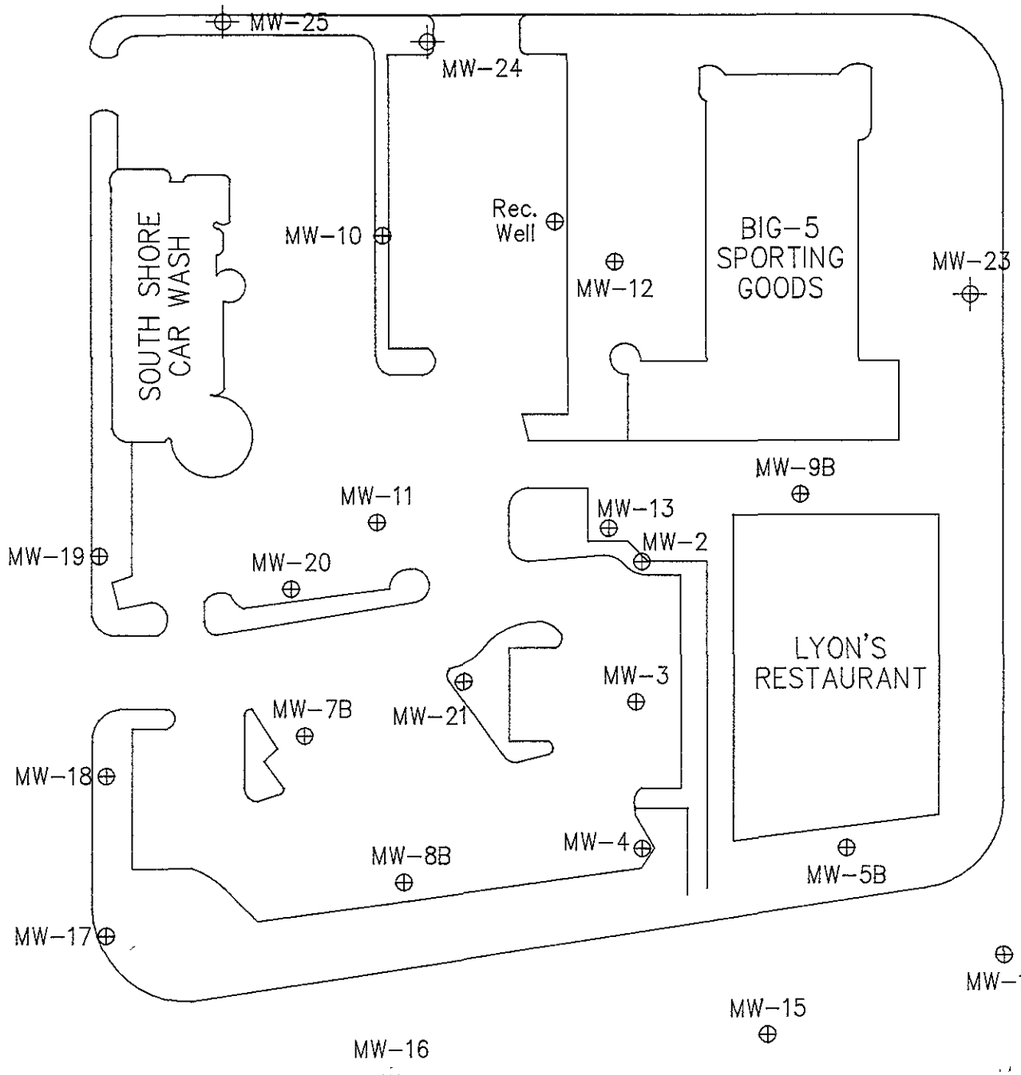


Former Goodyear
South Shore Shopping Center
Corner of Shoreline Drive and Park Avenue
Alameda, California

Clayton Project No. 450103.03

Figure 2

Clayton
ENVIRONMENTAL CONSULTANTS



LEGEND

⊕ Existing Monitoring Wells

⊕ New Monitoring Wells

Not detected at or above detection limit

Monitoring well location and current June
SOUTH SHORE SHOPPING CENTER
Corner of South Shore Drive and Park Street
Alameda, California

Figure 3

Not to scale Clayton Project No. 45010.08

45010-3.16

Clayton ENGINEERS CONSULTANTS

APPENDIX A

QUARTERLY REPORT

Western Operations

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

Revised Quarterly Report
for
South Shore Shopping Center
Corner of Shore Line Drive and Park Street
Alameda, California

Clayton Project No. 45040.08
April 26, 1993

CONTENTS

Figures

CONTENTS
(continued)

Appendices

1.0 INTRODUCTION

Clayton Environmental Consultants, Inc. was retained by Harsch Investment Corp. to conduct quarterly monitoring activities at the South Shore Shopping Center at the corner of Shore Line Drive and Park Street in Alameda, California (Figure 1). These activities were conducted from November, 1992 to February, 1993. The following tasks were completed during this period:

- Task 1 - Monitoring Well Installation (MW-22, MW-23, MW-24 and MW-25)
- Task 2 - Monitoring Well Development
- Task 3 - Groundwater monitoring and sampling
- Task 4 - Soil and groundwater samples analysis

2.0 TASK 1: MONITORING WELL INSTALLATION

On February 16, 1993, Clayton observed the installation of two monitoring wells MW-22 and MW-23 (Figure 2). Before commencing the drilling activities, Clayton had prepared a health and safety plan based on the planned work activities and environmental investigations, in accordance with Title 29 of the Code of Federal Regulations, Section 1910.120 (29 CFR 1910.120).

During the drilling of the monitoring wells, soil characteristics were logged in the field by Mr. Dariush Dastmalchi, Clayton geologist, using the Unified Soil Classification System (Appendix A). Distinguishing features such as color, odor, and relative soil moisture content were noted in the field logs. Drilling and sampling activities were conducted in accordance with the Regional Water Quality Control Board (RWQCB), and Tri-Regional and Alameda County Health Care Services Agency (ACHCSA) guidelines. Clayton's drilling, well construction, and sampling protocols for borehole/monitoring well installation (Appendix B) was supervised by a civil engineer registered in the State of California.

To aid in locating contamination, Clayton screened the soil cuttings during the drilling activity for total ionizable organic compounds using a photoionization detector (PID), and visually examined the soil for petroleum compounds. Clayton collected soil samples with a 2.5-inch split-barrel sampler until groundwater was encountered.

Monitoring well MW-22 was installed to assess the extent of the contamination from the former Texaco Gas Station. It was drilled southeast of the Lyon's Restaurant (former Texaco service station). Monitoring well MW-22 was permitted by the East Bay Regional Parks District and was constructed within park property. The well was constructed of 2-inch diameter polyvinyl chloride (PVC) casing to a depth of 25 feet below ground surface (bgs).

Monitoring well MW-23 was installed to determine the possible extent of the contamination from operation of the hydraulic lifts in the former Goodyear Service Station (currently a Big 5 Sporting Goods Store). Monitoring well MW-23 was permitted by Alameda County Flood Control and Water Conservation District (Zone 7). The well was constructed of 2-inch diameter PVC casing to a depth of 20 feet bgs.

The monitoring wells were constructed using screened casing extending above the water table. Solid casing was then installed to the surface. The sand pack was

extended to 1 foot above the screen. A 1-foot thick bentonite seal was placed on top of the sand pack, and the well was sealed to the surface using cement grout. A locking cap was used to secure the well in a Christie box that was raised above the surface grade by approximately 1 inch. Figures 3 and 4 show the schematic diagrams for construction of these wells.

The Kamur Industries report for groundwater sampling and installation of monitoring wells MW-24 and MW-25 is included in Appendix C. Please note that in the Kamur Industries report monitoring well MW-24 is identified as STMW-6 and monitoring well MW-25 is referred to as STMW-5.

3.0 TASK 2: MONITORING WELL DEVELOPMENT

The well seal in newly constructed wells was allowed to set for 72 hours prior to development. Development of the well can volatilize the contaminants present; therefore, the wells were sampled 72 hours after development.

The wells were developed using disposable bailers until water turbidity and specific conductance stabilized.

4.0 TASK 3: GROUNDWATER MONITORING AND SAMPLING

On February 23 and 24, 1993, Clayton collected groundwater samples from monitoring wells MW-5B, MW-7B, MW-8B, MW-11, MW-14, MW-15, MW-16, MW-17, MW-18, MW-22 and MW-23. The groundwater samples were collected in clean laboratory-supplied containers and placed immediately into an iced cooler for transport to Clayton's laboratory. One trip blank was furnished in accordance with Clayton's quality assurance/quality control (QA/QC) program. Groundwater sampling activities were conducted according to Clayton's monitoring well sampling protocols based on the RWQCB and ACHCSA guidelines (Appendix D). Details of the groundwater sampling activities are provided in the water sampling field survey forms (Appendix E).

Monitoring wells MW-10 (designated as STMW-1 by Kamur Industries), MW-12 (designated as STMW-3 by Kamur Industries) MW-24 and MW-25 were sampled by Kamur Industries (see Appendix C).

The groundwater elevations were measured by Clayton in monitoring wells MW-13 (designated as STMW-4 by Kamur Industries), MW-19, MW-20, and MW-21 to determine the groundwater gradient beneath the subject property. However, no samples were collected for laboratory analysis from these monitoring wells.

5.0 TASK 4: SOIL AND GROUNDWATER SAMPLE ANALYSES

Clayton collected one soil sample at the soil and water interphase from each well for laboratory analysis. The soil sample collected from the monitoring well MW-22 was analyzed by the following Environmental Protection Agency (EPA) Methods:

- EPA Method 8015 for total petroleum hydrocarbons as gasoline (TPH-G)
- EPA Method 8020 for benzene, toluene, ethylbenzene and xylene (BTEX)

The soil sample collected from monitoring well MW-23 was analyzed by the following methods:

- EPA Method 8015 for TPH-G
- EPA Method 8020 for BTEX
- EPA Method 8015 for total petroleum hydrocarbons as diesel (TPH-D)
- EPA Method 8015 for total petroleum hydrocarbons as motor oil
- EPA Method 8010 for halogenated hydrocarbons

The groundwater samples were analyzed by one or more of the following methods:

- EPA Method 8015 for TPH-G
- EPA Method 8020 for BTEX
- EPA Method 8015 for (TPH-D)
- EPA Method 601 for halogenated hydrocarbons
- EPA Method 6010 for metals
- EPA Method 160.1 for total dissolved solids (TDS)
- Standard Method 5520-F for total hydrocarbons oil and grease (O&G)

Laboratory analysis performed for the groundwater samples are shown in Table 1.

Table 2 summarizes the laboratory results for the groundwater samples collected in February 1992. The regulatory guidelines are also listed in this table. Previous groundwater sampling results are included in Appendix F. Table 2 lists only those compounds detected at or above analytical detection limits. Clayton's laboratory analytical reports are presented in Appendix G. Kamur Industries analytical reports are included in Appendix C.

Past sampling activities of monitoring wells MW-15 and MW-18 through MW-21, did not reveal any constituents at or above analytical detection limits. Therefore these wells are not include in Appendix F. Monitoring wells MW-10 through MW-13 were monitored by the Kamur Industries, therefore, the historical data for these wells is not included in this report.

6.0 FINDINGS AND CONCLUSIONS

Based on the laboratory reports, we conclude the following:

- The highest concentration of TPH-G was detected in the groundwater sample collected from MW-12. TPH-G was also present in the groundwater samples collected from MW-5B, MW-10 and MW-25. No drinking water standards are published for TPH-G at this time. The isoconcentration map for TPH-G is presented in Figure 5.

- Benzene was detected in the groundwater samples collected from monitoring wells MW-5B, MW-10, MW-12 and MW-25 only, at levels that exceeds the drinking water standard. Figure 6 shows an isoconcentration contour map for benzene.

- The concentrations of total xylenes and ethylbenzene in the groundwater sample collected from MW-12 exceed the drinking water standards. The groundwater

samples collected from MW-5B and MW-10 contained xylenes and ethylbenzene at concentrations lower that the drinking water standards.

- The concentration of toluene in the groundwater samples collected from MW-5B, MW-10, MW-12 and MW-25 ranged from 4.2 micrograms per liter (µg/l) to 1900 µg/l. No drinking water standard has been published for toluene at this time.

- The concentration of TPH-D in the groundwater samples from MW-5B, MW-14, MW-15, and MW-22 exceeds the Suggested No-Adverse Response Levels (SNARL) set by the USEPA. No drinking water standard is published for diesel at this time. Figure 7 shows an isoconcentration map for TPH-D.

- The concentrations of cis-1,2-dichloroethene, trichloroethene, and tetrachloroethene in the groundwater samples collected from monitoring wells MW-7B and MW-8 exceeds their respective drinking water standards. Isoconcentration contour lines for these compounds are presented in Figures 8, 9, and 10.

- Chlorobenzene, trans-1,4-dichloroethene, and 1,1-dichloroethene historically have been present in the groundwater samples from MW-7B. However, they were not detected in the groundwater sample from MW-7B. The detection limits were increased above the concentrations used for drinking water standards due to matrix interference from tetrachloroethene; therefore, these compounds may be present in the sample at concentrations above the drinking water standards but less than the detection limits achieved.

- The concentration of 1,2-dichloroethane in the groundwater samples collected from monitoring wells MW-14 and MW-22 exceeds the drinking water standard. The concentration of 1,2-dichloroethane increases with increasing distance from the former Texaco site, in the direction of the groundwater flow. The cause for this increase is not known at this time. However, this may indicate that the contaminant plume has move away from the site and the concentration in monitoring well MW-5B is the tail end of the plume. An isoconcentration map for 1,2-dichloroethane is shown on Figure 11.

- The groundwater sample from monitoring well MW-12 contained 3,900 µg/l oil and grease. No drinking water standards have been published for oil and grease at this time.

- The groundwater flow direction beneath the subject property is presented in Figure 12. The groundwater flow beneath the former Texaco Gas Station and the former dry cleaner site is similar to the ground surface topography toward San Francisco Bay. In contrast, the groundwater beneath Kamur Industries flows in a northerly direction and away from San Francisco Bay. The cause for this flow direction beneath Kamur Industries is not known at this time. However, it may be caused by a ruptured or leaking water line(s) or excessive water infiltration from the surface.

- TDS concentrations in groundwater samples collected from monitoring wells MW-16, MW-17, and MW-18 exceeds the State Water Resources guideline of 3,000 milligrams per liter (mg/l) for potential drinking water sources.

- The soil sample collected during the installation of monitoring well MW-22 contained 0.007 milligrams per kilogram (mg/kg) toluene. The laboratory reports did not indicate any compounds at concentrations at or above the analytical detection limits in other soil samples collected by Clayton or Kamur Industries.

7.0 FUTURE ACTIVITIES

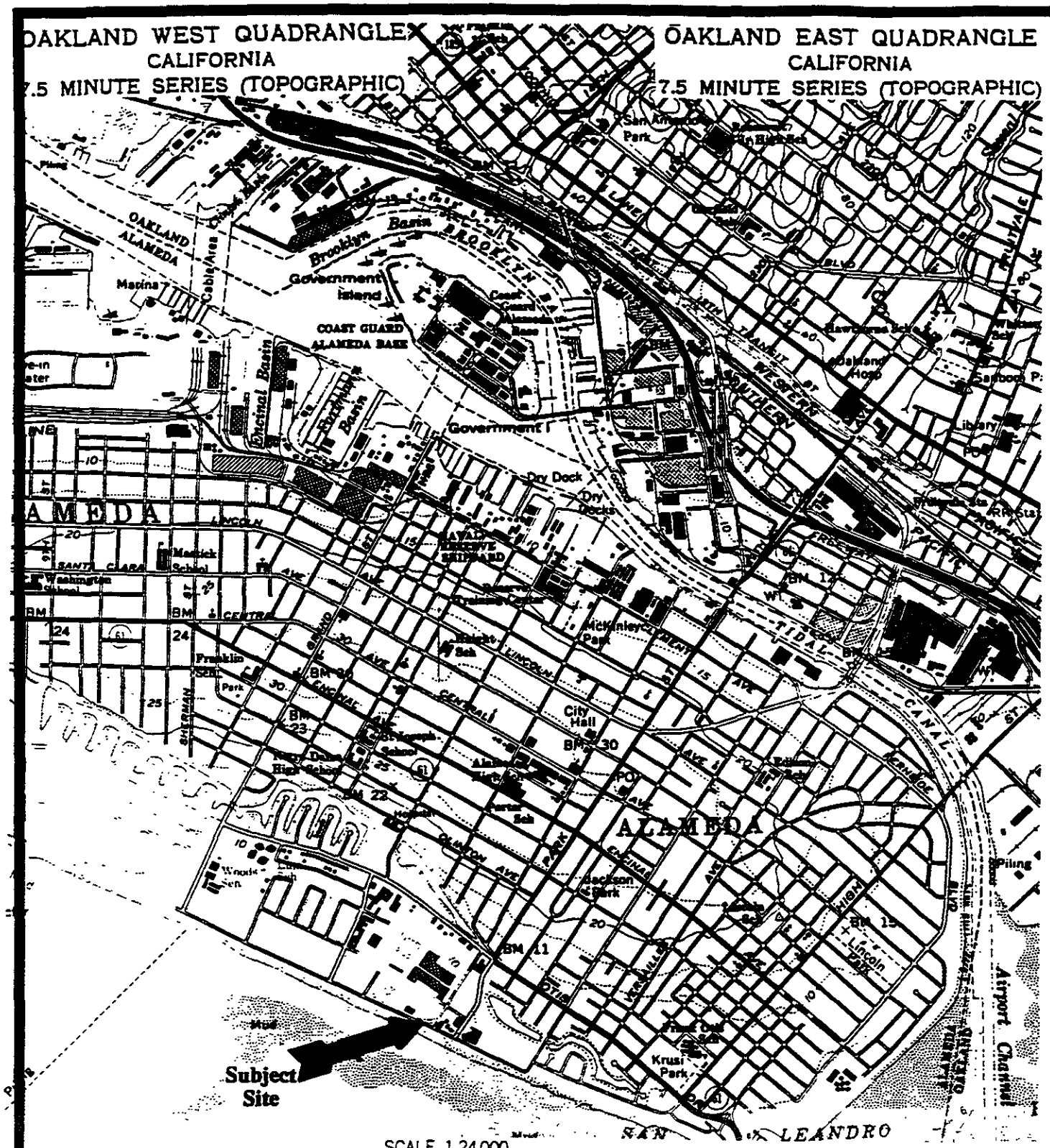
On October 9, 1992, ACHCSA requested that Harsch Investment Corp. prepare a work plan for further investigations and possible remediation. We are currently in the process of preparing this work plan. We expect to present the work plan to RWQCB and ACHCSA by April 26, 1993.

This report prepared by: Dariush Dastmalchi
Dariush Dastmalchi
Geologist

This report reviewed by: for
Anthony S. McElligott
Supervisor, Remediation
Western Operations

April 26, 1993

FIGURES



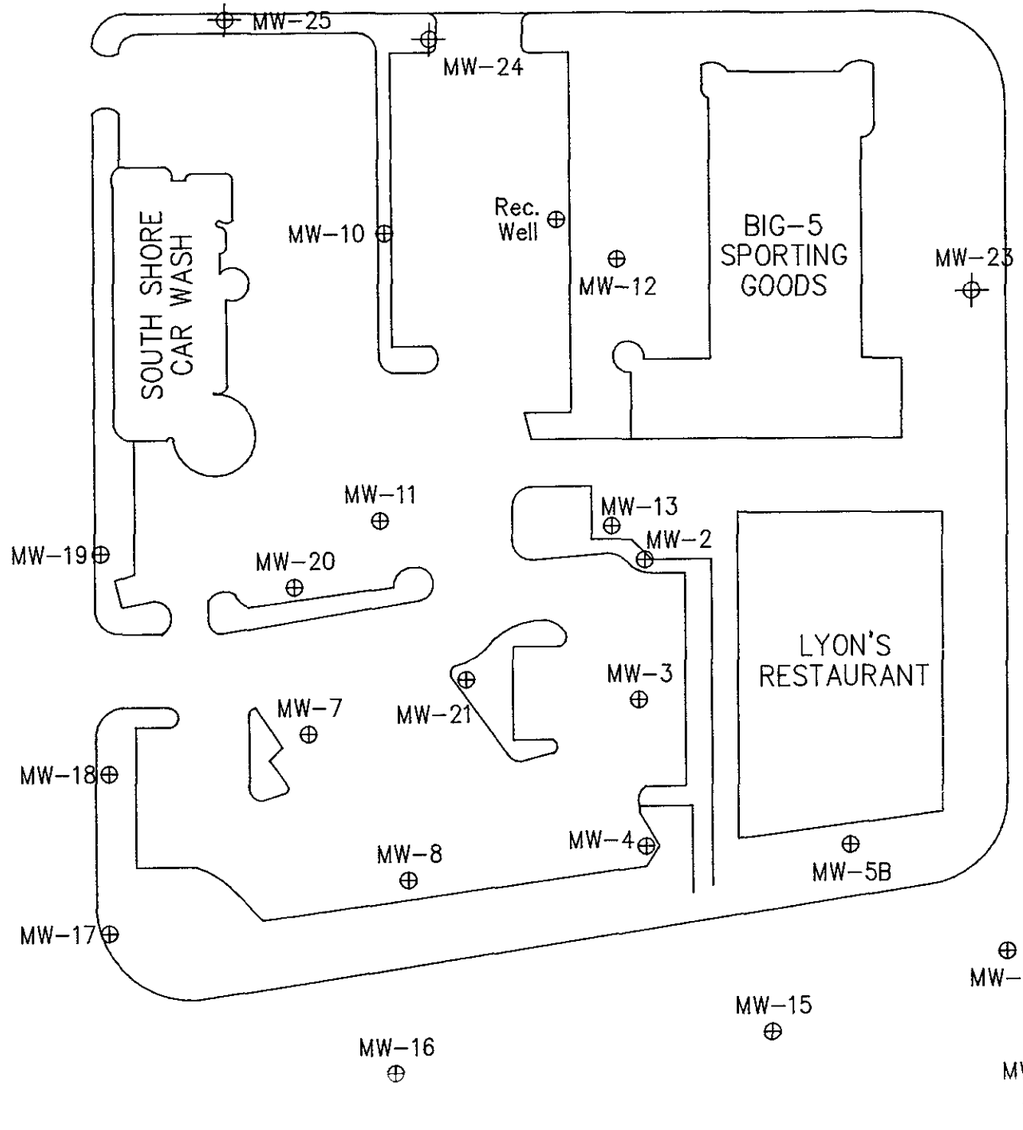
Site Location and Topographic Map
SHORE LINE SHOPPING CENTER
Corner of Shore Line Drive and Park Street
Alameda, California

Clayton Project No. 45040.08

Figure 1

45040-24-16

Clayton
ENVIRONMENTAL
CONSULTANTS



LEGEND

⊕ Existing Monitoring Wells

⊕ New Monitoring Wells

Not detected at or above detection limit

(not to scale)

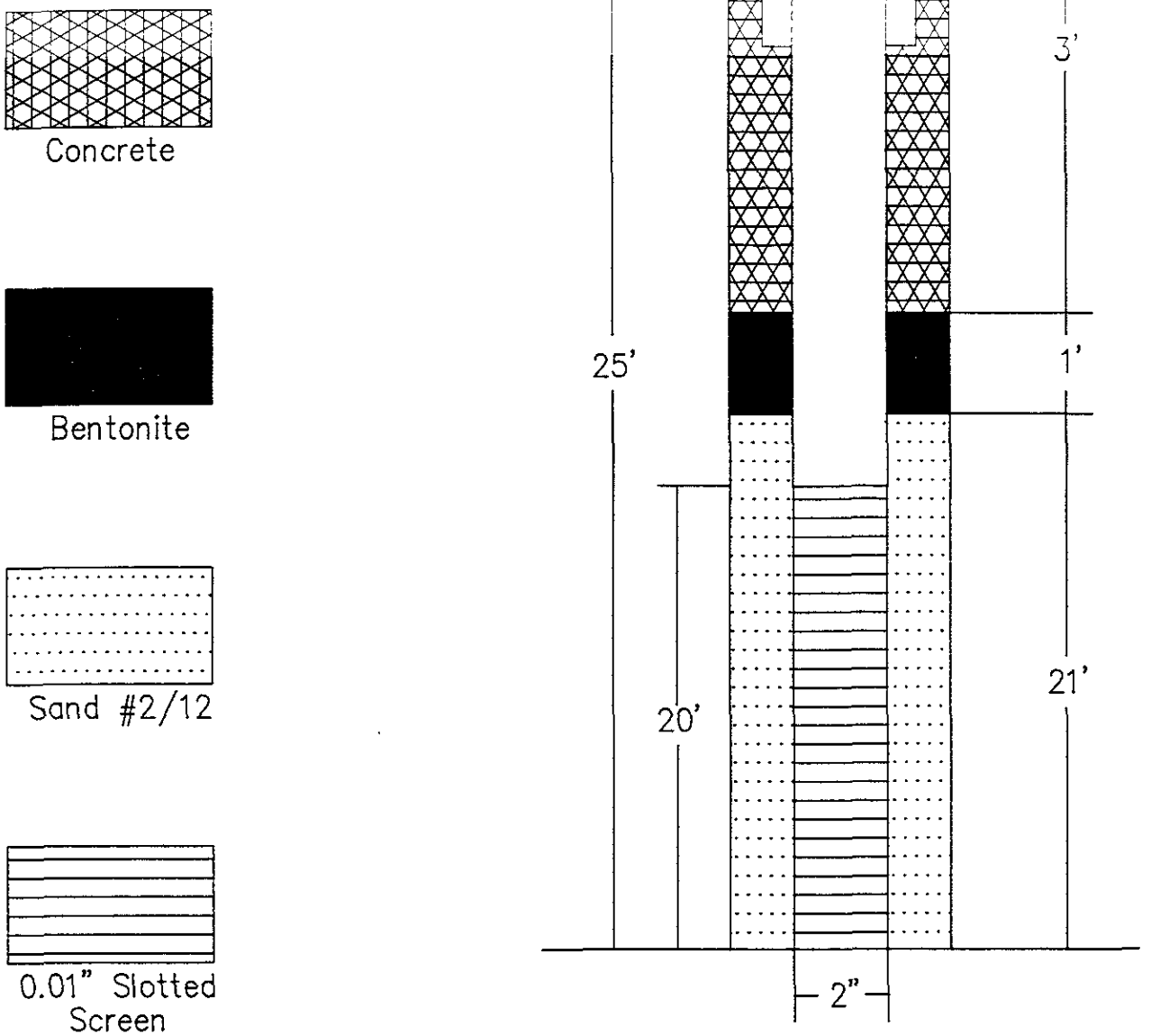
New Monitoring Wells Location
SOUTH SHORE SHOPPING CENTER
Corner of South Shore Drive and Park Street
Alameda, California

Clayton Project No. 45040.08

Figure 2

45040-DL-16

Clayton ENVIRONMENTAL CONSULTANTS



Schematic Diagram for Monitoring Well MW-22
SOUTH SHORE SHOPPING CENTER
Corner of South Shore Drive and Park Street
Alameda, California

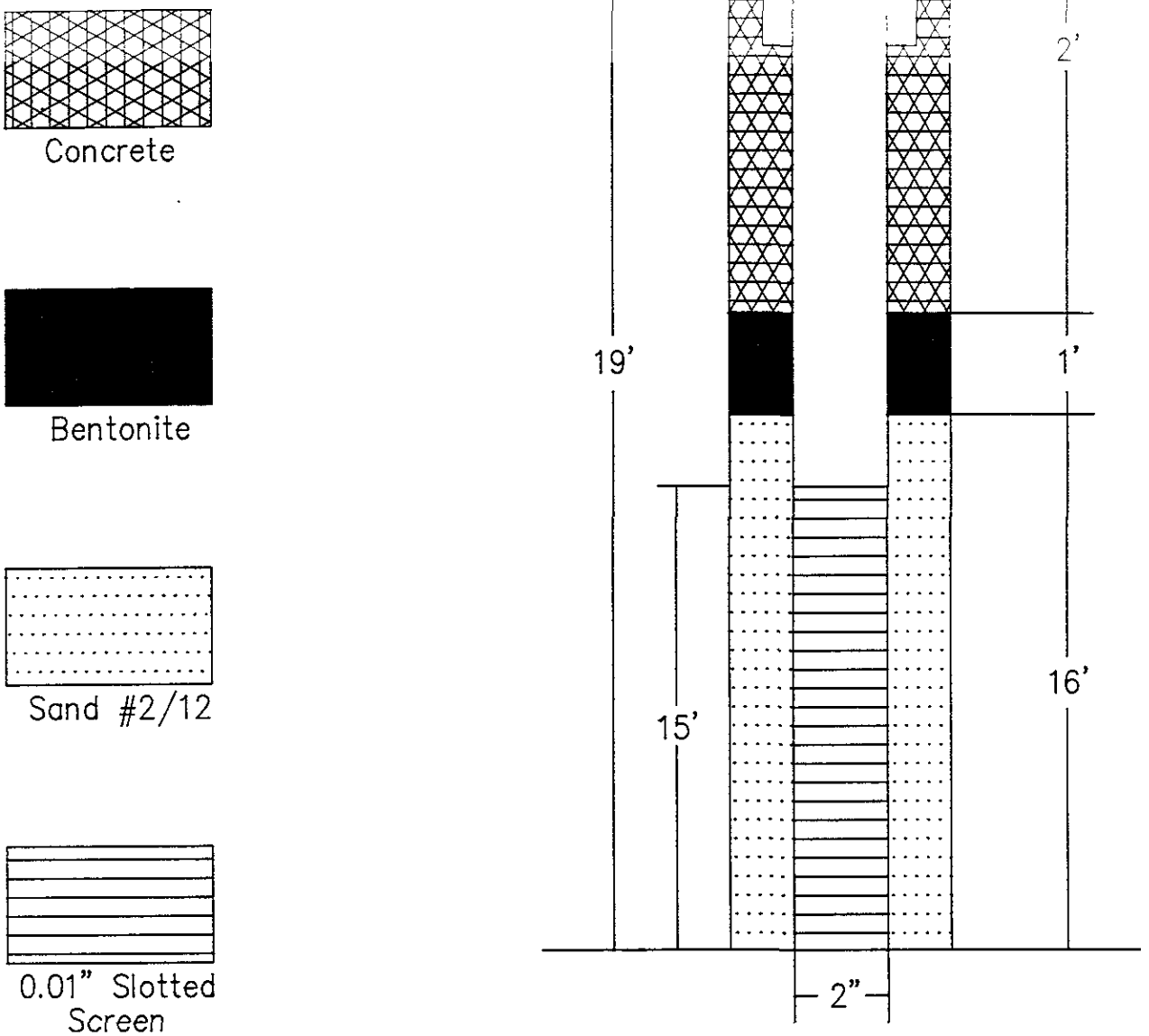
(not to scale)

Clayton Project No. 45040.08

Figure 3

45040-MW-16

Clayton ENVIRONMENTAL CONSULTANTS



Schematic Diagram for Monitoring Well MW-23
SOUTH SHORE SHOPPING CENTER
Corner of South Shore Drive and Park Street
Alameda, California

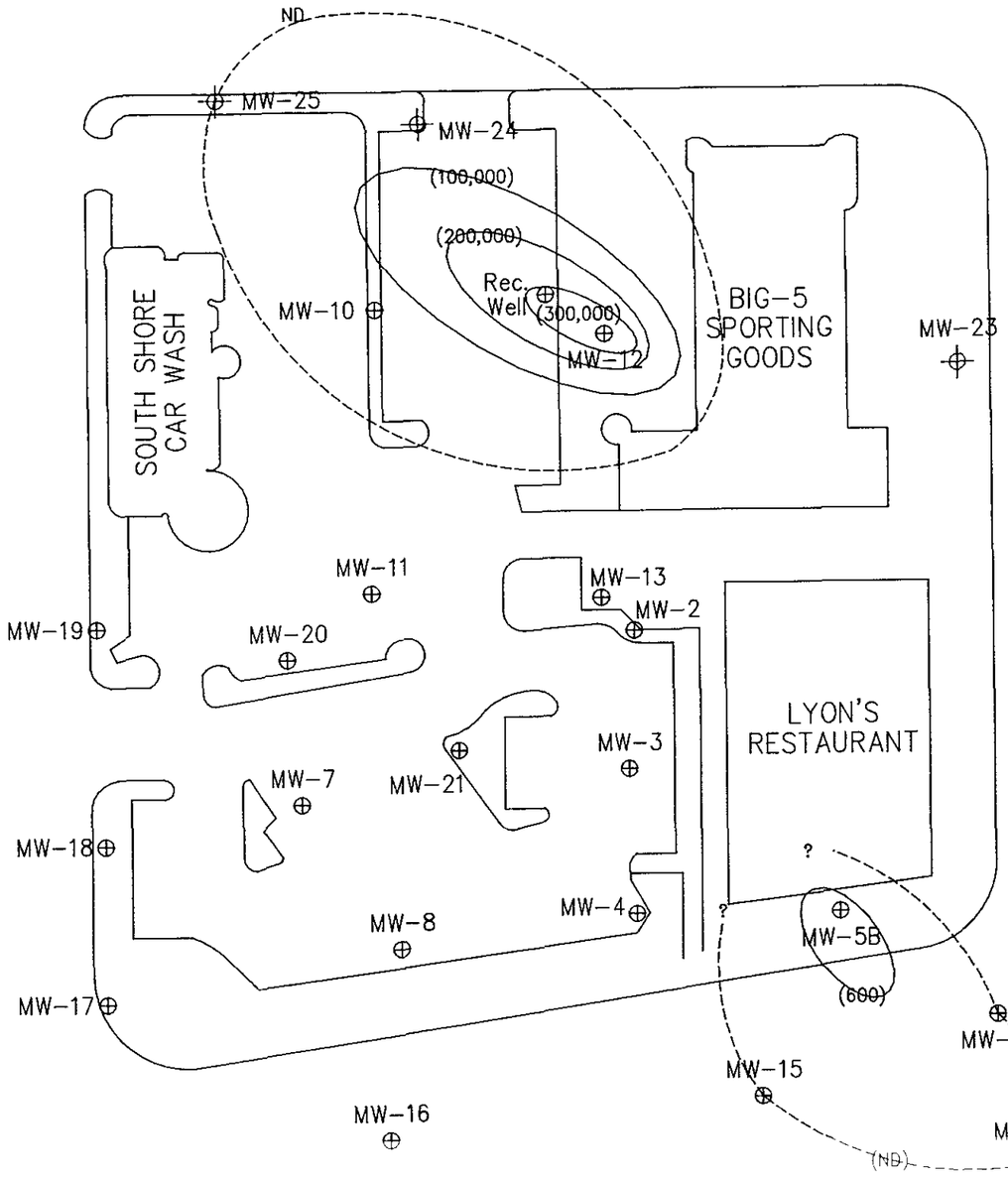
Clayton Project No. 45040.08

(not to scale)

Figure 4

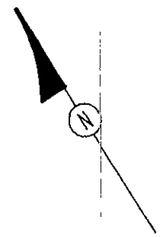
45040-MW-17

Clayton ENVIRONMENTAL CONSULTANTS



LEGEND

~	Isoconcentration Line (Dashed where inferred)
(200)	Concentration
⊕	Existing Monitoring Wells
⊕	New Monitoring Wells
ND	Not detected at or above detection limit



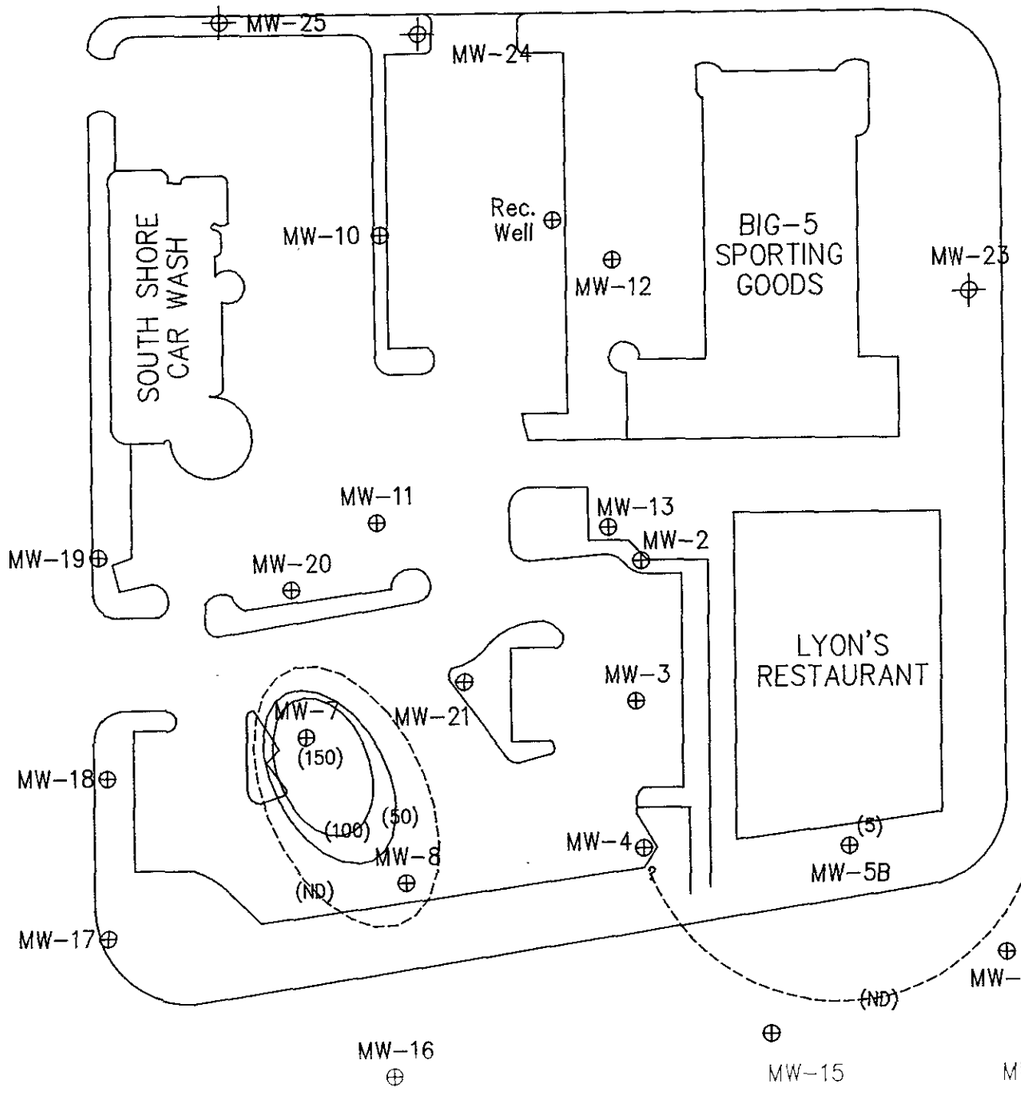
Isoconcentration Map for Gasoline
SOUTH SHORE SHOPPING CENTER
Corner of South Shore Drive and Park Street
Alameda, California

Clayton Project No. 45040.08

Figure 5

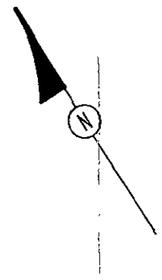
45040-GS-16

Clayton ENVIRONMENTAL CONSULTANTS



LEGEND

~	Isoconcentration Line (Dashed where inferred)
(200)	Concentration
⊕	Existing Monitoring Wells
⊕	New Monitoring Wells
ND	Not detected at or above detection limit



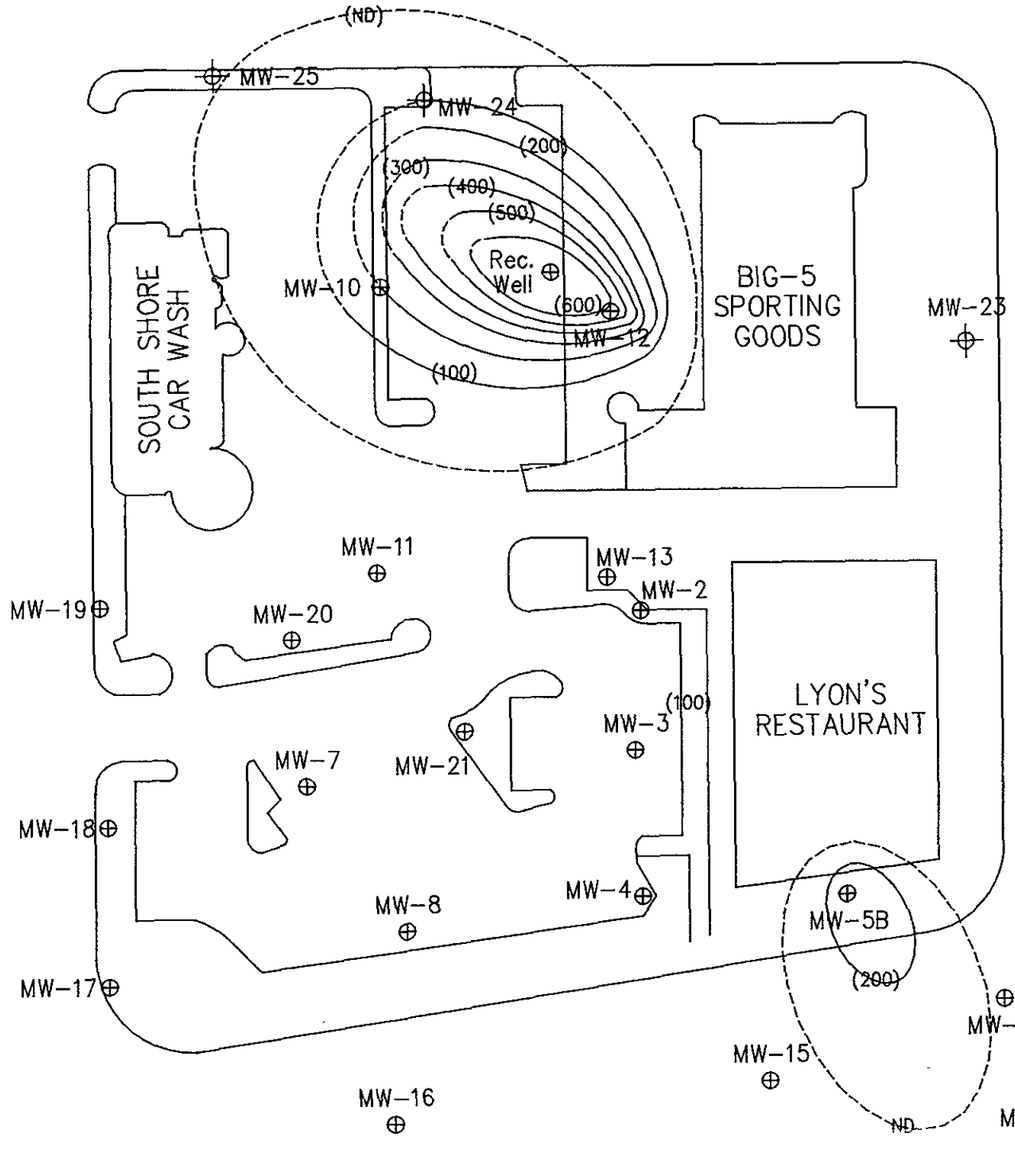
Isoconcentration Map for Cis-1,2-dichloroethene
SOUTH SHORE SHOPPING CENTER
Corner of South Shore Drive and Park Street
Alameda, California

Clayton Project No. 45040.08

Figure 8

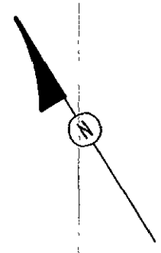
45040-DE-16

Clayton ENVIRONMENTAL CONSULTANTS



LEGEND

	Isoconcentration Line (Dashed where inferred)
(200)	Concentration
⊕	Existing Monitoring Wells
⊕	New Monitoring Wells
ND	Not detected at or above detection limit



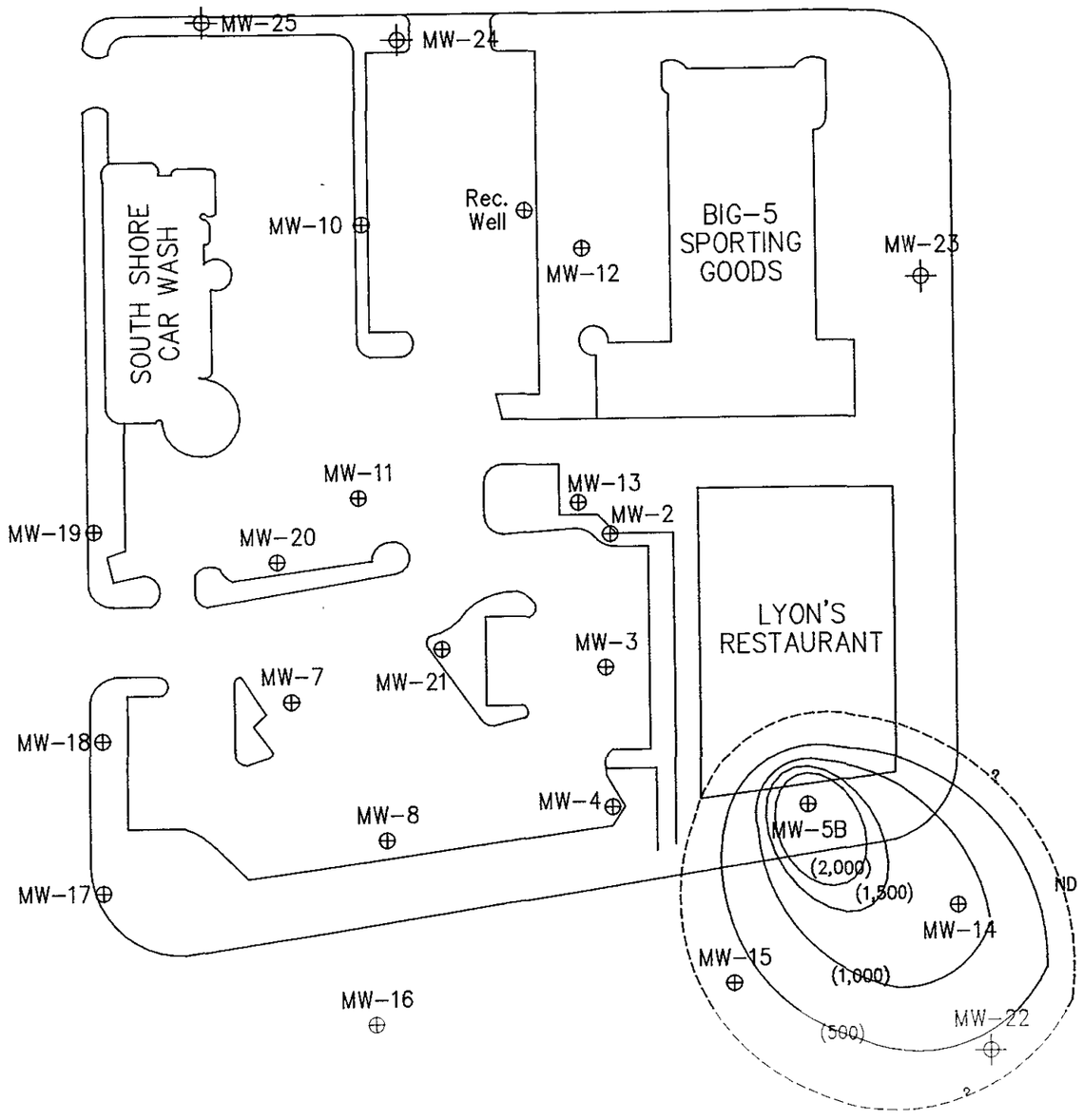
Isoconcentration Map for Benzene
SOUTH SHORE SHOPPING CENTER
Corner of Shore Line Drive and Park Street
Alameda, California

Clayton Project No. 45040.08

Figure 6

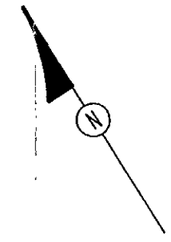
45040-BZ-16

Clayton ENVIRONMENTAL CONSULTANTS



LEGEND

	Isoconcentration Line (Dashed where inferred)
(200)	Concentration
⊕	Existing Monitoring Wells
⊕	New Monitoring Wells
ND	Not detected at or above detection limit



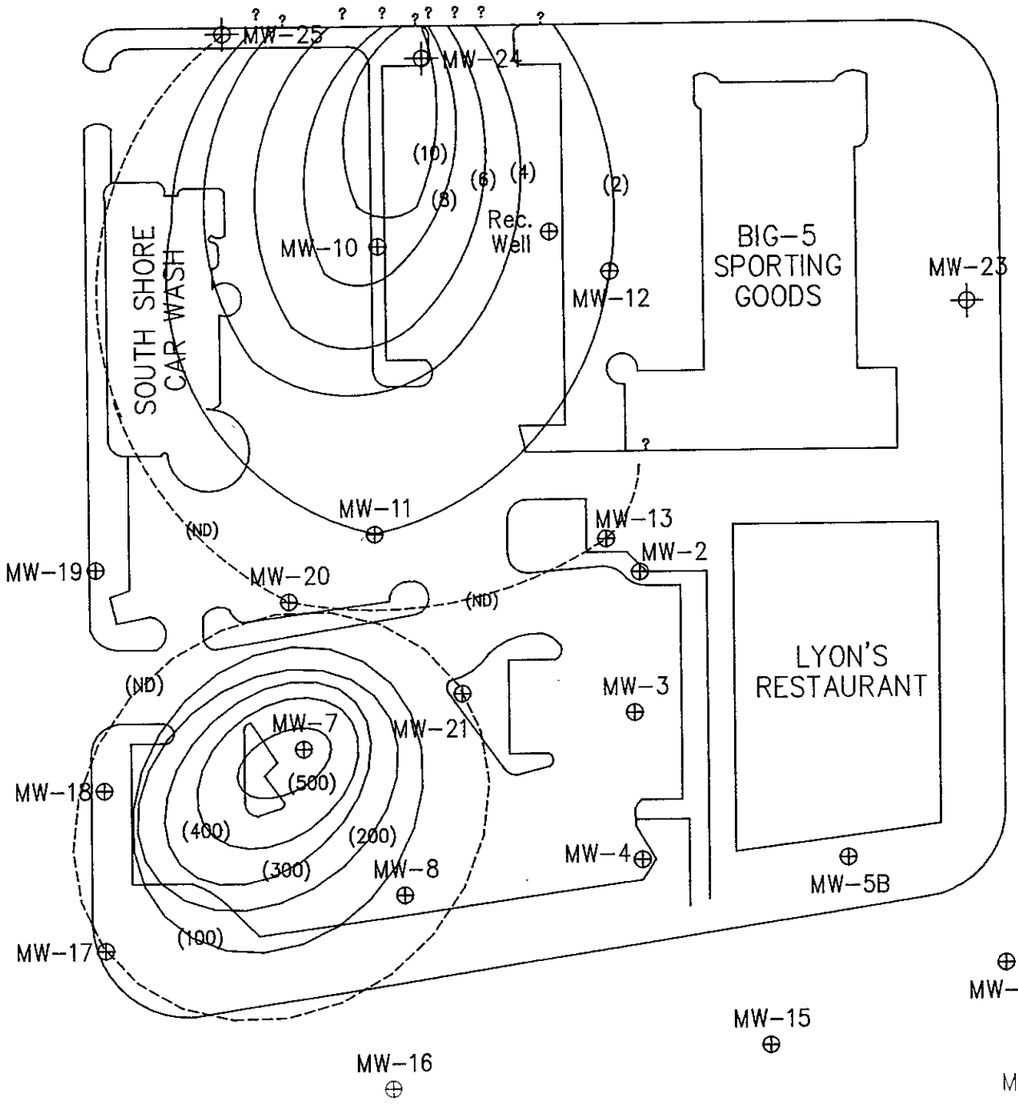
Isoconcentration Map for Diesel
SOUTH SHORE SHOPPING CENTER
Corner of South Shore Drive and Park Street
Alameda, California

Clayton Project No. 45040.08

Figure 7

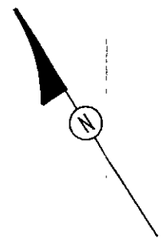
45040-DL-16

Clayton ENVIRONMENTAL CONSULTANTS



LEGEND

~	Isoconcentration Line (Dashed where inferred)
(200)	Concentration
⊕	Existing Monitoring Wells
⊕	New Monitoring Wells
ND	Not detected at or above detection limit



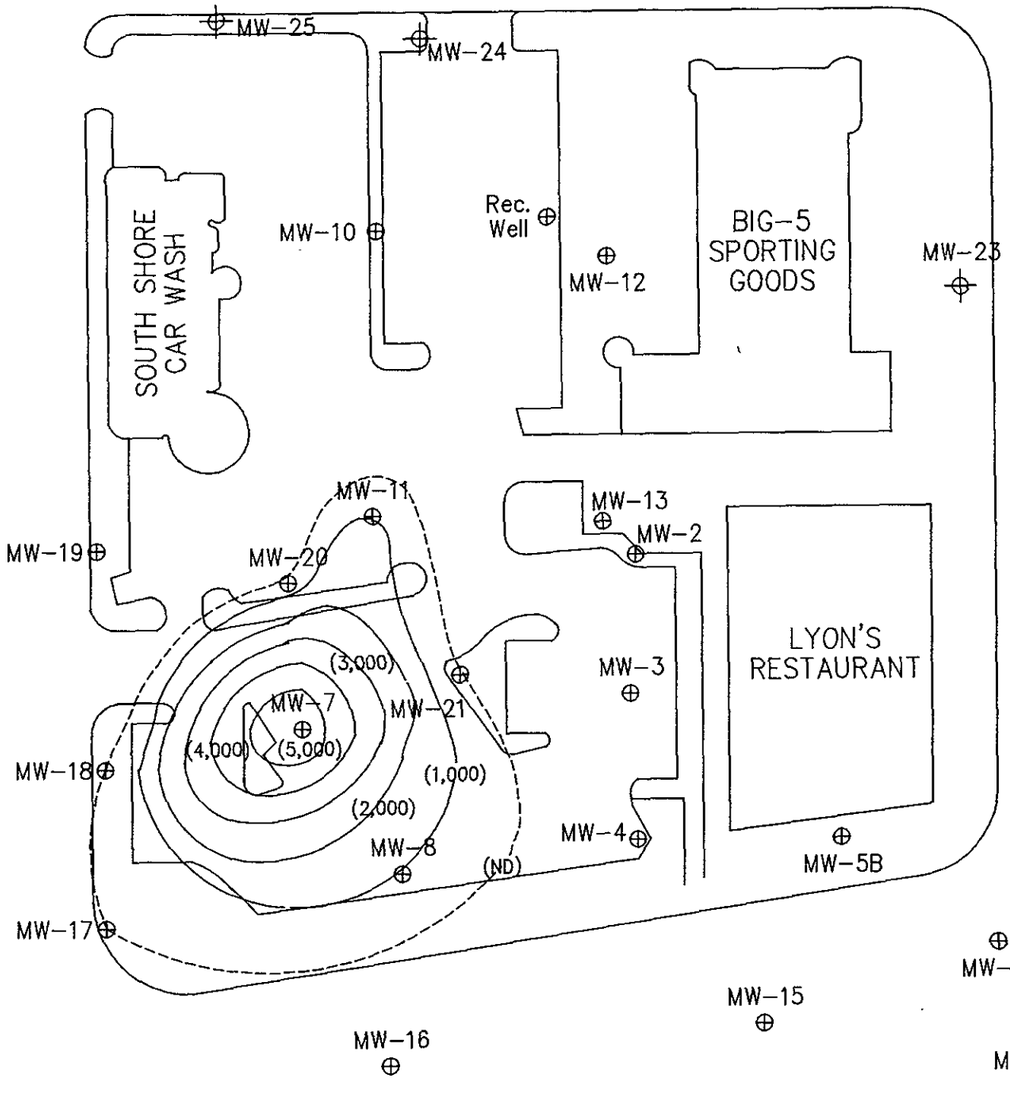
Isoconcentration Map for Trichloroethene
SOUTH SHORE SHOPPING CENTER
Corner of South Shore Drive and Park Street
Alameda, California

Clayton Project No. 45040.08

Figure 9

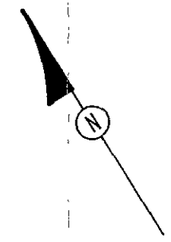
45040-TC-16

Clayton ENVIRONMENTAL CONSULTANTS



LEGEND

~	Isoconcentration Line (Dashed where inferred)
(200)	Concentration
⊕	Existing Monitoring Wells
⊕	New Monitoring Wells
ND	Not detected at or above detection limit



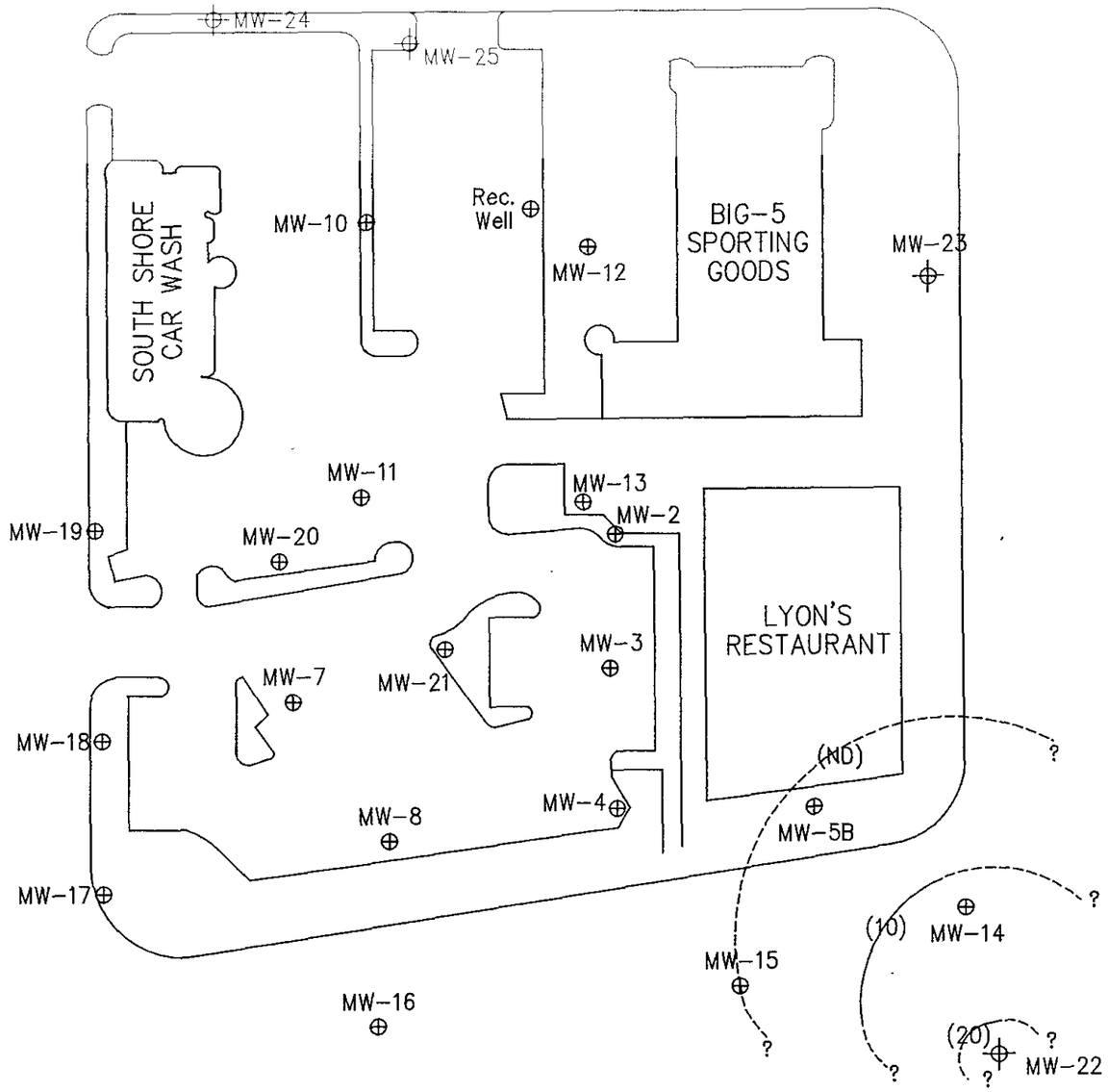
Isoconcentration Map for Tetrachloroethene
SOUTH SHORE SHOPPING CENTER
Corner of South Shore Drive and Park Street
Alameda, California

Clayton Project No. 45040.08

Figure 10

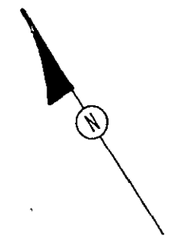
45040-PC-16

Clayton ENVIRONMENTAL CONSULTANTS



LEGEND

~	Isoconcentration Line (Dashed where inferred)
(200)	Concentration
⊕	Existing Monitoring Wells
⊕	New Monitoring Wells
ND	Not detected at or above detection limit



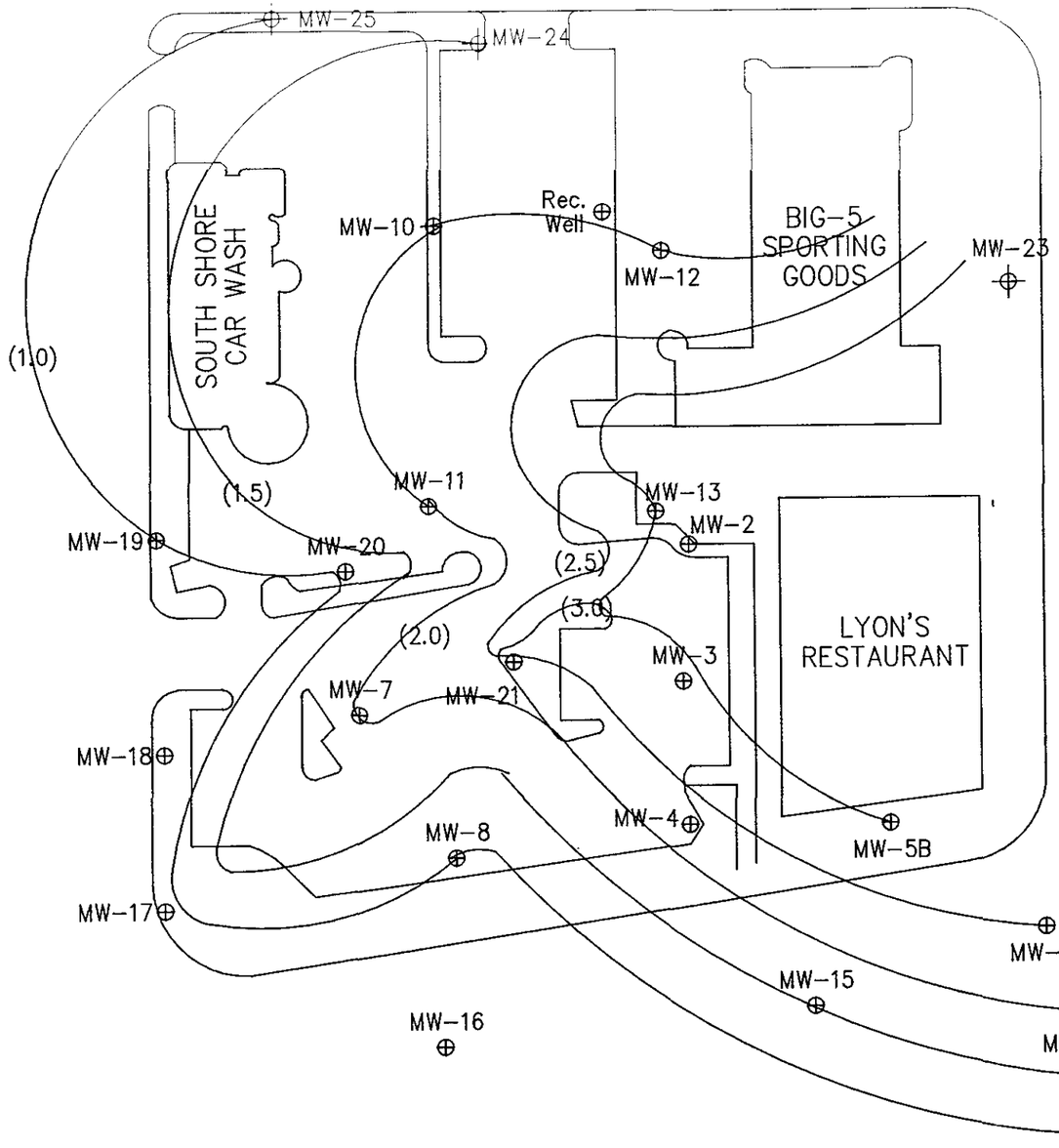
Isoconcentration Map for 1,2-dichloroethane
SOUTH SHORE SHOPPING CENTER
Corner of South Shore Drive and Park Street
Alameda, California

Clayton Project No. 45040.08

Figure 11

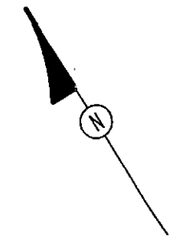
45040-DA-16

Clayton ENVIRONMENTAL CONSULTANTS



LEGEND

~	Line of EquiPotential
(200)	Groundwater Elevation
⊕	Existing Monitoring Wells
⊕	New Monitoring Wells



Groundwater Elevations
SOUTH SHORE SHOPPING CENTER
Corner of South Shore Drive and Park Street
Alameda, California

Clayton Project No. 45040.08

Figure 12

45040-WA-16

Clayton ENVIRONMENTAL CONSULTANTS

TABLES

Table 1

Laboratory Analysis for Groundwater Samples Collected in February 1993

Sample I.D.	TPH-G	BTEX	TPH-D	Halogenated Hydrocarbons	O&G	TDS
MW-5B	■	■		■		■
MW-7B				■		■
MW-8B				■		■
MW-10	■	■		■		
MW-11				■		■
MW-12	■	■	■	■	■	
MW-14	■	■	■	■		■
MW-15	■	■	■	■		■
MW-16	■	■	■	■		■
MW-17				■		■
MW-18				■		■
MW-22	■	■	■	■		■
MW-23	■	■	■	■	■	■
MW-24	■	■		■		
MW-25	■	■		■		

Shaded box represents sample analysis

Table 2

Analytical Summary for Groundwater Samples Collected in February 1993
All Concentrations in Micrograms per Liter (µg/l)

Sample I.D.	PCE	TCE	1,2-DCA	1,2-DCE	Benzene	Toluene	Xylenes	Ethylbenzene	Gas	Diesel	Oil & Grease	TDS	DTW	W.E.	C.E.
MW-5B	ND	3.4	0.4	5.0	210	4.2	2.0	1.9	640	2,400	NA	1,400	2.42	+2.66	5.08
MW-7B	5,800	540	ND	150	NA	NA	NA	NA	NA	NA	NA	1,100	3.33	+2.19	5.52
MW-8B	5.0	14	ND	9.0	NA	NA	NA	NA	NA	NA	NA	930	4.92	+1.23	6.15
MW-10	ND	9.5	ND	ND	210	480	1,200	510	66,000	NA	NA	NA	6.04	+2.06	8.10
MW-11	5 8	2.0	ND	ND	NA	NA	NA	NA	NA	NA	NA	630	4.95	+2.26	7.01
MW-12	ND	2.4	ND	ND	620	1,900	6,000	2,200	330,000	NA	3,900	NA	5.92	+2.41	8.33
MW-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.75	+2.70	7.45
MW-14	ND	ND	3.4	ND	ND	ND	ND	ND	ND	660	NA	2,000	3.42	+2.35	5.77
MW-15	ND	ND	ND	ND	ND	ND	ND	ND	ND	200	NA	880	3.50	+0.96	4.46
MW-16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	24,000	0.42	+3.10	3.52
MW-17	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	18,000	2.50	+0.82	3.32
MW-18	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	19,000	4.38	+0.34	4.72
MW-19	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.46	+0.82	5.28
MW-20	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.71	+0.95	6.66
MW-21	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.48
MW-22	ND	ND	22	ND	ND	ND	ND	ND	ND	120	NA	2,100	6.33	NA	NA
MW-23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	160	3.42	NA	NA
MW-24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
MW-25	ND	11	ND	ND	100	230	500	270	33,000	NA	NA	NA	NA	NA	NA
MCL	5	5	0.5	6.0	1.0	NP	1,750	680	NP	NP	NP	---	---	---	---

- ND Not detected at or above analytical detection limits
- NA Not analyzed
- DTW Depth to water
- W.E. Water elevation

APPENDIX A

BORING LOGS

Clayton
ENVIRONMENTAL
CONSULTANTS

LOG OF EXPLORATORY BORING

Project No.: 45040.00 Date: February 16, 1993
Client: Harsch
Location: Corner of Park & Shore Line Drive
Logged By: D. Dastmalchi Driller: Great Sierra

BORING NO
MW-23
Sheet 1 of 2

Field Location of Boring:

Ground Elevation: Datum:

Drilling Method: Hollow stem
Hole Diameter: 8"
Casing Installation Data: 15' screened, 2" PVC casing (0.01), 4' solid, 16' sand, 1' bentonite, 2' concrete

Water Level						
Time						
Date						

Blow Count	PID — OVA (ppm)	DEPTH	SAMPLE	Soil Group Symbol (USCS)	Lithographic Symbol	DESCRIPTION
						Top soil for plants and landscaping, dark brown to black
		1				
		2				
		3				Sand, little to no silt, yellowish brown (10 YR, 5/6), moist
		4				
			X		▼	
		5				
		6				
		7				
		8				
		9		SP		
		10				
						Sand, gray (7.5, YR, 5/N5/), shell fragments
		11				
		12				
		13				
		14				
		15				
		16				
		17				
		18				

Clayton
ENVIRONMENTAL
CONSULTANTS

LOG OF EXPLORATORY BORING

Project No.: 45040.00 Date: February 16, 1993
Client: Harsch
Location: Corner of Park & Shore Line Drive
Logged By: D. Dastmalchi Driller: Great Sierra

BORING NO. MW-22
Sheet 1 of 2

Field Location of Boring:

Ground Elevation: Datum:

Drilling Method: Hollow stem
Hole Diameter: 8"
Casing Installation Data: 20' screened, 2" PVC casing (0.01), 5' solid, 2' sand, 2' bentonite, 2' concrete

Water Level					
Time					
Date					

Blow Count	PID – OVA (ppm)	DEPTH	SAMPLE	Soil Group Symbol (USCS)	Lithographic Symbol	DESCRIPTION
		1				Sand, little to no silt or clay, yellowish brown (10 YR, 5/6), moist
		2				
	000	3				
		4				
		5				
	000	6		SP		Shell fragments
		7				
		8			▼	
6	000	9	X			Wet, free water
9						
12		10				
		11				
		12				
		13				
		14				
		15				
		16				
		17				
		18				Fine sand with very little silt, gray (7.5 YR, 5/N5/), wet

Clayton
ENVIRONMENTAL
CONSULTANTS

LOG OF EXPLORATORY BORING

Project No.: 45040.00 Date: February 16, 1993
Client: Harsch
Location: Corner of Park & Shore Line Drive
Logged By: D. Dastmalchi Driller: Great Sierra

BORING NO
MW-22
Sheet 2 of 2

Field Location of Boring:

Ground Elevation: Datum:

Drilling Method: Hollow stem
Hole Diameter: 8"
Casing Installation Data: 20' screened, 2" PVC casing (0.01), 5' solid, 2' sand, 2' bentonite, 2' concrete

Water Level										
Time										
Date										

Blow Count	PID / OVA (ppm)	DEPTH (ft)	SAMPLE	Soil Group Symbol (USCS)	Lithographic Symbol	DESCRIPTION
		19		SP		
		20				
		21				
		22				
		23				
		24				
		25				TD = 25'
		26				
		27				
		28				
		29				
		30				
		31				
		32				
		33				
		34				
		35				
		36				

Clayton
ENVIRONMENTAL
CONSULTANTS

LOG OF EXPLORATORY BORING

Project No.: 45040.00 Date: February 16, 1993
Client: Harsch
Location: Corner of Park & Shore Line Drive
Logged By: D. Desmaichi Driller: Great Sierra

BORING NO. MW-23

Sheet 1 of 2

Field Location of Boring:

Ground Elevation: Datum:

Drilling Method: Hollow stem
Hole Diameter: 8"
Casing Installation Data: 15' screened, 2" PVC casing (0.01), 4' solid, 16' sand, 1' bentonite, 2' concrete

Water Level										
Time										
Date										

Blow Count	PID / OVA (ppm)	DEPTH (ft)	Sample	Soil Group Symbol (USCS)	Lithographic Symbol	DESCRIPTION
		19		SP		Fine sand with little silt, very dark gray (7.5 YR, 3/N3/), shell fragments
		20				
						TD = 20.5'
		21				
		22				
		23				
		24				
		25				
		26				
		27				
		28				
		29				
		30				
		31				
		32				
		33				
		34				
		35				
		36				

APPENDIX B

DRILLING, WELL CONSTRUCTION, AND SAMPLING PROTOCOLS FOR BOREHOLE/MONITORING WELL INSTALLATION

DRILLING, WELL CONSTRUCTION, AND SAMPLING PROTOCOLS FOR BOREHOLE/MONITORING WELL INSTALLATION

BOREHOLE INSTALLATION

Clayton Environmental Consultants, Inc. acquires the proper governmental agency permits to bore, drill, or destroy all proposed boreholes and monitoring wells that intersect with groundwater aquifers and writes a health and safety plan.

Clayton subcontracts only with drillers who possess a current C-57 water well contractor's license issued by the State of California and whose personnel have attended the OSHA 40-hour Hazardous Materials Safety Training. Prior to starting work, a "tailgate" safety meeting including discussion of the safety hazards and precautions relevant to the particular job will be held with all personnel working on the job. Well drillers are identified on permit applications.

Borings are drilled dry by hollow- or solid-stem, continuous flight augers. Augers, drill rods, and other working components of the drilling rig are steam-cleaned before arriving onsite to prevent the introduction of contaminants. These components are also steam-cleaned between borings away from boring locations. Cleaned augers, rods, and other components are stored, and/or covered when not in use.

Our bore logs include a detailed description of subsurface stratigraphy. Clayton examines the soil brought to the surface by drilling operations, and samples undisturbed soil every 5 feet or as otherwise specified. Soil cuttings are screened for hydrocarbon contamination using a photoionization detector. Boring logs are filled out in the field by a professional geologist, civil engineer, engineering geologist who is registered by the State of California, or a technician who is trained and working under the supervision of one of the previously mentioned persons, using the Unified Soil Classification System.

SOIL SAMPLING

Soil samples are taken every 5 feet, at areas of obvious contamination, or as otherwise specified, with a California modified split-spoon sampler that is lined with three six-inch brass tubes. The sampler and rod are inserted into the borehole to the current depth and a hammer of known weight and height above the sampler are allowed to free-fall onto the rod, advancing the assembly 18 inches into undisturbed soil. Clayton uses the number of blows necessary to drive the sampler into the ground to help evaluate the consistency of materials encountered. The sampler is then pulled from the borehole and disassembled, and the three brass tubes are separated for inspection and labeling.

Clayton uses new brass liners or liners cleaned with a trisodium phosphate (TSP) solution, double rinsed with clean tap water, and air dried prior to each sampling. The sampler is also cleaned with TSP and rinsed with tap water between sampling events.
Soil samples selected for laboratory analysis are left in the brass liners, sealed with aluminum foil and plastic caps, taped for air tightness, labeled, and immediately placed into a pre-cooled ice chest chilled to less than 4°C. Labels contain the following information: site name, date and time sampled, borehole number and depth, and the sampler's initials. The samples are transported under chain-of-custody to a state-certified laboratory. The laboratory analyzes soil samples within the prescribed holding time, storing them at temperatures below 4°C at all times.

Pending results of laboratory analysis, excess drilling and sampling cuttings are placed into Department of Transportation (DOT)-approved drums, labeled with the name of the site, address, and well number, and left at the site. Uncontaminated soil may be disposed of by the client. Soil found to contain levels of contaminants above local or state action levels will require that the client dispose of it in accordance with hazardous waste regulations. At the client's request, we will assist with the disposal of contaminated soil.

WELL CONSTRUCTION

Boreholes are converted to monitoring wells by placing 2-inch or 4-inch diameter well casing with flush-threaded joints and slotted screen into the borehole. Construction materials include polyvinyl chloride (PVC), stainless steel, or low carbon steel. The most suitable material for a particular installation will depend on the parameters to be monitored. All screens and casings used are in a contaminant-free

condition when placed in the ground. No thread lubrication is used, other than teflon tape, for connecting the casing segments.

Wells extend at least 10 feet into the upper saturated zone, but do not extend through any clay layers greater than 5 feet that are below the shallow water table. The standard practice for wells installed at hydrocarbon contamination sites is to construct a well with a 20-foot long perforated interval extending 15 feet below and 5 feet above the water table in an unconfined aquifer. The top of the well is solid casing. The annular space of the borehole is backfilled with washed, kiln-dried sand to a point at least 1 foot above the slotted screen. A seal above the filter pack is formed by placing a 1- to 2-foot layer of bentonite pellets on top of the sand. The bentonite pellets are moistened by pouring clean tap water down the hole so that they can expand and seal the annulus. A neat cement grout is placed above the bentonite seal and brought to the ground surface.

Well casings are protected from surface contamination, accidental damage, and unauthorized entry or tampering with water-tight locking caps on the well casings. The caps are usually surrounded by a concrete vault. Wells are clearly identified with a metal tag or other device where the following information is recorded: well number, depth to water, depth of well, casing data including location of screened interval.

WELL DEVELOPMENT

The well seal in newly developed wells must set up for 48 to 72 hours prior to development. Since development of the well can volatilize contaminants present, the well must also settle for at least 48 to 72 hours between development and the first purging/sampling incident.

All monitoring wells are initially developed to clean the well and stabilize sand, gravel, and disturbed aquifer materials around the screened internal perforations. Wells are developed by pumping (or bailing) and surging until water turbidity and specific conductance stabilize. In some cases, where wells are installed in low permeability formations and the wells purge dry, the well is allowed to recover and is purged dry three times. Clean tap water is introduced into the well if it does not recover rapidly enough.

Pending results by laboratory analysis, purge water from well development and sampling is placed into DOT-approved drums, labeled with the name of the site, address, well number, and left at the site. Uncontaminated water may be disposed of by the client. Water found to contain levels of contaminants above local or state action levels requires that the client dispose of it in accordance with hazardous waste requirements. At the client's request, we can assist with the disposal of contaminated purge water.

GROUNDWATER SAMPLING

To collect a representative sample of the groundwater, stagnant water within the well casing and filter material must be purged and fresh aquifer water allowed to replace it. The water is purged from the well by pumping or bailing at least three well volumes. Well volumes are calculated by measuring depth to groundwater to the nearest 0.01 foot upon arrival at the well before any purging has begun. Groundwater samples are collected only after purging has been of sufficient duration for pH, temperature, and electrical conductivity to stabilize. When purging low-yield wells, the wells are purged to dryness. When the well recovers to 80% of the depth measured upon arrival, samples are collected.

Field sampling logs maintained for each well include:

- Monitoring well identification
- Static water level, before and after pumping
- Well depth
- Condition of water prior to purging (e.g., amount of free product)
- Purge rate and volume
- pH, temperature, and conductivity during purging
- Time purged
- Time of sample collection
- Sampling method
- Name of sampler
- Climatic conditions

Water samples are collected using clean teflon bailers. All equipment that contacts samples is thoroughly cleaned before arrival at the site and between sampling events.

Water is collected in clean laboratory-supplied containers, labeled, placed immediately into an ice chest pre-cooled to 4°C, and transported to Clayton's laboratory for analysis. One trip blank will be furnished in accordance with our quality assurance/quality control (QA/QC) program.

All samples are collected in such a manner so as to minimize the volatilization of a sample due to agitation and/or transfer from bailer to sample container. Samples are collected so that contaminants most sensitive to volatilization are sampled first.

Preservatives are not added to any sample, unless instructed. If requested, they are supplied by Clayton's laboratory.

All sample containers are labeled in the field. Labels contain the following information: project name, sample identification number, project number, date and time of collection, and sampler's initials.

Under no circumstances are sealed sample containers opened by anyone other than the laboratory personnel who perform the requested analyses. If it is necessary for samples or sample chests to leave the immediate control of the sampler prior to delivery to the laboratory, for example during shipment by Federal Express, a custody seal is placed on each sample container and/or sample chest to ensure that the samples have not been tampered with during transportation. The custody seal is signed by the sampler, and the date and time that the seal was placed is recorded. The elapsed time between sample collection and delivery to the laboratory never exceeds 48 hours. Water samples are not held for more than 14 days prior to analysis and are kept at 4°C at all times.

To document and trace samples from time of collection, a signed chain-of-custody record is filled out by the sampler and accompanies the samples through the laboratory analyses. The completed chain-of-custody is included with the analytical report from the laboratory.

REFERENCES

Groundwater Monitoring Guidelines, Revised February 1990. Alameda County District Groundwater Protection Program.

Leaking Underground Fuel Tank (LUFT) Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Tank Closure, May 1988. State of California LUFT Task Force.

Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks, Revised November 1989. North Coast, San Francisco Bay, and Central Valley regions of the California State Water Quality Control Board.

Standards for the Construction and Destruction of Wells and Other Deep Excavations in Santa Clara County, Revised June 1989. Santa Clara Valley Water District.

APPENDIX C

KAMUR INDUSTRIES REPORT

File No. 8-90-418-SI

INSTALLATION OF TWO ADDITIONAL MONITORING WELLS FOR SOUTHSHORE CAR WASH PROPERTY LOCATED AT 2351 SHORELINE DRIVE ALAMEDA, CALIFORNIA

MARCH 15, 1993

PREPARED FOR:

KAMUR INDUSTRIES, INC.

2351 SHORELINE DRIVE

ALAMEDA, CALIFORNIA 94501

BY:

SOIL TECH ENGINEERING, INC.

298 BROKAW ROAD

SANTA CLARA, CALIFORNIA 95050

SOIL TECH ENGINEERING, INC.

File No. 8-90-418-SI

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

File No. 8-90-418-SI

TABLE OF CONTENTS

File No. 8-90-418-SI

TABLE OF CONTENTS

SOIL TECH ENGINEERING
Soil, Foundation and Geological Engineers
298 BROKAW ROAD, SANTA CLARA, CA 95050 ■ (408) 496-0265 OR (408) 496-0266

March 15, 1993

File No. 8-90-418-SI

Kamur Industries, Inc.
2351 Shoreline Drive
Alameda, California 94501

ATTENTION: MR. MURRAY STEVENS

SUBJECT: INSTALLATION OF TWO ADDITIONAL MONITORING WELLS FOR SOUTHSHORE CAR WASH PROPERTY Located at 2351 Shoreline Drive, in Alameda, California

Dear Mr. Stevens:

This report summarizes the additional work conducted by Soil Tech Engineering, Inc. (STE), at 2351 Shoreline Drive in the City of Alameda, California (Figure 1). Additional monitoring wells were installed at the subject site as required by the Alameda County Health Care Services Agency--Hazardous Material Division.

PURPOSE:

Alameda County Health Care Services Agency requested installation of the two additional monitoring wells, in order to define the extent of contaminants in the vicinity of former underground storage tanks.

SCOPE OF WORK:

- Install two additional monitoring wells at the property.
- Soil sampling.
- Well development.
- Water sampling of the newly installed wells and the existing on-site wells STMW-1 and STMW-3.
- Analyze soil and the water samples.
- Review the analytical results and prepare a technical report.

FIELD ACTIVITIES:

Prior to installation of the two additional monitoring wells, STE obtained the necessary permits from the Alameda County Flood Control District Zone 7. A copy of the permit is attached (Appendix "F").

On February 2, 1993, two additional wells STMW-5 and STMW-6 were installed. The locations are shown in Figure 2. All drilling, soil sampling, well installation and development were conducted in accordance with the existing local and state regulations and STE's Standard Operation Procedures (SOP) (Appendix "C").

The soil encountered during the drilling consist of mainly silty sandy materials with some gravel. The shallow groundwater encountered during drilling was approximately eight to nine feet below grade. The borings were terminated at approximately fifteen feet below grade. The logs of the boring and the wells construction details are attached in Appendix "D".

One soil sample was taken from each well boring at approximately 5 feet below grade. The soil samples were logged and visually classified according to American Society of Testing Materials. Soil samples were retained in the brass tubes covered both ends with aluminum foil, capped with plastic lids, sealed with adhesive tape, labeled and placed on dry ice, until delivered to Priority Environmental Labs in Milpitas, California. Proper chain-of-custody procedures were used for the soil sampling. All soil cuttings were placed in plastic pending chemical analytical results. The new wells were developed by a clean Teflon bailer on February 7, 1993.

On February 8, 1993, STE's staff conducted the water sampling of the newly installed wells STMW-5 and STMW-6 and existing wells STMW-1 and STMW-3.

ANALYTICAL RESULTS:

SOIL:

The two soil samples were analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg), Benzene, Toluene, Ethylbenzene, Total

Xylenes (BTEX), and Volatile Organic Compounds (VOC's) per EPA Metals 5030, 8015, 8020 and 8010.

WATER:

The four water samples were analyzed for TPHg, BTEX, and VOC's per EPA Method 5030/602 and 601. In addition, STMW-3 was analyzed for TPHd and Total Oil and Grease (TOG).

The analytical results are summarized in Table 3. No TPHg, BTEX or VOC's were detected in the two soil samples. The two existing on-site wells continued to show elevated concentrations of TPHg, low to moderate levels of BTEX and a very low level of Trichloroethene. No TPHg, BTEX or VOC's were detected in newly installed well STMW-5. Well STMW-6 did detect elevated levels of TPH as gasoline, low levels of BTEX and one Volatile Organic Compound Trichloroethene at 0.011 milligrams per liter (mg/L).

A copy of the laboratory analyses and the appropriate chain-of-custody are attached in Appendix "E".

SUMMARY:

- Soil encountered on the newly installed wells consist of mainly silty sand materials. The groundwater beneath the site during sampling ranged from 5.1 feet to 7.17 feet below the grade.

- Petroleum odors and light petroleum sheen were detected in wells STMW-1 and STMW-3 only.
- Dissolved petroleum hydrocarbons and one VOC's were detected in the newly installed well STE-6. The existing well STMW-1 and STMW-3 continued to detect low to moderate levels of TPHg, BTEX, and one Volatile Organic Compounds.

RECOMMENDATION:

This report should be sent to the Alameda County Health Care Services Agency--Hazardous Material Division. The quarterly monitoring and sampling of all on-site wells should be continued as requested by the County.

LIMITATIONS AND UNIFORMITY OF CONDITIONS:

The monitoring well installation services or soil and water sampling for pollution on this project was a direct request by Soil Tech Engineering, Inc.'s client. These installations were performed to meet the existing requirements for near-surface groundwater monitoring.

This service does not make Soil Tech Engineering, Inc., liable for future maintenance, repairs, damages, injury to a third party or any other elements causing future problems.

The locations of these monitoring wells are approximate and should not be used for any reference point, surveying, or any other uses except studying groundwater.

Any recommendations that were made in this report are based upon the assumption that the soil conditions do not deviate from those disclosed in the borings.

This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are called to the attention of the Local Environmental Agency.

The findings of this report are based on the results of an independent laboratory and are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man, on this property or adjacent properties.

If you have any questions or require additional information, please feel free to contact our office at your convenience.

Sincerely,

SOIL TECH ENGINEERING, INC.

NOORODDIN AMELI
PROJECT ENGINEER

LAWRENCE KOO, P. E.
C. E. #34628

REGISTERED PROFESSIONAL ENGINEER
LAWRENCE SHUI-SING KOO
C 34628
Exp. 9/30/95
CIVIL
STATE OF CALIFORNIA

FRANK HAMEDI-FARD
GENERAL MANAGER

File No. 8-90-418-SI

A P P E N D I X "A"

SOIL TECH ENGINEERING, INC.

TABLE 1
WATER ELEVATION AND MONITORING WELLS
OBSERVATION DATA

Date	Well No./ Elevation	Depth-to-Water	Groundwater Elevation	FFP Thickness	Odor
2/08/93	STMW-1 (8.10)	6.23	1.87	Rainbow Sheen	Strong Petroleum
	STMW-2 (7.01)	4.90	2.11	None	None
	STMW-3 (8.33)	5.96	2.37	Brown Non-Measurable	Strong Petroleum
	STMW-4 (7.45)	4.93	2.52	None	None
	STMW-5	8.67	NA	None	None
	STMW-6	7.88	NA	None	Light Sewage

NA - Not Available

File No. 8-90-418-SI

TABLE 2
SOIL ANALYTICAL RESULTS
IN
MILLIGRAMS PER KILOGRAM (mg/Kg)

Date	Well No.	TPHg	B	T	E	X	VOC's
2/02/93	STMW-5-5	ND	ND	ND	ND	ND	ND
	STMW-6-5	ND	ND	ND	ND	ND	ND

VOC's _ Volatile Organic Compounds
TPHg - Total Petroleum Hydrocarbons as gasoline
BTEX - Benzene, Toluene, Ethylbenzene, Total Xylenes
ND - Not Detected (Below Laboratory Detection Limit)

File No. 8-90-418-SI

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
IN
MILLIGRAMS PER LITER (mg/L)

A. TPHd, TPHg, BTEX and TOG Results

Date	Well No.	TPHd	TPHg	B	T	E	X	TOG
2/08/93	STMW-1	NA	66	0.21	0.48	0.51	1.2	NA
	STMW-3	ND	330	0.62	1.9	2.2	6.0	3.9
	STMW-5	NA	ND	ND	ND	ND	ND	NA
	STMW-6	NA	33	0.1	0.23	0.27	0.5	NA

B. Volatile Organic Compounds Per EPA Method 601 Results

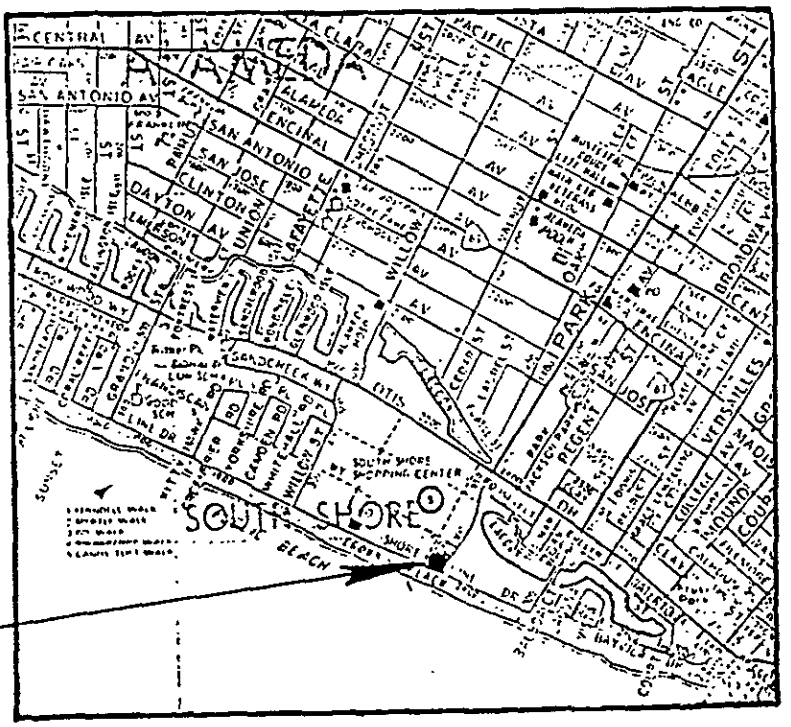
Date	Well No.	VOC's Detected	Concentration	Detection Limit
2/08/93	STMW-1	Trichloroethene	0.0095	0.0005
	STMW-3	Trichloroethene	0.0024	0.0005
	STMW-5	None Detected	None	0.0005
	STMW-6	Trichloroethene	0.011	0.0005

VOC's - Volatile Organic Compounds
TPHd - Total Petroleum Hydrocarbons as diesel
TPHg - Total Petroleum Hydrocarbons as gasoline
BTEX - Benzene, Toluene, Ethylbenzene, Total Xylenes
TOG - Total Oil and Grease
NA - Not Analyzed
ND - Not Detected (Below Laboratory Detection Limit)

File No. 8-90-418-SI

A P P E N D I X "B"

SOIL TECH ENGINEERING, INC.



Thomas Brothers Map 1982 Edition
Alameda - Contra Costa Counties

Page 11 D7

Figure 1

SHORELINE DRIVE

N

Approximate Direction
of Groundwater Flow
as of 2/08/93

2.50

C. EL. 7.01
W. EL. 2.11

2.25

2.00

SIMW-2

SIMW-4

1.75

C. EL. 7.45
W. EL. 2.52

South Shore
Carwash

Building Line

Excavation
Area

BIG 5
Sporting Goods Store

SIMW-1

SIMW-3

C. EL. 8.33
W. EL. 2.37

C. EL. 8.10
W. EL. 1.87

SIMW-6

Landscaping

SIMW-5

NOTE: New well elvations are tied with
the off-site well elevations.

2351 SHORELINE DRIVE, ALAMEDA, CALIFORNIA		
SCALE: 1"=30'	PROJECT NO. 8-90-418-SI	FIGURE - 2
DRAWN BY N.A.		2/08/93
SOIL TECH ENGINEERING, INC. 298 BROKAW ROAD, SANTA CLARA, CALIFORNIA 95050		

M2

File No. 8-90-418-SI

A P P E N D I X "C"

SOIL TECH ENGINEERING, INC.

File No. 8-90-418-SI

DRILLING AND SOIL SAMPLING PROCEDURE

A truck-mounted drill rig, using a continuous, solid-flight, hollow stem auger was used in drilling the soil borings to the desired depths.

Prior to drilling, all drilling equipment (auger, pin, drilling head) were thoroughly steam-cleaned to minimize the possibility of cross-contamination and/or vertical migration of possible contaminants.

In addition, prior to obtaining each individual soil sample, all sampling tools, including the split-spoon sampler and brass liners were thoroughly washed in a Trisodium Phosphate (TSP) solution followed by a rinse in distilled water.

During the drilling operation, relatively undisturbed soil samples were taken from the required depth by forcing a 2-inch I.D. split-spoon sampler insert with a brass liner into the ground at various depths by means of a 140-lb. hammer falling 30-inches or by hydraulic forces.

The samplers were contained relatively undisturbed soil. In general, the first section of soil from the sampler (shoe) was used in the field for lithologic inspection and evidence of contamination. The selected brass liner was immediately trimmed, the ends of the brass liner were covered tightly with aluminum foil and

plastic caps, sealed with tape, labelled, placed in a plastic bag and stored in a cold ice chest in order to minimize the escape of any volatiles present in the samples. Soil samples for analysis were then sent to a state-certified hazardous waste laboratory accompanied by a chain-of-custody record.

Soil samples collected at each sampling interval were inspected for possible contamination (odor or peculiar colors). Soil vapor concentrations was measured in the field by using a Photoionization Detector (PID), PhotoVac Tip Air Analyzer. The soil sample was sealed in a Zip-Loc plastic bag and placed in the sun to enhance volatilization of the hydrocarbons from the sample. The purpose of this field analysis is to qualitatively determine the presence or absence of hydrocarbons and to establish which soil samples will be analyzed at the laboratory. The data was recorded on the drilling log at the depth corresponding to the sampling point.

Other soil samples may be collected to document the stratigraphy and estimate relative permeability of the subsurface materials.

Soil tailings that are obtained during drilling are stored at the site, pending the analytical test results to determine proper disposal.

File No. 8-90-418-SI

MONITORING WELL INSTALLATION

The boreholes for the monitoring wells were hand augered with a diameter of at least two inches larger than the casing outside diameter (O.D.).

The monitoring wells were cased with threaded, factory-perforated and blank, schedule 40 P.V.C. The perforated interval consisted of slotted casing, generally 0.010 to 0.040 inch wide by 1.5 inch long slot size, with 42 slots per foot (slots which match formation grain size as determined by field grain-size distribution analysis). A P.V.C. cap was fastened to the bottom of the casing (no solvents, adhesive, or cements were used), the well casing was thoroughly washed and steam-cleaned.

After setting the casing inside the borehole, kiln-dried sand or gravel-filter material was poured into the annular space to fill from the bottom of the boring to two feet above the perforated interval. A one to two feet thick bentonite plug was placed above this filter material to prevent grout from infiltrating down into the filter material. Approximately one to two gallons of distilled water were added to hydrate the bentonite pellets. Then the well was sealed from the top of the bentonite seal to the surface with concrete or neat cement containing about 5% bentonite (see Well Construction Detail).

To protect the well from vandalism and surface water contamination, Christy boxes with a special type of Allen screw were installed around the well head, (for wells in parking lots, driveways and building areas). Steel stove pipes with padlocks were usually set over well-heads in landscaped areas.

In general, groundwater monitoring wells extend to the base of the upper aquifer, as defined by the consistent (less than 5 feet thick) clay layer below the upper aquifer, or at least 10 to 15 feet below the top of the upper aquifer, whichever is shallower. The wells do not extend through the laterally extensive clay layer below the upper aquifer. The wells are terminated one to two feet into such a clay layer.

File No. 8-90-418-SI

WELL DEVELOPMENT

For all newly installed groundwater monitoring wells, the well casing, filter pack and adjacent formations were cleared of disturbed sediment and water.

Well development techniques included pumping, bailing, surging, swabbing, jetting, flushing or air lifting by using a stainless steel or Teflon bailer, a submersible stainless steel pump, or air lift pump. The well development continued until the discharged water appeared to be relatively free of all turbidity.

All water and sediment generated by well development were collected in 55-gallon steel drums (Department of Transportation approved), closed-head (17-H) for temporarily storage, and were then disposed of properly, depending on analytical results.

To assure that cross-contamination did not occur between wells, all well development tools were steam-cleaned or thoroughly washed in a Trisodium Phosphate (TSP) solution followed by a rinse in distilled water before each well development.

File No. 8-90-418-SI

GROUNDWATER SAMPLING

Prior to collection of groundwater samples, all of the sampling equipment (i.e. bailer, cables, bladder pump, discharge lines and etc...) were cleaned by pumping TSP water solution followed by distilled water.

Prior to purging, the well "Water Sampling Field Survey Forms" was filled out (depth to water and total depth of water column were measured and recorded). The well was then bailed or pumped to remove four to ten well volumes or until the discharged water temperature, conductivity and pH stabilized. "Stabilized" is defined as three consecutive readings within 15% of one another.

The groundwater sample was collected when the water level in the well recovered to 80% of its static level.

Forty milliliter (ml.), glass volatile organic analysis (VOA) vials with Teflon septa were used as sample containers. The groundwater sample was decanted into each VOA vial in such a manner that there was a meniscus at the top. The cap was quickly placed over the top of the vial and securely tightened. The VOA vial was then inverted and tapped to see if air bubbles were present. If none were present, the sample was labeled and refrigerated for delivery under chain-of-custody to the laboratory. The label information would include a sample identification number, job identification number, date, time, type of analysis requested, and the sampler's name.

APPENDIX D

CLAYTON GROUNDWATER MONITORING WELL SAMPLING PROTOCOLS

Clayton
ENVIRONMENTAL
CONSULTANTS

CLAYTON GROUNDWATER MONITORING WELL

SAMPLING PROTOCOLS

To collect a representative sample of the groundwater, stagnant water within the well casing and filter material must be purged and fresh aquifer water allowed to replace it. The water is purged from the well by pumping or bailing at least three well volumes. Well volumes are calculated by measuring depth to groundwater to the nearest 0.01 foot upon arrival at the well before any purging has begun.

Groundwater samples are collected only after purging has been of sufficient duration for pH, temperature, and electrical conductivity to stabilize. When purging low-yield wells, the wells are purged to dryness. When the well recovers to 80% of the depth measured upon arrival, samples are collected.

Field sampling logs maintained for each well include:

- Monitoring well identification
- Static water level, before and after pumping
- Well depth
- Condition of water prior to purging (e.g., amount of free product)
- Purge rate and volume
- pH, temperature, and conductivity during purging
- Time purged
- Time of sample collection
- Sampling method
- Name of sampler
- Climatic conditions

Water samples are collected using clean teflon or disposable bailers. All equipment that contacts samples is thoroughly cleaned before arrival at the site and between sampling events.
Water is collected in clean laboratory-supplied containers, labeled, placed immediately into an ice chest pre-cooled to 4°C, and transported to Clayton's laboratory for analysis. One trip blank will be furnished in accordance with our quality assurance/quality control (QA/QC) program.

All samples are collected in such a manner so as to minimize the volatilization of a sample due to agitation and/or transfer from bailer to sample container. Samples are collected so that contaminants most sensitive to volatilization are sampled first.

Preservatives are not added to any sample, unless instructed. If requested, they are supplied by Clayton's laboratory.

All sample containers are labeled in the field. Labels contain the following information: project name, sample identification number, project number, date and time of collection, and sampler's initials.

Under no circumstances are sealed sample containers opened by anyone other than the laboratory personnel who perform the requested analyses. If it is necessary for samples or sample chests to leave the immediate control of the sampler prior to delivery to the laboratory, for example during shipment by Federal Express, a custody seal is placed on each sample container and/or sample chest to ensure that the samples have not been tampered with during transportation. The custody seal is signed by the sampler, and the date and time that the seal was placed is recorded. The elapsed time between sample collection and delivery to the laboratory never exceeds 48 hours. Water samples are not held for more than 14 days prior to analysis and are kept at 4°C at all times.

To document and trace samples from time of collection, a signed chain-of-custody record is filled out by the sampler and accompanies the samples through the laboratory analyses. The completed chain-of-custody is included with the analytical report from the laboratory.

REFERENCES

Groundwater Monitoring Guidelines, Revised February 1990. Alameda County District Groundwater Protection Program.

Leaking Underground Fuel Tank (LUFT) Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Tank Closure, May 1988. State of California LUFT Task Force.

Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks, Revised November 1989. North Coast, San Francisco Bay, and Central Valley regions of the California State Water Quality Control Board.

File No 8-90-418-SI

Logged By Noori Ameli	Exploratory Boring Log	Boring No STMW-5
Date Drilled 2/02/93	Approx. Elevation	Boring Diameter 8-inch
Drilling Method Mobile drill rig B-40L		Sampling Method

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/Ft.	Unified Soil Classification	DESCRIPTION
1				SW	Very dark greyish-brown silty gravelly sandy clay, damp, stiff. Munsell Color: HUE 2.5Y 3/2
2					
3					Color changes to dark olive-grey silty fine sand with some gravel, damp. Munsell Color: HUE 5Y 3/2
4					
5	STMW-5-5			SM	Dark olive-grey fine sand, damp. Munsell Color: HUE 5Y 3/2
6					
7					
8					
9					▽ First groundwater encountered at 9 feet.
10				SP	Color gets lighter to olive-grey fine sand, moist. Munsell Color: HUE 5Y 4/2
11					
12					
13					
14					
15				CL	Dark greyish-brown silty clay at bottom of aguer, wet, stiff. Munsell Color: HUE 2.5Y 4/2
16					Boring terminated at 15 feet.

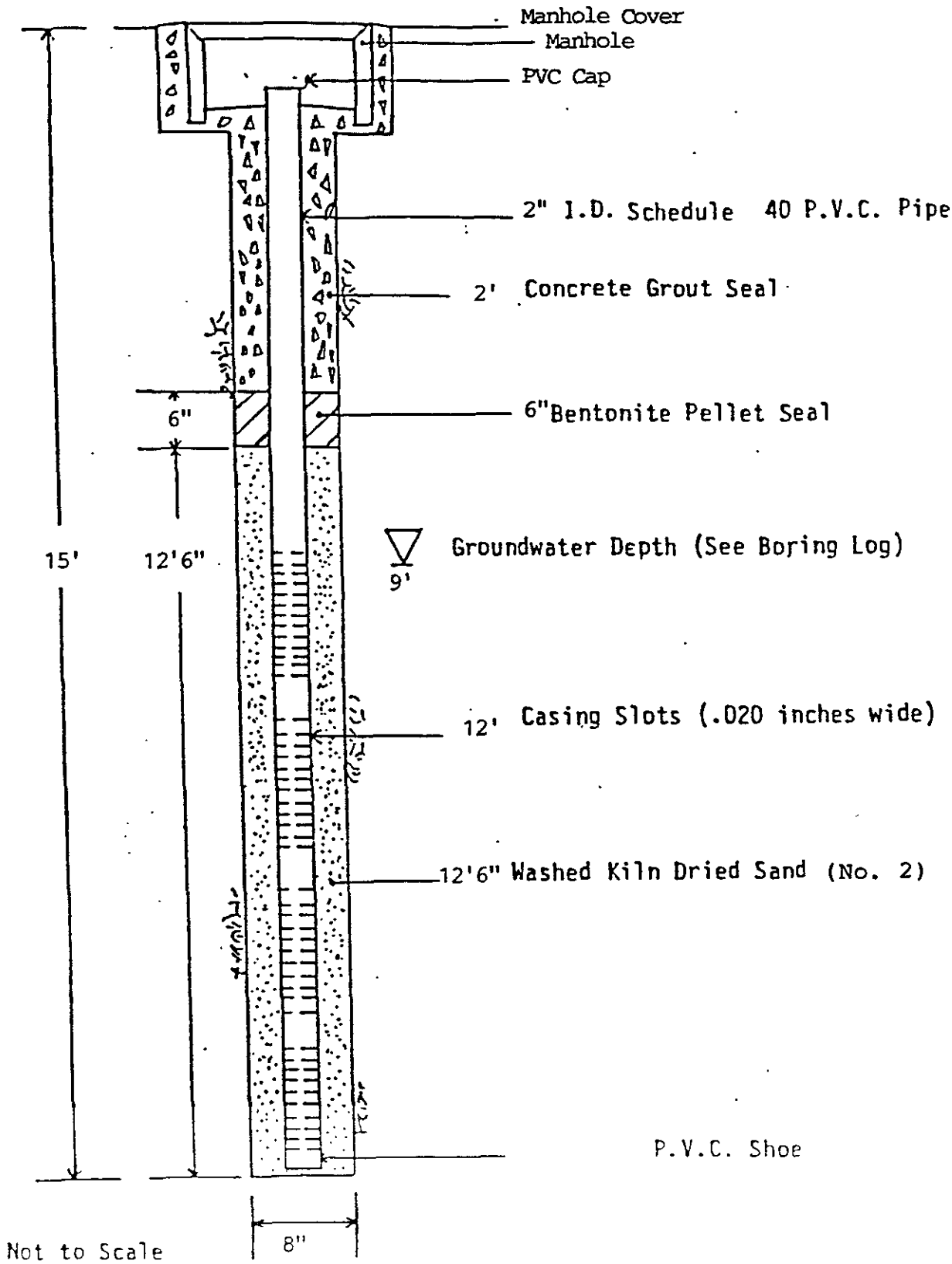
Remarks

File No 8-90-418-SI

Logged By Noori Ameli	Exploratory Boring Log	Boring No STMW-6
Date Drilled 2/02/93	Approx Elevation	Boring Diameter 8-inch
Drilling Method Mobile drill rig B-40L		Sampling Method

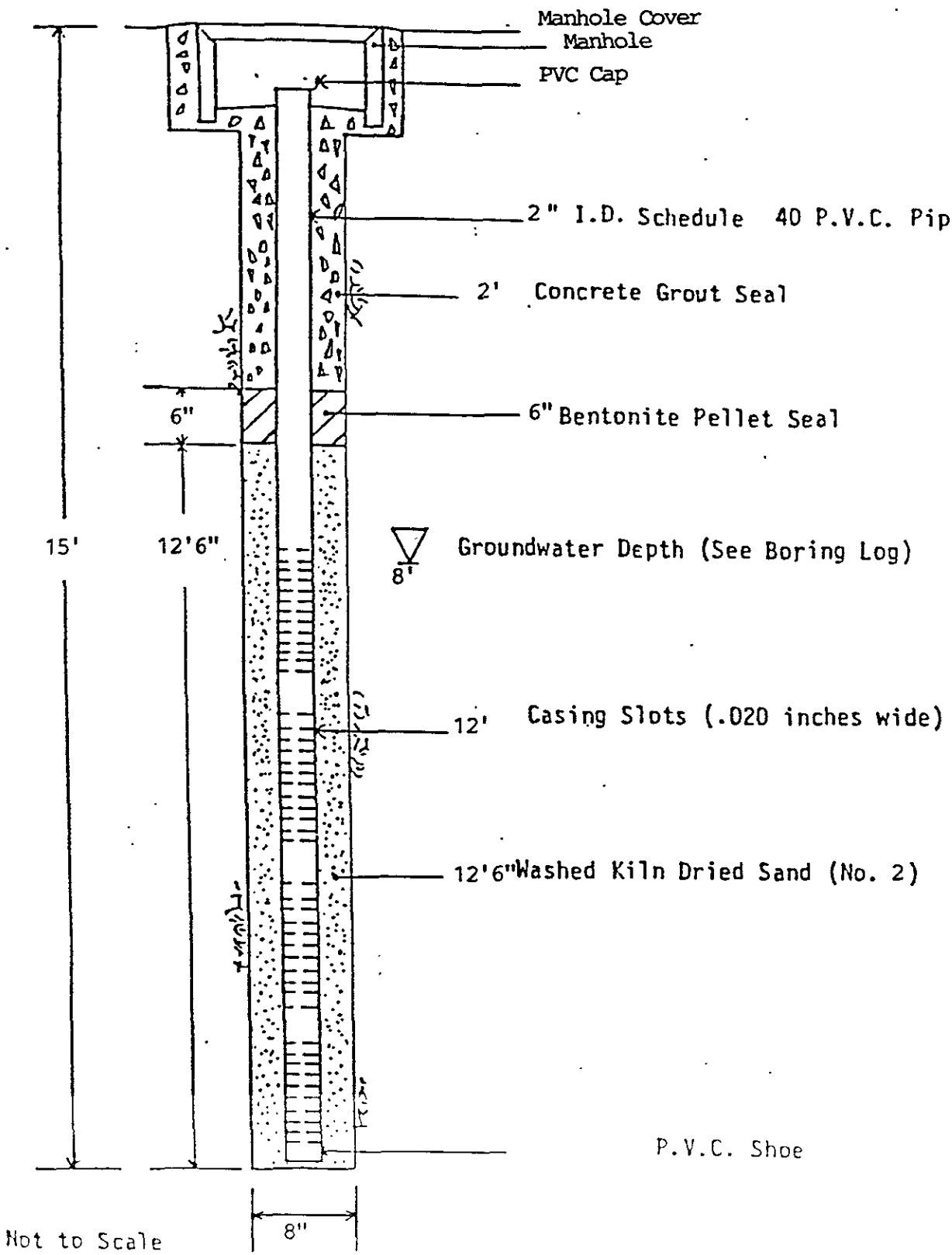
Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/Ft.	Unified Soil Classification	DESCRIPTION
1				SM	Olive fine sand, damp. Munsell Color: HUE 5Y 4/3
2					
3					Color gets darker to dark olive-grey fine sand, damp. Munsell Color: HUE 5Y 3/2
4					
5	STMW-6-5			SM	Dark olive-grey fine sand, damp. Munsell Color: HUE 5Y 3/2
6					
7					
8					▽ First groundwater encountered at 8 feet. Color gets lighter to olive-grey fine sand, damp, moist, very light petroleum odor.
9					
10					
11					
12					
13					
14					
15				CL	Olive silty clay at bottom of the auger, wet, stiff. Munsell Color: HUE 5Y 4/3 Boring terminated at 15 feet.
16					

Remarks



SIMW-5

Piezometer Schematic



SIMW-6

Piezometer Schematic

APPENDIX E

WATER SAMPLING FIELD SURVEY FORMS

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM

Job No: **45040.06** *Site*: **Harsch** *Date*: **2/24/93**

Well No: **MW-15** *Sampling Team*: **M. Springman**

Sampling Method: **Disposable bailer/2-inch pump**

Field Conditions: **Clear, cool**

Describe Equipment Decontamination Before Sampling This Well:

Pump washed with soap and rinsed with deionized water

Total Depth of Well: **19.25 ft.** *Time*: **1115** *Depth to Water Before Purging*: **3.5 ft.**

Height of Water Column:		*2-inch*	*4-inch*		*Volume*		*Purge Factor*		*Volume To Purge*
15.7 ft.	*	.16	.65	=	**2.51 gals**	*	**4**	=	**10.04 gals.**

Depth Purging From: **6 ft.** *Time Purging Begins*: **1125**

Notes on Initial Discharge:

Time	Volume Purged	pH	Conductivity	T°C	Comments
1130	**3**	**8.5**	**1380**	**16.6**	**Clear**
1135	6	8.9	882	16.3	Clear
1140	9	9.5	507	16.3	Clear
1145	11	9.5	226	16.6	Clear

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM
(CONTINUED)

Time Field Parameter Measurement Begins: **1200**

	Rep #1	Rep #2	Rep #3	Rep #4
pH	**9.5**	**9.5**	**9.5**	**9.5**
Conductivity	**250**	**250**	**250**	**250**
T°C	**16.5**	**16.5**	**16.5**	**16.5**

Pre-Sample Collection Gallons Purged: **11**

Time Sample Collection Begins: **1150**

Time Sample Collection Ends: **1155**

Total Gallons Purged: **12**

Comments:

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM

Job No: **45040.06** *Site*: **Harsch** *Date*: **2/23/93**

Well No: **MW-22** *Sampling Team*: **G. Williams**

Sampling Method: **Disposable bailer/2-inch pump**

Field Conditions: **Cloudy, cool**

Describe Equipment Decontamination Before Sampling This Well:

Pump washed with soap and rinsed with deionized water

Total Depth of Well: **23.75 ft.** *Time*: **0930** *Depth to Water Before Purging*: **6.33 ft.**

Height of Water Column:		*2-inch*	*4-inch*		*Volume*		*Purge Factor*		*Volume To Purge*
17.42 ft.	*	.16	.65	=	**2.78 gals**	*	**4**	=	**11.14 gals.**

Depth Purging From: *Time Purging Begins*:

Notes on Initial Discharge:

Time	Volume Purged	pH	Conductivity	TC	Comments
0935	3	8.7	1490	14.8	Turbid
0940	6	8.6	1380	14.8	Turbid
0945	9	8.6	1340	14.4	Turbid
1000	12	8.5	1300	14.6	Turbid

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM
(CONTINUED)

Time Field Parameter Measurement Begins: **1003**

	Rep #1	Rep #2	Rep #3	Rep #4
pH	**8.6**	**8.5**	**8.6**	**8.6**
Conductivity	**1260**	**1280**	**1160**	**1140**
T°C	**14.6**	**14.6**	**14.6**	**14.6**

Pre-Sample Collection Gallons Purged: **12**

Time Sample Collection Begins: **1010**

Time Sample Collection Ends: **1015**

Total Gallons Purged: **13**

Comments:

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM

Job No: 45040.06 *Site*: Harsch *Date*: 2/24/93

Well No: MW-23 *Sampling Team*: G. Williams

Sampling Method: Disposable bailer/2-inch pump

Field Conditions: Clear, cool

Describe Equipment Decontamination Before Sampling This Well:

Pump washed with soap and rinsed with deionized water

Total Depth of Well: 18.38 ft. *Time*: 1440 *Depth to Water Before Purging*: 3.42 ft.

Height of Water Column: 15 ft.	*	*2-inch* .16	*4-inch* .65	=	*Volume* 2.4 gals	*	*Purge Factor* 4	=	*Volume To Purge* 9.6 gals.

Depth Purging From: *Time Purging Begins*:

Notes on Initial Discharge: Silty

Time	Volume Purged	pH	Conductivity	T°C	Comments
1450	3	9.1	181	13.7	Turbid
1453	6	8.7	209	14.7	Turbid
1458	9	8.6	225	14.4	Turbid

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM
(CONTINUED)

Time Field Parameter Measurement Begins: **1505**

	Rep #1	Rep #2	Rep #3	Rep #4
pH	**8.6**	**8.6**	**8.4**	**8.2**
Conductivity	**252**	**265**	**278**	**300**
T°C	**14.4**	**14.2**	**14.6**	**14.6**

Pre-Sample Collection Gallons Purged: **10**

Time Sample Collection Begins: **1520**

Time Sample Collection Ends: **1525**

Total Gallons Purged: **12**

Comments:

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM

Job No: **45040.06** *Site*: **Harsch** *Date*: **2/25/93**

Well No: **MW-5B** *Sampling Team*: **G. Williams**

Sampling Method: **Disposable bailer/2-inch pump**

Field Conditions: **Clear, cool**

Describe Equipment Decontamination Before Sampling This Well:

Pump washed with soap and rinsed with deionized water

Total Depth of Well: **12.79 ft.** *Time*: **1042** *Depth to Water Before Purging*: **2.42 ft.**

Height of Water Column:		*2-inch*	*4-inch*		*Volume*		*Purge Factor*		*Volume To Purge*
10.25 ft.	*	.16	.65	=	**6.66 gals**	*	**4**	=	**26.65 gals.**

Depth Purging From: *Time Purging Begins*:

Notes on Initial Discharge: **Clear, no odor**

Time	Volume Purged	pH	Conductivity	TºC	Comments
1050	**5**	**8.0**	**976**	**15.4**	**Clear**
1055	**10**	**7.9**	**1187**	**15.5**	**Clear**
1100	**15**	**7.8**	**1640**	**15.6**	**Clear**
1105	**20**	**7.7**	**1996**	**15.7**	**Clear**
1110	25	7.6	Off scale	15.9	Clear

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM
(CONTINUED)

Time Field Parameter Measurement Begins: **1112**

	Rep #1	Rep #2	Rep #3	Rep #4
pH	**7.6**	**7.6**	**7.7**	**7.6**
Conductivity	**Off scale**	**Off scale**	**Off scale**	**Off scale**
T°C	**15.8**	**15.7**	**15.8**	**15.8**

Pre-Sample Collection Gallons Purged: **27**

Time Sample Collection Begins: **1115**

Time Sample Collection Ends: **1120**

Total Gallons Purged: **29**

Comments:

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM

Job No: 45040.06 *Site*: Harsch *Date*: 2/25/93

Well No: MW-11 *Sampling Team*: G. Williams

Sampling Method: Disposable bailer

Field Conditions: Cloudy, cool

Describe Equipment Decontamination Before Sampling This Well:

N/A

Total Depth of Well: 11.42 ft. *Time*: 1220 *Depth to Water Before Purging*: 4.75 ft.

Height of Water Column:		*2-inch*	*4-inch*		*Volume*		*Purge Factor*		*Volume To Purge*
6.6 ft.	*	.16	.65	=	1.07 gals	*	4	=	4.29 gals.

Depth Purging From: ft. *Time Purging Begins*:

Notes on Initial Discharge:

Time	Volume Purged	pH	Conductivity	T°C	Comments
1255	2	8.5	850	14.5	Turbid
1258	4	8.5	830	14.5	Clear
1304	5	8.3	810	14.4	Clear

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM
(CONTINUED)

Time Field Parameter Measurement Begins: **1310**

	Rep #1	Rep #2	Rep #3	Rep #4
pH	8.3	8.3	8.4	8.3
Conductivity	810	800	800	780
T°C	14.4	14.6	14.6	14.8

Pre-Sample Collection Gallons Purged: **5**

Time Sample Collection Begins: **1315**

Time Sample Collection Ends: **1316**

Total Gallons Purged: **6**

Comments:

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM

Job No: **45040.06** *Site*: **Harsch** *Date*: **2/24/93**

Well No: **MW-16** *Sampling Team*: **G. Williams**

Sampling Method: **Disposable bailer/2-inch pump**

Field Conditions: **Clear, cool**

Describe Equipment Decontamination Before Sampling This Well:

Pump washed with soap and rinsed with deionized water

Total Depth of Well: **29.42 ft.** *Time*: **1120** *Depth to Water Before Purging*: **0.42 ft.**

Height of Water Column:		*2-inch*	*4-inch*		*Volume*		*Purge Factor*		*Volume To Purge*
29 ft.	*	.16	.65	=	**4.14 gals**	*	**4**	=	**18.56 gals.**

Depth Purging From: *Time Purging Begins*:

Notes on Initial Discharge: **Clear**

Time	Volume Purged	pH	Conductivity	T°C	Comments
1130	5	8.1	Off scale	18.2	Clear
1140	10	8.0	Off scale	19.1	Clear
1155	15	8.0	Off scale	19.0	Clear

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM
(CONTINUED)

Time Field Parameter Measurement Begins: **1155**

	Rep #1	Rep #2	Rep #3	Rep #4
pH	**8.0**	**8.0**	**8.0**	**8.0**
Conductivity	**Off scale**	**Off scale**	**Off scale**	**Off scale**
T°C	**19.1**	**19.0**	**19.0**	**19.0**

Pre-Sample Collection Gallons Purged: **17.5**

Time Sample Collection Begins: **1158**

Time Sample Collection Ends: **1159**

Total Gallons Purged: **18.5**

Comments:

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM

Job No: **45040.06** *Site*: **Harsch** *Date*: **2/24/93**

Well No: **MW-14** *Sampling Team*: **G. Williams**

Sampling Method: **Disposable bailer/2-inch pump**

Field Conditions: **Clear, warm**

Describe Equipment Decontamination Before Sampling This Well:

Pump washed with soap and rinsed with deionized water

Total Depth of Well: **14.2 ft.** *Time*: **1245** *Depth to Water Before Purging*: **3.42 ft.**

Height of Water Column		*2-inch*	*4-inch*		*Volume*		*Purge Factor*		*Volume To Purge*
10.75 ft.	*	.16	.65	=	**6.98 gals**	*	**4**	=	**27.95 gals.**

Depth Purging From: *Time Purging Begins*:

Notes on Initial Discharge:

Time	Volume Purged	pH	Conductivity	TIC	Comments
1250	**5**	**8.2**	**Off scale**	**16.6**	**Clear**
1255	**10**	**8.1**	**Off scale**	**17.2**	**Clear**
1300	**15**	**8.7**	**Off scale**	**16.3**	**Clear**
1305	**20**	**8.7**	**Off scale**	**16.3**	**Clear**
1310	25	8.6	Off scale	16.4	Clear

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM
(CONTINUED)

Time Field Parameter Measurement Begins: **1312**

	Rep #1	Rep #2	Rep #3	Rep #4
pH	**8.7**	**8.7**	**8.6**	**8.7**
Conductivity	**Off scale**	**Off scale**	**Off scale**	**Off scale**
T°C	**16.4**	**16.2**	**16.6**	**16.6**

Pre-Sample Collection Gallons Purged: **28**

Time Sample Collection Begins: **1315**

Time Sample Collection Ends: **1318**

Total Gallons Purged: **29**

Comments:

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM

Job No: 45040.06 *Site*: Harsch *Date*: 2/23/93

Well No: MW-18 *Sampling Team*: G. Williams

Sampling Method: Disposable bailer/2-inch pump

Field Conditions: Rain, windy, cold

Describe Equipment Decontamination Before Sampling This Well:

Pump washed with soap and rinsed with deionized water

Total Depth of Well: 24.67 ft. *Time*: 1445 *Depth to Water Before Purging*: 4.38 ft.

Height of Water Column:		*2-inch*	*4-inch*		*Volume*		*Purge Factor*		*Volume To Purge*
20.42 ft.	*	.16	.65	=	3.26 gals	*	4	=	13.06 gals.

Depth Purging From: *Time Purging Begins*:

Notes on Initial Discharge:

Time	Volume Purged	pH	Conductivity	T°C	Comments
1255	5	7.5	Off scale	18.6	Clear
1300	10	7.4	Off scale	18.6	Clear
1305	15	7.4	Off scale	18.6	Clear

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM
(CONTINUED)

Time Field Parameter Measurement Begins: **1310**

	Rep #1	Rep #2	Rep #3	Rep #4
pH	**7.4**	**7.4**	**7.4**	**7.4**
Conductivity	**Off scale**	**Off scale**	**Off scale**	**Off scale**
T°C	**18.6**	**18.6**	**18.6**	**18.6**

Pre-Sample Collection Gallons Purged: **15**

Time Sample Collection Begins: **1315**

Time Sample Collection Ends: **1317**

Total Gallons Purged: **16**

Comments:

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM

Job No: 45040.06 *Site*: Harsch *Date*: 2/23/93

Well No: MW-17 *Sampling Team*: G. Williams

Sampling Method: Disposable bailer/2-inch D.C. pump

Field Conditions: Rain, cool

Describe Equipment Decontamination Before Sampling This Well:

Pump washed with soap and rinsed with deionized water

Total Depth of Well: 24.42 ft. *Time*: 1115 *Depth to Water Before Purging*: 2.5 ft.

Height of Water Column:		*2-inch*	*4-inch*		*Volume*		*Purge Factor*		*Volume To Purge*
22 ft.	*	.16	.65	=	3.52 gals	*	5	=	17.6 gals.

Depth Purging From: *Time Purging Begins*:

Notes on Initial Discharge:

Time	Volume Purged	pH	Conductivity	T°C	Comments
1125	5	8.3	Off scale	18.4	Turbid
1140	10	8.7	Off scale	18.7	Clearing
1150	15	8.9	Off scale	18.4	Clearing

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM
(CONTINUED)

Time Field Parameter Measurement Begins: **1155**

	Rep #1	Rep #2	Rep #3	Rep #4
pH	**8.8**	**8.8**	**8.8**	**8.8**
Conductivity	**Off scale**	**Off scale**	**Off scale**	**Off scale**
T°C	**18.3**	**18.2**	**18.2**	**18.2**

Pre-Sample Collection Gallons Purged: **17.5**

Time Sample Collection Begins: **1210**

Time Sample Collection Ends: **1213**

Total Gallons Purged: **19**

Comments:

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM

Job No: **45040.06** *Site*: **Harsch** *Date*: **2/23/93**

Well No: **MW-8B** *Sampling Team*: **G. Williams**

Sampling Method: **Disposable bailer/2-inch pump**

Field Conditions: **Rain, windy, cool**

Describe Equipment Decontamination Before Sampling This Well:

Pump washed with soap and rinsed with deionized water

Total Depth of Well: **21.92 ft.** *Time*: **1350** *Depth to Water Before Purging*: **4.92 ft.**

Height of Water Column:		*2-inch*	*4-inch*		*Volume*		*Purge Factor*		*Volume To Purge*
17 ft.	*	.16	.65	=	**11.05 gals**	*	**4**	=	**44.2 gals.**

Depth Purging From: *Time Purging Begins*:

Notes on Initial Discharge:

Time	Volume Purged	pH	Conductivity	T°C	Comments
1405	**10**	**8.2**	**Inoperative**	**16.9**	**Clear**
1410	**20**	**8.2**	**Inoperative**	**16.9**	**Clear**
1415	**30**	**8.2**	**Inoperative**	**16.8**	**Clear**
1420	**40**	**8.2**	**Inoperative**	**16.7**	**Clear**
1425	45	8.2	Inoperative	16.9	Clear

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM
(CONTINUED)

Time Field Parameter Measurement Begins: **1430**

	Rep #1	Rep #2	Rep #3	Rep #4
pH	**8.2**	**8.2**	**8.2**	**8.2**
Conductivity	**Off scale**	**Off scale**	**Off scale**	**Off scale**
T°C	**16.9**	**16.9**	**16.9**	**16.9**

Pre-Sample Collection Gallons Purged: **45**

Time Sample Collection Begins: **1435**

Time Sample Collection Ends: **1437**

Total Gallons Purged: **47**

Comments:

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM

Job No: **45040.06** *Site*: **Harsch** *Date*: **2/23/93**

Well No: **MW-7B** *Sampling Team*: **G. Williams**

Sampling Method: **Disposable bailer/2-inch pump**

Field Conditions: **Rain, cold**

Describe Equipment Decontamination Before Sampling This Well:

Pump washed with soap and rinsed with deionized water

Total Depth of Well: **13.00 ft.** *Time*: **1230** *Depth to Water Before Purging*: **3.33 ft.**

Height of Water Column:		*2-inch*	*4-inch*		*Volume*		*Purge Factor*		*Volume To Purge*
9.5 ft.	*	.16	.65	=	**6.17 gals**	*	**4**	=	**24.7 gals.**

Depth Purging From: *Time Purging Begins*:

Notes on Initial Discharge:

Time	Volume Purged	pH	Conductivity	T°C	Comments
1245	5	8.7	1037	16.8	Clear
1250	10	8.4	810	16.8	Clear
1252	15	8.3	814	16.8	Clear
1255	20	8.3	103	17.3	Clear
1257	25	8.3	680	17.9	Clear

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
WATER SAMPLING FIELD SURVEY FORM
(CONTINUED)

Time Field Parameter Measurement Begins: **1325**

	Rep #1	Rep #2	Rep #3	Rep #4
pH	**8.3**	**8.3**	**8.3**	**8.3**
Conductivity	**640**	**570**	**620**	**624**
T°C	**17.8**	**17.8**	**17.9**	**17.9**

Pre-Sample Collection Gallons Purged: **25**

Time Sample Collection Begins: **1335**

Time Sample Collection Ends: **1340**

Total Gallons Purged: **27**

Comments:

File No. 8-90-418-SI

A P P E N D I X "E"

PRIORITY ENVIRONMENTAL LABS

PEL # 9302002

February 04, 1993

SOIL TECH ENGINEERING

Attn: Noori Ameli
Re: Two soil samples for Gasoline/BTEX analysis.

Project name: 2351 Shoreline Dr., - Alameda
Project number: 8-90-418-SI

Date sampled: Feb 02, 1993
Date extracted: Feb 03, 1993

Date submitted: Feb 03, 1993
Date analyzed: Feb 03, 1993

RESULTS:

SAMPLE I.D.	Gasoline (mg/Kg)	Benzene (ug/Kg)	Toluene (ug/Kg)	Ethyl Benzene (ug/Kg)	Total Xylenes (ug/Kg)
STMW-5-5	N.D.	N.D.	N.D.	N.D.	N.D.
STMW-6-5	N.D.	N.D.	N.D.	N.D.	N.D.
Blank	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	101.8%	98.3%	103.2%	94.6%	105.7%
Detection limit	1.0	5.0	5.0	5.0	5.0
Method of Analysis	5030 / 8015	8020	8020	8020	8020

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel 408-946-9636 Fax: 408-946-9663

PRIORITY ENVIRONMENTAL LABS

February 04,1993

PEL # 9302002

SOIL TECH ENGINEERING

Attn: Noori Ameli

Project name: 2351 Shoreline Dr.-Alameda

Project number: 8-90-418-SI

Sample I.D.: STMW-5-5

Date Sampled: Feb 02, 1993
Date Analyzed: Feb 03-04, 1993

Date Submitted: Feb 03, 1993

Method of Analysis: EPA 8010

Detection limit: 5.0 ug/Kg

COMPOUND NAME	CONCENTRATION (ug/Kg)	SPIKE RECOVERY (%)
Chloromethane	N.D.	-----
Vinyl Chloride	N.D.	86.4
Bromomethane	N.D.	-----
Chloroethane	N.D.	-----
Trichlorofluoromethane	N.D.	-----
1,1-Dichloroethene	N.D.	-----
Methylene Chloride	N.D.	92.1
1,2-Dichloroethene (TOTAL)	N.D.	-----
1,1-Dichloroethane	N.D.	-----
Chloroform	N.D.	90.3
1,1,1-Trichloroethane	N.D.	-----
Carbon Tetrachloride	N.D.	-----
1,2-Dichloroethane	N.D.	-----
Trichloroethene	N.D.	97.6
1,2-Dichloropropane	N.D.	-----
Bromodichloromethane	N.D.	-----
2-Chloroethylvinylether	N.D.	-----
Trans-1,3-Dichloropropene	N.D.	-----
Cis-1,3-Dichloropropene	N.D.	-----
1,1,2-Trichloroethane	N.D.	-----
Tetrachloroethene	N.D.	92.8
Dibromochloromethane	N.D.	-----
Chlorobenzene	N.D.	-----
Bromoform	N.D.	-----
1,1,2,2-Tetrachloroethane	N.D.	-----
1,3-Dichlorobenzene	N.D.	-----
1,4-Dichlorobenzene	N.D.	-----
1,2-Dichlorobenzene	N.D.	-----

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA 95035 Tel. 408-946-9636 Fax: 408-946-9663

PRIORITY ENVIRONMENTAL LABS

Priority Environmental Analytical Laboratory

February 04,1993

PEL # 9302002

SOIL TECH ENGINEERING

Attn: Noori Ameli

Project name: 2351 Shoreline Dr.-Alameda

Project number: 8-90-418-SI

Sample I.D.: STMW-6-5

Date Sampled: Feb 02, 1993
Date Analyzed: Feb 03-04, 1993

Date Submitted: Feb 03, 1993

Method of Analysis: EPA 8010

Detection limit: 5.0 ug/Kg

COMPOUND NAME	CONCENTRATION (ug/Kg)	SPIKE RECOVERY (%)
Chloromethane	N.D.	-----
Vinyl Chloride	N.D.	86.4
Bromomethane	N.D.	-----
Chloroethane	N.D.	-----
Trichlorofluoromethane	N.D.	-----
1,1-Dichloroethene	N.D.	-----
Methylene Chloride	N.D.	92.1
1,2-Dichloroethene (TOTAL)	N.D.	-----
1,1-Dichloroethane	N.D.	-----
Chloroform	N.D.	90.3
1,1,1-Trichloroethane	N.D.	-----
Carbon Tetrachloride	N.D.	-----
1,2-Dichloroethane	N.D.	-----
Trichloroethene	N.D.	97.6
1,2-Dichloropropane	N.D.	-----
Bromodichloromethane	N.D.	-----
2-Chloroethylvinylether	N.D.	-----
Trans-1,3-Dichloropropene	N.D.	-----
Cis-1,3-Dichloropropene	N.D.	-----
1,1,2-Trichloroethane	N.D.	-----
Tetrachloroethene	N.D.	92.8
Dibromochloromethane	N.D.	-----
Chlorobenzene	N.D.	-----
Bromoform	N.D.	-----
1,1,2,2-Tetrachloroethane	N.D.	-----
1,3-Dichlorobenzene	N.D.	-----
1,4-Dichlorobenzene	N.D.	-----
1,2-Dichlorobenzene	N.D.	-----

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663

PEL

CHAIN OF CUSTODY RECORD

PROJ. NO.	NAME
8-90-418-5[illegible]	2351 Shoreline Dr. ALAMEDA

SAMPLERS: (Signature) N. Amel

NO.	DATE	TIME	SOIL	WATER	LOCATION	CONTAINER	Analyses Requested (2) TPHG/BTEX 8010						REMARKS
1	2/2/93	11[15]	✓		STMW-5-5	1	✓	✓					
2	2/2/93	14[35]	✓		STMW-6-5	1	✓	✓					

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Receive by: (Signature)
N. Amel	2/3/93 941	[illegible]			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
		THANH LAM			
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
	2/3/93 941	PEL			

SOIL TECH ENGINEERING
Soil, Foundation and Geological Engineers
[illegible] (408) 496-0265 [illegible] (408) 496-0266

CHAIN OF CUSTODY RECORD

PEL # 9302002

INV # 23347

PROJ. NO.	NAME	CONTAINER	ANALYSES REQUESTED (2)						
8-90-418-SI	2351 Shoreline Dr. ALAMEDA		TPHG/BTEX	8010					

SAMPLERS: (Signature) [signature]

NO.	DATE	TIME	SOIL	WATER	LOCATION	CONTAINER	TPHG/BTEX	8010				
1	2/2/93	11[15]	✓		STMW-5-5	1	✓	✓				
2	2/2/93	14[32]	✓		STMW-6-5	1	✓	✓				

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
N. Am[signature]	2/3/93 9[41]	[signature]			
Relinquished by: (Signature)	Date / Time	Received by: (Signature) THANH LAM	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time 2/3/93 9 41	Received for Laboratory by: (Signature) PEL	Date / Time	Remarks	

SOIL TECH ENGINEERING

Soil, Foundation and Geological Engineers

298 BROKAW ROAD ... ANTA CLARA ... 95... (408) 496-0265 OR (408) 496-0266

PRIORITY ENVIRONMENTAL LABS

February 12, 1993

PEL # 9302017

SOIL TECH ENGINEERING, INC.

Attn: Noori Ameli
Re: Four water samples for Gasoline/BTEX, Diesel, and Oil & Grease analyses.

Project name: 2351 Shoreline Dr., - Alameda
Project number: 8-90-418-SI

Date sampled: Feb 08, 1993
Date extracted: Feb 09-11, 1993

Date submitted: Feb 09, 1993
Date analyzed: Feb 09-11, 1993

RESULTS:

SAMPLE I.D.	Gasoline (ug/L)	Diesel (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)	Oil & Grease (mg/L)
STMW-1	66000	---	210	480	510	1200	---
STMW-3	330000	N.D.	620	1900	2200	6000	3.9
STMW-5	N.D.	---	N.D.	N.D.	N.D.	N.D.	---
STMW-6	33000	---	100	230	270	500	---
Blank	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	101.8%	91.6%	98.3%	103.2%	94.6%	105.7%	---
Duplicate Spiked Recovery	97.6%	---	90.4%	94.2%	89.5%	97.0%	---
Detection limit	50	50	0.5	0.5	0.5	0.5	0.5
Method of Analysis	5030 / 8015	3510 / 8015	602	602	602	602	5520 C & F

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663

PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

February 12, 1993

PEL #: 9302017

SOIL TECH ENGINEERING, INC.
Project name:2351 Shoreline Dr.-Alameda

Attn: Noori Ameli
Project number: 8-90-418-SI

Sample I.D.: STMW-1

Date Sampled: Feb 08, 1993
Date Analyzed: Feb 09-10, 1993

Date Submitted: Feb 09, 1993

Method of Analysis: EPA 601

Detection limit: 0.5 ug/L

COMPOUND NAME	CONCENTRATION (ug/L)	SPIKE RECOVERY (%)
Chloromethane	N.D.	-----
Vinyl Chloride	N.D.	83.2
Bromomethane	N.D.	-----
Chloroethane	N.D.	-----
Trichlorofluoromethane	N.D.	-----
1,1-Dichloroethene	N.D.	91.4
Methylene Chloride	N.D.	-----
1,2-Dichloroethene (TOTAL)	N.D.	-----
1,1-Dichloroethane	N.D.	-----
Chloroform	N.D.	92.8
1,1,1-Trichloroethane	N.D.	-----
Carbon Tetrachloride	N.D.	-----
1,2-Dichloroethane	N.D.	-----
Trichloroethene	9.5	-----
1,2-Dichloropropane	N.D.	-----
Bromodichloromethane	N.D.	-----
2-Chloroethylvinylether	N.D.	-----
Trans-1,3-Dichloropropene	N.D.	-----
Cis-1,3-Dichloropropene	N.D.	-----
1,1,2-Trichloroethane	N.D.	94.7
Tetrachloroethene	N.D.	-----
Dibromochloromethane	N.D.	-----
Chlorobenzene	N.D.	-----
Bromoform	N.D.	-----
1,1,2,2-Tetrachloroethane	N.D.	-----
1,3-Dichlorobenzene	N.D.	-----
1,4-Dichlorobenzene	N.D.	-----
1,2-Dichlorobenzene	N.D.	-----

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663

PRIORITY ENVIRONMENTAL LABS

February 12, 1993

PEL #: 9302017

SOIL TECH ENGINEERING, INC.
Project name:2351 Shoreline Dr.-Alameda

Attn: Noori Ameli
Project number: 8-90-418-SI

Sample I.D.: STMW-3

Date Sampled: Feb 08, 1993
Date Analyzed: Feb 09-10, 1993

Date Submitted: Feb 09, 1993

Method of Analysis: EPA 601

Detection limit: 0.5 ug/L

COMPOUND NAME	CONCENTRATION (ug/L)	SPIKE RECOVERY (%)
Chloromethane	N.D.	-----
Vinyl Chloride	N.D.	83.2
Bromomethane	N.D.	-----
Chloroethane	N.D.	-----
Trichlorofluoromethane	N.D.	-----
1,1-Dichloroethene	N.D.	91.4
Methylene Chloride	N.D.	-----
1,2-Dichloroethene (TOTAL)	N.D.	-----
1,1-Dichloroethane	N.D.	-----
Chloroform	N.D.	92.8
1,1,1-Trichloroethane	N.D.	-----
Carbon Tetrachloride	N.D.	-----
1,2-Dichloroethane	N.D.	-----
Trichloroethene	2.4	-----
1,2-Dichloropropane	N.D.	-----
Bromodichloromethane	N.D.	-----
2-Chloroethylvinylether	N.D.	-----
Trans-1,3-Dichloropropene	N.D.	-----
Cis-1,3-Dichloropropene	N.D.	-----
1,1,2-Trichloroethane	N.D.	94.7
Tetrachloroethene	N.D.	-----
Dibromochloromethane	N.D.	-----
Chlorobenzene	N.D.	-----
Bromoform	N.D.	-----
1,1,2,2-Tetrachloroethane	N.D.	-----
1,3-Dichlorobenzene	N.D.	-----
1,4-Dichlorobenzene	N.D.	-----
1,2-Dichlorobenzene	N.D.	-----

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663

PRIORITY ENVIRONMENTAL LABS

February 12, 1993

PEL #: 9302017

SOIL TECH ENGINEERING, INC.
Project name:2351 Shoreline Dr.-Alameda

Attn: Noori Ameli
Project number: 8-90-418-SI

Sample I.D.: STMW-5

Date Sampled: Feb 08, 1993
Date Analyzed: Feb 09-10, 1993

Date Submitted: Feb 09, 1993

Method of Analysis: EPA 601

Detection limit: 0.5 ug/L

COMPOUND NAME	CONCENTRATION (ug/L)	SPIKE RECOVERY (%)
Chloromethane	N.D.	-----
Vinyl Chloride	N.D.	83.2
Bromomethane	N.D.	-----
Chloroethane	N.D.	-----
Trichlorofluoromethane	N.D.	-----
1,1-Dichloroethene	N.D.	91.4
Methylene Chloride	N.D.	-----
1,2-Dichloroethene (TOTAL)	N.D.	-----
1,1-Dichloroethane	N.D.	-----
Chloroform	N.D.	92.8
1,1,1-Trichloroethane	N.D.	-----
Carbon Tetrachloride	N.D.	-----
1,2-Dichloroethane	N.D.	-----
Trichloroethene	N.D.	-----
1,2-Dichloropropane	N.D.	-----
Bromodichloromethane	N.D.	-----
2-Chloroethylvinylether	N.D.	-----
Trans-1,3-Dichloropropene	N.D.	-----
Cis-1,3-Dichloropropene	N.D.	-----
1,1,2-Trichloroethane	N.D.	94.7
Tetrachloroethene	N.D.	-----
Dibromochloromethane	N.D.	-----
Chlorobenzene	N.D.	-----
Bromoform	N.D.	-----
1,1,2,2-Tetrachloroethane	N.D.	-----
1,3-Dichlorobenzene	N.D.	-----
1,4-Dichlorobenzene	N.D.	-----
1,2-Dichlorobenzene	N.D.	-----

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663

PRIORITY ENVIRONMENTAL LABS

February 12, 1993

PEL #: 9302017

SOIL TECH ENGINEERING, INC.
Project name:2351 Shoreline Dr.-Alameda

Attn: Noori Ameli
Project number: 8-90-418-SI

Sample I.D.: STMW-6

Date Sampled: Feb 08, 1993
Date Analyzed: Feb 09-10, 1993

Date Submitted: Feb 09, 1993

Method of Analysis: EPA 601

Detection limit: 0.5 ug/L

COMPOUND NAME	CONCENTRATION (ug/L)	SPIKE RECOVERY (%)
Chloromethane	N.D.	-----
Vinyl Chloride	N.D.	83.2
Bromomethane	N.D.	-----
Chloroethane	N.D.	-----
Trichlorofluoromethane	N.D.	-----
1,1-Dichloroethene	N.D.	91.4
Methylene Chloride	N.D.	-----
1,2-Dichloroethene (TOTAL)	N.D.	-----
1,1-Dichloroethane	N.D.	-----
Chloroform	N.D.	92.8
1,1,1-Trichloroethane	N.D.	-----
Carbon Tetrachloride	N.D.	-----
1,2-Dichloroethane	N.D.	-----
Trichloroethene	11	-----
1,2-Dichloropropane	N.D.	-----
Bromodichloromethane	N.D.	-----
2-Chloroethylvinylether	N.D.	-----
Trans-1,3-Dichloropropene	N.D.	-----
Cis-1,3-Dichloropropene	N.D.	-----
1,1,2-Trichloroethane	N.D.	94.7
Tetrachloroethene	N.D.	-----
Dibromochloromethane	N.D.	-----
Chlorobenzene	N.D.	-----
Bromoform	N.D.	-----
1,1,2,2-Tetrachloroethane	N.D.	-----
1,3-Dichlorobenzene	N.D.	-----
1,4-Dichlorobenzene	N.D.	-----
1,2-Dichlorobenzene	N.D.	-----

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA 95035 Tel: 408-946-9636 Fax: 408-946-9663

PEL

CHAIN OF CUSTODY RECORD

PROJ. NO.	NAME
6-90-418-51	2351 Shoreline Dr. ALAMEDA

SAMPLERS: (Signature) N. Amlo

NO.	DATE	TIME	SOIL	WATER	LOCATION	CONTAINER	Analyses Requested (2) TPHG (BTEX)	8010	TPHD	TOG	REMARKS
1	2/8/93	13:54		✓	STMW-1	2	✓	✓			
2	2/8/93	16:10		✓	STMW-3	4	✓	✓	✓	✓	
3	2/8/93	13:14		✓	STMW-5	2	✓	✓			
4	2/8/93	12:25		✓	STMW-6	2	✓	✓			

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Receive by: (Signature)
N. Amlo	2/9/93 10:20				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
		THANH LAM			
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
	2/9/93 10:20	PEL			

SOIL TECH ENGINEERING
Soil, Foundation and Geological Engineers
[redacted] (408) 496-0265 (408) 496-0266

CHAIN OF CUSTODY RECORD

PEL # 9302017

INV # 23362

PROJ. NO.	NAME
8-90-418-5I	2351 Shoreline Dr. ALAMEDA

SAMPLERS: *(Signature)* N. Amini

NO.	DATE	TIME	SOIL	WATER	LOCATION	CONTAINER	Analyses Requested (2) TPHG/BTEX	601	TPHD	TOXG	REMARKS
1	2/8/93	13[52]		✓	STMW-1	2	✓	✓			
2	2/8/93	16[12]		✓	STMW-3	4	✓	✓	✓	✓	
3	2/8/93	13[14]		✓	STMW-5	2	✓	✓			
4	2/8/93	12[25]		✓	STMW-6	2	✓	✓			

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Receive by: *(Signature)*
N. Amini	2/9/93 10[20]				
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by *(Signature)*
		JOANNA LAM			
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks	
	2/9/93 10[20]	PEL			

SOIL TECH ENGINEERING

Soil, Foundation and Geological Engineers

[redacted] (408) 496-0266

File No. 8-90-418-SI

A P P E N D I X "F"

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

26 January 1993

Soil Tech Engineering, Inc.
298 Brokaw Road
Santa Clara, CA 95050

Gentlemen:

Enclosed is drilling permit 93024 for a monitoring well construction project at 2351 Shoreline Drive in Alameda for Kamur Industries.

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

If you have any questions, please contact Wyman Hong or me at 484-2600.

Very truly yours,

Craig A. Mayfield

Craig A. Mayfield
Water Resources Engineer III

WH:mm
Enc.

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 2351 Shoreline Dr.
Alameda CA 94501

CLIENT
Name KAMUR INDUSTRIES
Address 2351 Shoreline Dr. Phone (510) 523-7866
City Alameda CA Zip 94501

APPLICANT
Name SOIL TECH ENGINEERING INC.
Address 298 Brokaw Rd. Phone (408) 496-0265
City SANTA CLARA Zip 95050

TYPE OF PROJECT

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

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

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

DRILLER'S LICENSE NO. C57 507520

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 15 ft.
Surface Seal Depth ___ ft. Number 3

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

ESTIMATED STARTING DATE 1/27/93
ESTIMATED COMPLETION DATE 1/29/93

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

APPLICANT'S SIGNATURE N. Amoli Date 1/20/93

FOR OFFICE USE

PERMIT NUMBER 93024
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

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

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

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

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 21 Jan 93
Wyman Hong

31992

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

APPENDIX F

PREVIOUS GROUNDWATER SAMPLING RESULTS

File No. 8-90-418-SI

A P P E N D I X "D"

Historical Groundwater Analysis Results for Harsch Investment Property in Alameda
for Samples Collected from November 1990 to July 1992
All concentrations in micrograms per liter (µg/L)

Chemical	MW-7B							MW-8B							MW-16							MW-17							Regulatory Guidelines
Sample Date →	11/90	4/91	7/91	11/91	3/92	6/92	10/92	11/90	4/91	7/91	11/91	3/92	6/92	10/92	11/90	4/91	7/91	11/91	3/92	6/92	10/92	11/90	4/91	7/91	11/91	3/92	6/92	10/92	
EPA Method 8015/8020 for:																													
Benzene	<0.4	<0.4	NA	<0.4	<0.4	NA	NA	<0.4	<0.4	NA	<0.4	<0.4	NA	NA	-	-	-	-	<0.4	NA	NA	-	-	-	-	<0.4	NA	NA	1[1]
Toluene	<0.3	<0.3	NA	<0.3	<0.3	NA	NA	<0.3	<0.3	NA	<0.3	<0.3	NA	NA	-	-	-	-	<0.3	NA	NA	-	-	-	-	<0.3	NA	NA	100[2]
Ethylbenzene	<0.3	<0.3	NA	<0.3	<0.3	NA	NA	<0.3	<0.3	NA	<0.3	<0.3	NA	NA	-	-	-	-	<0.3	NA	NA	-	-	-	-	<0.3	NA	NA	680[1]
Xylenes	<0.4	<0.4	NA	<0.4	<0.4	NA	NA	<0.4	<0.4	NA	<0.4	<0.4	NA	NA	-	-	-	-	<0.4	NA	NA	-	-	-	-	<0.4	NA	NA	1,750[1]
Gasoline	<50	<50	NA	<50	<50	NA	NA	<50	<50	NA	<50	<50	NA	NA	-	-	-	-	<50	NA	NA	-	-	-	-	<50	NA	NA	Not app.
EPA Method 3510 for:																													
Diesel	<50	<50	NA	<50	NA	NA	NA	<50	<50	NA	<50	NA	NA	NA	-	-	-	-	NA	NA	NA	-	-	-	-	NA	NA	NA	100[3]
EPA Method 418.1 for:																													
TRPH	<1,000	NA	NA	NA	NA	NA	NA	<1,000	NA	NA	NA	NA	NA	NA	-	-	-	-	NA	NA	NA	-	-	-	-	NA	NA	NA	Not app.
EPA Method 5520 for:																													
Total oil and grease hydrocarbons	NA	<5,000	NA	<5,000	NA	NA	NA	NA	<5,000	NA	<5,000	NA	NA	NA	-	-	-	-	NA	NA	NA	-	-	-	-	NA	NA	NA	Not app.
EPA Method 601 Purgeable Halocarbons for:																													
Cis-1,2-dichloroethene	*440*	*90*	*170*	*140*	<40	*190*	*540*	1.2	*6.8*	*11*	*6.3*	*7.9*	*7.0*	*20*	-	-	-	-	<0.4	<0.4	<0.4	-	-	-	-	<0.4	<0.4	<0.4	6[1]
Trichloroethene	*520*	*200*	*660*	*700*	*390*	*450*	*1,200*	*3.9*	*7.7*	*19*	*12*	*13*	*10*	*23*	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-	<0.5	<0.5	<0.5	5[1]
Tetrachloroethene	*1,900*	*1,600*	*7,800*	*6,600*	*3,200*	*8,500*	*13,000*	*0.9*	1.1	*0.9*	*5*	<0.5	<0.5	<0.5	-	-	-	-	1.1	2.7	<0.5	-	-	-	-	<0.5	<0.5	<0.5	5[1]
1,1-dichloroethene	<20	<5	4.6	<20	<20	3.7	<5*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	<0.2	<0.2	<0.2	-	-	-	-	<0.2	<0.2	<0.2	6[1]
Trans-1,4-dichloroethene	<40	<10	2.6	<40	<40	1.3	<20*	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	-	-	-	-	<0.4	<0.4	<0.4	-	-	-	-	<0.4	<0.4	<0.4	10[1]
1,1,2-trichloroethene	<60	<20	0.8	<60	<60	<0.6	<20*	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	-	-	-	-	<0.6	<0.6	<0.6	-	-	-	-	<0.6	<0.6	<0.6	32[1]
Bromoform	<70	<20	1.7	<70	<70	<0.7	<20*	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	-	-	-	-	<0.7	<0.7	<0.7	-	-	-	-	<0.7	<0.7	<0.7	7[1]
Chlorobenzene	<70	<20	4.8	<70	<70	4.6	<20*	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	-	-	-	-	<0.7	<0.7	<0.7	-	-	-	-	<0.7	<0.7	<0.7	30[1]
TDS	NA	NA	NA	NA	NA	NA	1,000,000	NA	NA	NA	NA	NA	NA	3,800,000	-	-	-	-	-	-	24,000,000	-	-	-	-	-	-	18,000,000	3,000,000 [4]

* = detection limit increased due to dilution necessary for quantitation
NA = not analyzed
\- = not in place
TRPH = total recoverable petroleum hydrocarbons
< = less than the limit of detection
800 = above regulatory guidelines
800 = detected, but less than regulatory guidelines

(1) Maximum contaminant level (MCL) for drinking water standards (DHS)
(2) California State Action Level (DHS)
(3) Health Advisor or Suggested No-Adverse-Response Levels (EPA) (DHS)
(4) State Water Resources guideline for potential drinking water sources
Regulatory guidelines are taken from Jon B. Marshack's "A Compilation of Water Quality Goals, October 1990," published by Regional Water Quality Control Board Central Valley Region

42864-02.tbl

Historical Groundwater Analysis Results for Harsch Investment Property in Alameda
for Samples Collected from November 1990 to November 1991
All Concentrations in milligrams per liter (µg/l)

Chemical	MW-2				MW-3				MW-4				MW-5B				MW-9B				MW-14				Regulatory Guidelines
Sample Date →	11/90	4/91	7/91	11/91	11/90	4/91	7/91	11/91	11/90	4/91	7/91	11/91	11/90	4/91	7/91	11/91	11/90	4/91	7/91	11/91	11/90	4/91	7/91	11/91	
EPA Method 8015/8020 for:																									
Benzene	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	*800*	*1,300*	*3.1*	*21*	<0.4	<0.4	<0.4	<0.4		*2.9*	*0.8*	*2.2*	1[1]
Toluene	<0.3	<0.3	<0.3	<0.3	*0.5*	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	12	45	3.7	4.6	<0.3	<0.3	<0.3	<0.3		<0.3	*0.8*	<0.3	100[2]
Ethylbenzene	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	320	370	13	10	<0.3	<0.3	<0.3	<0.3		<0.3	<0.3	<0.3	680[1]
Xylenes	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	*66*	*100*	*2.2*	*2.2*	<0.4	<0.4	<0.4	<0.4		*0.5*	*0.8*	*1.8*	1,750[1]
Gasoline	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	*2,900*	*4,000*	*400*	*700*	<50	<50	<50	<50		<50	<50	*58*	Not available
EPA Method 3510 for:																									
Diesel	<50	<50	NA	<50	<50	<50	NA	<50	<50	<50	NA	<50	(a) *<800*	(a) *<500*	(a) *<400*	*220*	<50	<50	NA	<50		*230*	*180*	*140*	100[3]
EPA Method 418.1 for:																									
TRPH	*1,000*	NA	NA	NA	<1,000	NA	NA	NA	<1,000	NA	NA	NA	*2,000*	NA	NA	NA	*1,000*	NA	NA	NA		NA	NA	NA	Not available
EPA Method 5520 for:																									
Total oil and grease hydrocarbons	NA	<5,000	NA	<5,000	NA	<5,000	NA	<5,000	NA	<5,000	NA	<5,000	NA	<5,000	<5,000	<5,000	NA	<5,000	NA	<5,000		<5,000	<5,000	<5,000	Not available
EPA Method 601 Purgeable Halocarbons for:																									
Cis-1,2-dichloroethene	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		<0.4	<0.4	<0.4	6[1]
1,2-dichloroethane	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		*4.6*	*6.6*	*1.5*	0.5[1]
Trichloroethene	<0.3	<0.3	<0.3	<0.3	*0.5*	<0.3	<0.3	<0.3	*0.5*	<0.3	<0.3	<0.3	<0.3	<3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		*0.4*	<0.3	<0.3	5[1]
Tetrachloroethene	<0.5	<0.5	<0.5	<0.5	<0.5	3	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	1.5	3.3	<0.5	<0.5		*16*	<0.5	<0.5	5[1]
1,1-dichloroethene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		*0.5*	<0.2	<0.2	6[1]
Trans-1,4-dichloroethene	<0.4	<0.4	<0.4	<0.4	*0.4*	<0.4	<0.4	<0.4	*0.4*	<0.4	<0.4	<0.4	<0.4	<4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		<0.4	<0.4	<0.4	10[1]
1,1,2-trichloroethene	<0.6	<0.6	<0.6	<0.6	*0.6*	<0.6	<0.6	<0.6	*0.6*	<0.6	<0.6	<0.6	<0.6	<6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6		<0.6	<0.6	<0.6	32[1]
Bromoform	<0.7	<0.7	<0.7	<0.7	*0.7*	<0.7	<0.7	<0.7	*0.7*	<0.7	<0.7	<0.7	<0.7	<7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7		<0.7	<0.7	<0.7	7[1]
Chlorobenzene	<0.7	<0.7	<0.7	<0.7	*0.7*	<0.7	<0.7	<0.7	*0.7*	<0.7	<0.7	<0.7	<0.7	<7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7		<0.7	<0.7	<0.7	30[1]

NA = not analyzed
(a) = detection limit increased due to the presence of gasoline in the sample
TRPH = total recoverable petroleum hydrocarbons
< = less than the limit of detection
800 = above regulatory guidelines
800 = detected, but less than regulatory guidelines

(1) Maximum contaminant level (MCL) for drinking water standards (DHS)
(2) California State Action Level (DHS)
(3) Health Advisor or Suggested No-Adverse-Response Levels (EPA) (DHS)

Regulatory guidelines are taken from Jon B. Marshack's "A Compilation of Water Quality Goals, October 1990," published by Regional Water Quality Control Board Central Valley Region

42864-02.tbl

APPENDIX G

CLAYTON LABORATORY ANALYTICAL RESULTS

Western Operations

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

March 5, 1993

Mr. Dariush Dastmalchi
CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
1252 Quarry Lane
Pleasanton, CA 94566

Client Ref. 45040.01
Clayton Project No. 93022.69

Dear Mr. Dastmalchi:

Attached is our analytical laboratory report for the samples received on February 23, 1993. A copy of the Chain-of-Custody form acknowledging receipt of these samples is attached.

Please note that any unused portion of the samples will be disposed of 30 days after the date of this report, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Suzanne Silvera, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Ronald H. Peters, CIH
Director, Laboratory Services
Western Operations

RHP/tb
Attachments

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.69

Sample Identification: MW-7B
Lab Number: 9302269-01A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/23/93
Date Received: 02/23/93
Date Analyzed: 03/02/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	60
Bromomethane	74-83-9	ND	70
Vinyl chloride	75-01-4	ND	50
Chloroethane	75-00-3	ND	50
Methylene chloride	75-09-2	ND	200
1,1-Dichloroethene	75-35-4	ND	20
1,1-Dichloroethane	75-35-3	ND	40
Trans-1,2-Dichloroethene	156-60-5	ND	40
Cis-1,2-Dichloroethene	156-59-2	150	40
Chloroform	67-66-3	ND	50
1,2-Dichloroethane	107-06-2	ND	30
1,1,1-Trichloroethane	71-55-6	ND	50
Carbon tetrachloride	56-23-5	ND	60
Bromodichloromethane	75-27-4	ND	70
1,2-Dichloropropane	78-87-5	ND	50
Cis-1,3-Dichloropropene	10061-01-5	ND	50
Trichloroethene	79-01-6	540	30
Dibromochloromethane	124-48-1	ND	60
1,1,2-Trichloroethane	79-00-5	ND	60
Trans-1,3-Dichloropropene	10061-02-6	ND	60

ND Not detected at or above limit of detection
-- Information not available or not applicable

Note: Detection limits increased due to dilution necessary for quantitation

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.69

Sample Identification: MW-7B
Lab Number: 9302269-01A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/23/93
Date Received: 02/23/93
Date Analyzed: 03/02/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	100
Bromoform	75-25-2	ND	70
Tetrachloroethene	127-18-4	5,800	50
1,1,2,2-Tetrachloroethane	79-34-5	ND	50
Chlorobenzene	108-90-7	ND	70
1,3-Dichlorobenzene	541-73-7	ND	200
1,2-Dichlorobenzene	95-50-1	ND	400
1,4-Dichlorobenzene	106-46-7	ND	400
Dichlorodifluoromethane	75-71-8	ND	100
Trichlorofluoromethane	75-69-4	ND	40
Freon 113	76-13-1	ND	60

Surrogates		Recovery (%)	QC Limits (%) LCL - UCL
Bromochloromethane	74-97-5	90	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Note: Detection limits increased due to dilution necessary for quantitation

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.69

Sample Identification: MW-8B
Lab Number: 9302269-02A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/23/93
Date Received: 02/23/93
Date Analyzed: 02/25/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	9.0	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	14	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.69

Sample Identification: MW-8B
Lab Number: 9302269-02A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/23/93
Date Received: 02/23/93
Date Analyzed: 02/25/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	5.0	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL - UCL
Bromochloromethane	74-97-5	104	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.69

Sample Identification: MW-17
Lab Number: 9302269-03A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/23/93
Date Received: 02/23/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	ND	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.69

Sample Identification: MW-17
Lab Number: 9302269-03A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/23/93
Date Received: 02/23/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL - UCL
Bromochloromethane	74-97-5	93	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.69

Sample Identification: MW-18
Lab Number: 9302269-04A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/23/93
Date Received: 02/23/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	ND	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.69

Sample Identification: MW-18
Lab Number: 9302269-04A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/23/93
Date Received: 02/23/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL UCL
Bromochloromethane	74-97-5	97	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.69

Sample Identification: METHOD BLANK
Lab Number: 9302269-06A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: --
Date Received: --
Date Analyzed: 02/25/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	ND	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.69

Sample Identification: METHOD BLANK
Lab Number: 9302269-06A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: --
Date Received: --
Date Analyzed: 02/25/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL UCL
Bromochloromethane	74-97-5	91	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.69

Sample Matrix/Media: WATER
Analysis Method: EPA 160.1

Date Received: 02/23/93
Date Analyzed: 03/04/93

Lab Number	Sample Identification	Date Sampled	Total Dissolved Solids (mg/L)	Detectic Limit (mg/L)
01C	MW-7B	02/23/93	1,100	10
02C	MW-8B	02/23/93	930	10
03C	MW-17	02/23/93	18,000	10
04C	MW-18	02/23/93	19,000	10
06A	METHOD BLANK	--	<10	10

ND Not detected at or above limit of detection
< Not detected at or above limit of detection
-- Information not available or not applicable

Clayton ENVIRONMENTAL CONSULTANTS

A Marsh & McLennan Company

REQUEST FOR LABORATORY ANALYTICAL SERVICES

For Clayton Use Only	Page 1 of 1
Project No.	45040.01
Batch No.	9302269
Ind. Code	W.P.
Date Logged In 2/24/93	By TS

REPORT RESULTS TO

Name D. DALSIMACHI | Title
Company CEC | Dept. EE
Mailing Address
City, State, Zip
Telephone No. | Telefax No.

SEND INVOICE TO

Purchase Order No. | Client Job No.
Name
Company HARSCH | Dept.
Address
City, State, Zip ALAMEDA

Date Results Req.: STANDARD | Rush Charges Authorized? ☐ Yes ☑ No | Phone / Fax Results ☐ ☐

Special Instructions: (method, limit of detection, etc.)

* Explanation of Preservative:

Samples are: (check if applicable)
☐ Drinking Water
☐ Collected in the State of New York

ANALYSIS REQUESTED (Enter an 'X' in the box below to indicate request; Enter a 'P' if Preservative added. *)

CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	601	TDS	HOLD	FOR LAB USE ONLY
MW-7B	2-23-93	H20	40ML	2	X			01A,B
	"	"	236mlP1	1		X		↓C
MW-8B	"	"	40 ML	2	X			02A,B
	"	"	236mlP1	1		X		↓C
MW-17	"	"	40 ML	2	X			03A,B
	"	"	236mlP1	1		X		↓C
MW-18	"	"	40ML	2	X TB			04A,B
			236mlP1	1		X TB		C
TRIP BLANKS (0012693)			40ML	2			X	05A,B

CHAIN OF CUSTODY

Collected by: G WILLIAMS (print) | Collector's Signature:
Relinquished by: G WILLIAMS | Date/Time 2-23-93 1730 | Received by: | Date/Time
Relinquished by: | Date/Time | Received at Lab by: | Date/Time 2/25/93 8:30
Method of Shipment: | Sample Condition Upon Receipt: ☒ Acceptable ☐ Other (explain)

Authorized by: _____ Date _____
(Client Signature Must Accompany Request)

Please return completed form and samples to one of the Clayton Environmental Consultants, Inc. labs listed below:

22345 Roethel Drive, Novi, MI 48375 | Raritan Center, 160 Fieldcrest Ave. | 400 Chastain Center Blvd., N.W., Suite 490 | 1252 Quarry Lane, Pleasanton, CA 94566

DISTRIBUTION:
WHITE - Clayton Laboratory
YELLOW - Clayton Accounting

Western Operations

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

March 9, 1993

Mr. Dariush Dastmalchi
CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
1252 Quarry Lane
Pleasanton, CA 94566

Client Ref. 45040.06
Clayton Project No. 93022.92

Dear Mr. Dastmalchi:

Attached is our analytical laboratory report for the samples received on February 25, 1993. A copy of the Chain-of-Custody form acknowledging receipt of these samples is attached.

Please note that any unused portion of the samples will be disposed of 30 days after the date of this report, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Suzanne Silvera, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Ronald H. Peters, CIH
Director, Laboratory Services
Western Operations

RHP/caa
Attachments

Results of Analysis
for
Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Identification:	MW-22	Date Sampled:	02/25/93
Lab Number:	9302292-01A	Date Received:	02/25/93
Sample Matrix/Media:	WATER	Date Prepared:	03/01/93
Preparation Method:	EPA 5030	Date Analyzed:	03/01/93
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
p,m-Xylenes	--	ND	0.4
o-Xylene	95-47-6	ND	0.4
Gasoline	--	ND	50
Surrogates		**Recovery (%)**	**QC Limits (%)**
a,a,a-Trifluorotoluene	98-08-8	109	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Identification:	MW-5B	Date Sampled:	02/25/93
Lab Number:	9302292-02A	Date Received:	02/25/93
Sample Matrix/Media:	WATER	Date Prepared:	03/01/93
Preparation Method:	EPA 5030	Date Analyzed:	03/01/93
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	210	0.4
Toluene	108-88-3	4.2	0.3
Ethylbenzene	100-41-4	1.9	0.3
p,m-Xylenes	--	1.4	0.4
o-Xylene	95-47-6	0.6	0.4
Gasoline	--	640	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	122	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9302292-06A	Date Received:	--
Sample Matrix/Media:	WATER	Date Prepared:	03/01/93
Preparation Method:	EPA 5030	Date Analyzed:	03/01/93
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
p,m-Xylenes	--	ND	0.4
o-Xylene	95-47-6	ND	0.4
Gasoline	--	ND	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	111	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Identification: MW-22
Lab Number: 9302292-01E
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/25/93
Date Received: 02/25/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	22	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	ND	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Identification: MW-22
Lab Number: 9302292-01E
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/25/93
Date Received: 02/25/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL UCL
Bromochloromethane	74-97-5	102	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Identification: MW-5B
Lab Number: 9302292-02E
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/25/93
Date Received: 02/25/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	5.0	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	0.4	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	3.4	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Identification: MW-5B
Lab Number: 9302292-02E
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/25/93
Date Received: 02/25/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL - UCL
Bromochloromethane	74-97-5	80	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Identification: MW-11
Lab Number: 9302292-03A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/25/93
Date Received: 02/25/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	2.0	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Identification: MW-11
Lab Number: 9302292-03A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/25/93
Date Received: 02/25/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	5.8	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL UCL
Bromochloromethane	74-97-5	108	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Identification: METHOD BLANK
Lab Number: 9302292-06A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: --
Date Received: --
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	ND	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Identification: METHOD BLANK
Lab Number: 9302292-06A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: --
Date Received: --
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL - UCL
Bromochloromethane	74-97-5	95	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis for Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Matrix/Media: WATER
Analysis Method: EPA 160.1

Date Received: 02/25/93
Date Analyzed: 03/05/93

Lab Number	Sample Identification	Date Sampled	Total Dissolved Solids (mg/L)	Detecti Limit (mg/L
01G	MW-22	02/25/93	2,100	10
02G	MW-5B	02/25/93	1,400	10
03C	MW-11	02/25/93	630	10
06A	METHOD BLANK	--	<10	10

ND Not detected at or above limit of detection
< Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.06
Clayton Project No. 93022.92

Sample Matrix/Media: WATER
Preparation Method: EPA 3510
Analysis Method: EPA 8015

Date Received: 02/25/93
Date Prepared: 02/26/93
Date Analyzed: 03/01/93

Lab Number	Sample Identification	Date Sampled	Diesel (ug/L)	Detectic Limit (ug/L)
01C	MW-22	02/25/93	120 a	50
02C	MW-5B	02/25/93	2,400 a	50
06A	METHOD BLANK	--	ND	50

ND Not detected at or above limit of detection
< Not detected at or above limit of detection
-- Information not available or not applicable

a The hydrocarbons detected in these samples appear to be intermediate between diesel and motor oil: quantitation was based on diesel standards

Clayton ENVIRONMENTAL CONSULTANTS

A Marsh & McLennan Company

REQUEST FOR LABORATORY ANALYTICAL SERVICES

For Clayton Use Only	Page 1 of 1
Project No. 4540.06	
Batch No. 9302251	
Ind. Code	W.P.
Date Logged In 2/25/93	By T. ALTON

REPORT RESULTS TO

Name D. DESTEFANO | Title

Company CEC | Dept. EE

Mailing Address

City, State, Zip

Telephone No. | Telefax No.

SEND INVOICE TO

Purchase Order No. | Client Job No.

Name

Company HARSCH | Dept.

Address

City, State, Zip RICHMOND

Date Results Req.: STANDARD | Rush Charges Authorized? ☐ Yes ☒ No | Phone / Fax Results ☐ ☐

Special Instructions: (method, limit of detection, etc.)

* Explanation of Preservative: HCl ON BTEX + DIESEL

Samples are: (check if applicable)
☐ Drinking Water
☐ Collected in the State of New York

CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	8020 BTEX	8015 DIESEL	601	TCL	HOLD	FOR LAB USE ONLY
MW-2	2-25-93	H_2O	40 ML	2	X					01 A,B
"	"	"	1 LITER	2		X				C,D
"	"	"	40 ML	2			X			E,F
"	"	"	100 ML	1				X		G
MW-5B	"	"	40 ML	2	X					02 A,B
"	"	"	1 LITER	2		X				C,D
"	"	"	40 ML	2			X	X		E,F
"	"	"	100 ML	1				X		G
MW-11	"	"	40 ML	2			X			03 A,B
"	"	"	100 ML	1				X		C

TRIP BLANKS (2 vials)

CHAIN OF CUSTODY

Collected by: G WILLIAMS (print) | Collector's Signature: [signature] | * 04 A,B 05 A,B

Relinquished by: G WILLIAMS | Date/Time 2-25-93 1630 | Received by:

Relinquished by: | Date/Time | Received at Lab by: Eamon Kelton | Date/Time 2/25/93 1730 4:30pm

Method of Shipment: | Sample Condition Upon Receipt: ☒ Acceptable ☐ Other (explain)

Authorized by: _____ Date _____
(Client Signature Must Accompany Request)

TRIP BLANKS - 01A,B - 022593 HCl
05A,B - 022593

Please return completed form and samples to one of the Clayton Environmental Consultants, Inc. labs listed below:

22345 Roethel Drive, Novi, MI 48375, (313) 344-1770
Raritan Center, 160 Fieldcrest Ave., Edison, NJ 08837
400 Chastain Center Blvd., N.W., Suite 490, Kennesaw, GA 30144
1252 Quarry Lane, Pleasanton, CA 94566, (510) 426-2657

DISTRIBUTION:
WHITE - Clayton Laboratory
YELLOW - Clayton Accounting

Western Operations

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

February 26, 1993

Mr. Dariush Dastmalchi
CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
1252 Quarry Lane
Pleasanton, CA 94566

Client Ref. 45040.04
Clayton Project No. 93021.90

Dear Mr. Dastmalchi:

Attached is our analytical laboratory report for the samples received on February 16, 1993. A copy of the Chain-of-Custody form acknowledging receipt of these samples is attached.

Please note that any unused portion of the samples will be disposed of 30 days after the date of this report, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Suzanne Silvera, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Ronald H. Peters, CIH
Director, Laboratory Services
Western Operations

RHP/tb
Attachments

Results of Analysis
for
Clayton Environmental Consultants, Inc.

Client Reference: 45040.04
Clayton Project No. 93021.90

Sample Identification:	MW-22-8.5	Date Sampled:	02/16/93
Lab Number:	9302190-01A	Date Received:	02/16/93
Sample Matrix/Media:	SOIL	Date Prepared:	02/18/93
Preparation Method:	EPA 5030	Date Analyzed:	02/23/93
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (mg/kg)	Limit of Detection (mg/kg)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.005
Toluene	108-88-3	0.007	0.005
Ethylbenzene	100-41-4	ND	0.005
p,m-Xylenes	--	ND	0.005
o-Xylene	95-47-6	ND	0.005
Gasoline	--	ND	0.3

Surrogates		Recovery (%)	QC Limits (%) LCL	UCL
a,a,a-Trifluorotoluene	98-08-8	91	50	150

ND Not detected at or above limit of detection
-- Information not available or not applicable
Results are reported on a wet weight basis, as received

Results of Analysis
for
Clayton Environmental Consultants, Inc.

Client Reference: 45040.04
Clayton Project No. 93021.90

Sample Identification:	MW-23-4.5	Date Sampled:	02/16/93
Lab Number:	9302190-02A	Date Received:	02/16/93
Sample Matrix/Media:	SOIL	Date Prepared:	02/18/93
Preparation Method:	EPA 5030	Date Analyzed:	02/23/93
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (mg/kg)	Limit of Detection (mg/kg)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.005
Toluene	108-88-3	ND	0.005
Ethylbenzene	100-41-4	ND	0.005
p,m-Xylenes	--	ND	0.005
o-Xylene	95-47-6	ND	0.005
Gasoline	--	ND	0.3

Surrogates		Recovery (%)	QC Limits (%) LCL	UCL
a,a,a-Trifluorotoluene	98-08-8	90	50 - 150	

ND Not detected at or above limit of detection
-- Information not available or not applicable
Results are reported on a wet weight basis, as received

Results of Analysis
for
Clayton Environmental Consultants, Inc.

Client Reference: 45040.04
Clayton Project No. 93021.90

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9302190-03A	Date Received:	--
Sample Matrix/Media:	SOIL	Date Prepared:	02/18/93
Preparation Method:	EPA 5030	Date Analyzed:	02/23/93
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (mg/kg)	Limit of Detection (mg/kg)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.005
Toluene	108-88-3	ND	0.005
Ethylbenzene	100-41-4	ND	0.005
p,m-Xylenes	--	ND	0.005
o-Xylene	95-47-6	ND	0.005
Gasoline	--	ND	0.3

Surrogates		Recovery (%)	QC Limits (%) LCL	UCL
a,a,a-Trifluorotoluene	98-08-8	103	50 -	150

ND Not detected at or above limit of detection
-- Information not available or not applicable
Results are reported on a wet weight basis, as received

Results of Analysis
for
Clayton Environmental Consultants, Inc.

Client Reference: 45040.04
Clayton Project No. 93021.90

Sample Identification:	MW-23-4.5	Date Sampled:	02/16/93
Lab Number:	9302190-02A	Date Received:	02/16/93
Sample Matrix/Media:	SOIL	Date Prepared:	02/18/93
Preparation Method:	EPA 5030	Date Analyzed:	02/23/93
Analytical Method:	EPA 8010		

Analyte	CAS #	Concentration (mg/kg)	Limit of Detection (mg/kg)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.06
Bromomethane	74-83-9	ND	0.07
Vinyl chloride	75-01-4	ND	0.05
Chloroethane	75-00-3	ND	0.05
Methylene chloride	75-09-2	ND	0.2
1,1-Dichloroethene	75-35-4	ND	0.03
1,1-Dichloroethane	75-35-3	ND	0.04
Trans-1,2-Dichloroethene	156-60-5	ND	0.04
Cis-1,2-Dichloroethene	156-59-2	ND	0.04
Chloroform	67-66-3	ND	0.05
1,2-Dichloroethane	107-06-2	ND	0.03
1,1,1-Trichloroethane	71-55-6	ND	0.05
Carbon tetrachloride	56-23-5	ND	0.06
Bromodichloromethane	75-27-4	ND	0.07
1,2-Dichloropropane	78-87-5	ND	0.05
Cis-1,3-Dichloropropene	10061-01-5	ND	0.05
Trichloroethene	79-01-6	ND	0.03
Dibromochloromethane	124-48-1	ND	0.06
1,1,2-Trichloroethane	79-00-5	ND	0.06
Trans-1,3-Dichloropropene	10061-02-6	ND	0.06

ND Not detected at or above limit of detection
-- Information not available or not applicable
Results are reported on a wet weight basis, as received

Results of Analysis
for
Clayton Environmental Consultants, Inc.

Client Reference: 45040.04
Clayton Project No. 93021.90

Sample Identification:	MW-23-4.5	Date Sampled:	02/16/93
Lab Number:	9302190-02A	Date Received:	02/16/93
Sample Matrix/Media:	SOIL	Date Prepared:	02/18/93
Preparation Method:	EPA 5030	Date Analyzed:	02/23/93
Analytical Method:	EPA 8010		

Analyte	CAS #	Concentration (mg/kg)	Limit of Detection (mg/kg)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	0.1
Bromoform	75-25-2	ND	0.07
Tetrachloroethene	127-18-4	ND	0.05
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.05
Chlorobenzene	108-90-7	ND	0.07
1,3-Dichlorobenzene	541-73-7	ND	0.2
1,2-Dichlorobenzene	95-50-1	ND	0.4
1,4-Dichlorobenzene	106-46-7	ND	0.4
Dichlorodifluoromethane	75-71-8	ND	0.1
Trichlorofluoromethane	75-69-4	ND	0.04
Freon 113	76-13-1	ND	0.06

Surrogates		Recovery (%)	QC Limits (%) LCL - UCL
Bromochloromethane	74-97-5	95	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable
Results are reported on a wet weight basis, as received

Results of Analysis
for
Clayton Environmental Consultants, Inc.

Client Reference: 45040.04
Clayton Project No. 93021.90

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9302190-03A	Date Received:	--
Sample Matrix/Media:	SOIL	Date Prepared:	02/18/93
Preparation Method:	EPA 5030	Date Analyzed:	02/23/93
Analytical Method:	EPA 8010		

Analyte	CAS #	Concentration (mg/kg)	Limit of Detection (mg/kg)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.06
Bromomethane	74-83-9	ND	0.07
Vinyl chloride	75-01-4	ND	0.05
Chloroethane	75-00-3	ND	0.05
Methylene chloride	75-09-2	ND	0.2
1,1-Dichloroethene	75-35-4	ND	0.03
1,1-Dichloroethane	75-35-3	ND	0.04
Trans-1,2-Dichloroethene	156-60-5	ND	0.04
Cis-1,2-Dichloroethene	156-59-2	ND	0.04
Chloroform	67-66-3	ND	0.05
1,2-Dichloroethane	107-06-2	ND	0.03
1,1,1-Trichloroethane	71-55-6	ND	0.05
Carbon tetrachloride	56-23-5	ND	0.06
Bromodichloromethane	75-27-4	ND	0.07
1,2-Dichloropropane	78-87-5	ND	0.05
Cis-1,3-Dichloropropene	10061-01-5	ND	0.05
Trichloroethene	79-01-6	ND	0.03
Dibromochloromethane	124-48-1	ND	0.06
1,1,2-Trichloroethane	79-00-5	ND	0.06
Trans-1,3-Dichloropropene	10061-02-6	ND	0.06

ND Not detected at or above limit of detection
-- Information not available or not applicable
Results are reported on a wet weight basis, as received

Results of Analysis
for
Clayton Environmental Consultants, Inc.

Client Reference: 45040.04
Clayton Project No. 93021.90

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9302190-03A	Date Received:	--
Sample Matrix/Media:	SOIL	Date Prepared:	02/18/93
Preparation Method:	EPA 5030	Date Analyzed:	02/23/93
Analytical Method:	EPA 8010		

Analyte	CAS #	Concentration (mg/kg)	Limit of Detection (mg/kg)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	0.1
Bromoform	75-25-2	ND	0.07
Tetrachloroethene	127-18-4	ND	0.05
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.05
Chlorobenzene	108-90-7	ND	0.07
1,3-Dichlorobenzene	541-73-7	ND	0.2
1,2-Dichlorobenzene	95-50-1	ND	0.4
1,4-Dichlorobenzene	106-46-7	ND	0.4
Dichlorodifluoromethane	75-71-8	ND	0.1
Trichlorofluoromethane	75-69-4	ND	0.04
Freon 113	76-13-1	ND	0.06

Surrogates		Recovery (%)	QC Limits (%) LCL	UCL
Bromochloromethane	74-97-5	110	50 -	150

ND Not detected at or above limit of detection
-- Information not available or not applicable
Results are reported on a wet weight basis, as received

Results of Analysis
for
Clayton Environmental Consultants, Inc.

Client Reference: 45040.04
Clayton Project No. 93021.90

Sample Matrix/Media: SOIL
Preparation Method: EPA 3550
Analysis Method: EPA 8015

Date Received: 02/16/93
Date Prepared: 02/18/93
Date Analyzed: 02/18/93

Lab Number	Sample Identification	Date Sampled	Diesel (mg/kg)	Detectio Limit (mg/k
02A	MW-23-4.5	02/16/93	ND	1
03A	METHOD BLANK	--	ND	1

ND Not detected at or above limit of detection
< Not detected at or above limit of detection
-- Information not available or not applicable

Results are reported on a wet weight basis, as received

Results of Analysis
for
Clayton Environmental Consultants, Inc.

Client Reference: 45040.04
Clayton Project No. 93021.90

Sample Matrix/Media: SOIL
Preparation Method: EPA 3550
Analysis Method: EPA 8015

Date Received: 02/16/93
Date Prepared: 02/18/93
Date Analyzed: 02/18/93

Lab Number	Sample Identification	Date Sampled	TPH as Motor Oil (mg/kg)	Detectio Limit (mg/kg
02A	MW-23-4.5	02/16/93	ND	4
03A	METHOD BLANK	--	ND	4

ND Not detected at or above limit of detection
< Not detected at or above limit of detection
-- Information not available or not applicable

Results are reported on a wet weight basis, as received

Clayton ENVIRONMENTAL CONSULTANTS

A Marsh & McLennan Company

REQUEST FOR LABORATORY ANALYTICAL SERVICES

For Clayton Use Only	Page 1 of 1
Project No. 45040.04	
Batch No. 93022490	
Ind. Code	W.P.
Date Logged In 2/17/93	By TS

REPORT RESULTS TO

Name Dariusz Dziewulski | Title
Company | Dept.
Mailing Address
City, State, Zip
Telephone No. | Telefax No.

SEND INVOICE TO

Purchase Order No. | Client Job No.
Name Haresh
Company | Dept.
Address
City, State, Zip

Date Results Req.: Routine | Rush Charges Authorized? ☐ Yes ☒ No | Phone / Fax Results ☐ ☐

Special Instructions: (method, limit of detection, etc.)

* Explanation of Preservative

Samples are: (check if applicable)
☐ Drinking Water
☐ Collected in the State of New York

CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Health & Safety	TPHG/BTEX	TPH-G/BTEX	TPH-Diesel	TPH-M.Oil	8010					FOR LAB USE ONLY
MW-22-8.5	2-16-93	Soil	B.C.	1	X	X									01A
MW-23-4.5	↓	↓	↓	1	X		X	X	X	X					02A

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request; Enter a 'P' if Preservative added. *)

CHAIN OF CUSTODY

Collected by: Dariusz Dziewulski (print) | Collector's Signature:
Relinquished by: Dariusz Dziewulski | Date/Time 2/16/93
Received by: [signature] | Date/Time 2/16/93 7:05p
Relinquished by: | Date/Time
Received at Lab by: | Date/Time
Method of Shipment:
Sample Condition Upon Receipt: ☐ Acceptable ☐ Other (explain)

Authorized by: _____ Date _____
(Client Signature Must Accompany Request)

Please return completed form and samples to one of the Clayton Environmental Consultants, Inc. labs listed below:

22345 Roethel Drive, Novi, MI 48375
Raritan Center, 160 Fieldcrest Ave.
400 Chastain Center Blvd., N.W., Suite 490
1252 Quarry Lane, Pleasanton, CA 94566

DISTRIBUTION:
WHITE - Clayton Laboratory
YELLOW - Clayton Accounting

Western Operations

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

March 9, 1993

Mr. Dariush Dastmalchi
CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
1252 Quarry Lane
Pleasanton, CA 94566

Client Ref. 45040.01
Clayton Project No. 93022.80

Dear Mr. Dastmalchi:

Attached is our analytical laboratory report for the samples received on February 24, 1993. On March 2, 1993, you cancelled analysis of samples for metals and EPA Method 8270. A copy of the Chain-of-Custody form acknowledging receipt of these samples is attached.

Please note that any unused portion of the samples will be disposed of 30 days after the date of this report, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Suzanne Silvera, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Ronald H. Peters, CIH
Director, Laboratory Services
Western Operations

RHP/tb
Attachments

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification:	MW-23	Date Sampled:	02/24/93
Lab Number:	9302280-01A	Date Received:	02/24/93
Sample Matrix/Media:	WATER	Date Prepared:	03/01/93
Preparation Method:	EPA 5030	Date Analyzed:	03/01/93
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
p,m-Xylenes	--	ND	0.4
o-Xylene	95-47-6	ND	0.4
Gasoline	--	ND	50
Surrogates		**Recovery (%)**	**QC Limits (%)**
a,a,a-Trifluorotoluene	98-08-8	115	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification:	MW-15	Date Sampled:	02/24/93
Lab Number:	9302280-04A	Date Received:	02/24/93
Sample Matrix/Media:	WATER	Date Prepared:	03/01/93
Preparation Method:	EPA 5030	Date Analyzed:	03/01/93
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
p,m-Xylenes	--	ND	0.4
o-Xylene	95-47-6	ND	0.4
Gasoline	--	ND	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	110	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification:	MW-14	Date Sampled:	02/24/93
Lab Number:	9302280-05A	Date Received:	02/24/93
Sample Matrix/Media:	WATER	Date Prepared:	03/01/93
Preparation Method:	EPA 5030	Date Analyzed:	03/01/93
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
p,m-Xylenes	--	ND	0.4
o-Xylene	95-47-6	ND	0.4
Gasoline	--	ND	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	113	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9302280-06A	Date Received:	--
Sample Matrix/Media:	WATER	Date Prepared:	03/01/93
Preparation Method:	EPA 5030	Date Analyzed:	03/01/93
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
p,m-Xylenes	--	ND	0.4
o-Xylene	95-47-6	ND	0.4
Gasoline	--	ND	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	111	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification: MW-23
Lab Number: 9302280-01C
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/24/93
Date Received: 02/24/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	ND	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification: MW-23
Lab Number: 9302280-01C
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/24/93
Date Received: 02/24/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL - UCL
Bromochloromethane	74-97-5	86	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification: MW-16
Lab Number: 9302280-03A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/24/93
Date Received: 02/24/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	ND	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification: MW-16
Lab Number: 9302280-03A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/24/93
Date Received: 02/24/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL UCL
Bromochloromethane	74-97-5	85	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification:	MW-15	Date Sampled:	02/24/93
Lab Number:	9302280-04E	Date Received:	02/24/93
Sample Matrix/Media:	WATER	Date Analyzed:	03/01/93
Analytical Method:	EPA 601		

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	ND	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification: MW-15
Lab Number: 9302280-04E
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/24/93
Date Received: 02/24/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL	UCL
Bromochloromethane	74-97-5	104	50	150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification: MW-14
Lab Number: 9302280-05E
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/24/93
Date Received: 02/24/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	3.4	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	ND	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification: MW-14
Lab Number: 9302280-05E
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: 02/24/93
Date Received: 02/24/93
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL - UCL
Bromochloromethane	74-97-5	104	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification: METHOD BLANK
Lab Number: 9302280-06A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: --
Date Received: --
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	ND	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Identification: METHOD BLANK
Lab Number: 9302280-06A
Sample Matrix/Media: WATER
Analytical Method: EPA 601

Date Sampled: --
Date Received: --
Date Analyzed: 03/01/93

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (continued)			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

Surrogates		Recovery (%)	QC Limits (%) LCL - UCL
Bromochloromethane	74-97-5	95	50 - 150

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Matrix/Media: WATER
Preparation Method: SM 5520B
Analysis Method: SM 5520F

Date Received: 02/24/93
Date Prepared: 03/01/93
Date Analyzed: 03/02/93

Lab Number	Sample Identification	Date Sampled	Hydrocarbons (mg/L)	Detecti Limit (mg/L
01H	MW-23	02/24/93	ND	5
06A	METHOD BLANK	--	ND	5

ND Not detected at or above limit of detection
< Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Matrix/Media: WATER
Analysis Method: EPA 160.1

Date Received: 02/24/93
Date Analyzed: 03/04/93

Lab Number	Sample Identification	Date Sampled	Total Dissolved Solids (mg/L)	Detecti Limit (mg/L
01J	MW-23	02/24/93	160	10
03C	MW-16	02/24/93	24,000	10
04G	MW-15	02/24/93	880	10
05G	MW-14	02/24/93	2,000	10
06A	METHOD BLANK	--	<10	10

ND Not detected at or above limit of detection
< Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Harsch Investments

Client Reference: 45040.01
Clayton Project No. 93022.80

Sample Matrix/Media: WATER
Preparation Method: EPA 3510
Analysis Method: EPA 8015

Date Received: 02/24/93
Date Prepared: 02/26/93
Date Analyzed: 03/01/93

Lab Number	Sample Identification	Date Sampled	Diesel (ug/L)	Detecti Limit (ug/L
01F	MW-23	02/24/93	ND	50
04C	MW-15	02/24/93	200 a	50
05C	MW-14	02/24/93	660 a	50
06A	METHOD BLANK	--	ND	50

ND Not detected at or above limit of detection
< Not detected at or above limit of detection
-- Information not available or not applicable

[a]Note: The hydrocarbons detected in these samples appear to be intermediate between diesel and motor oil: quantitation was based on diesel standards.

Clayton ENVIRONMENTAL CONSULTANTS

A Marsh & McLennan Company

REQUEST FOR LABORATORY ANALYTICAL SERVICES

For Clayton Use Only	Page 1 of 2
Project No.	45210.01
Batch No.	9302280
Ind. Code	W.P.
Date Logged In 2/25/93	By TB

REPORT RESULTS TO

Name D. DAESTMACHT | Title
Company CEC | Dept. EE
Mailing Address
City, State, Zip
Telephone No. | Telefax No.

SEND INVOICE TO

Purchase Order No. | Client Job No.
Name
Company HARSCH | Dept.
Address
City, State, Zip ALAMEDA

Date Results Req.: STANDARD | Rush Charges Authorized? ☐ Yes ☒ No | Phone / Fax Results ☐ ☐

Special Instructions: (method, limit of detection, etc.)
* - Cd, Cr, Pb, Zn, Ni
Explanation of Preservative: HCl, HNO3

Samples are: (check if applicable)
☐ Drinking Water
☐ Collected in the State of New York

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request; Enter a 'P' if Preservative added. *)

CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	5030/8015-8020 Gas Effect	601	6010 Metals *	3510/8015 Diesel	5520 O/G Oil & Grease	TOX	8270 + PCB's	H2S	FOR LAB USE ONLY
MW-2,3 w/HCl	2-24-93	H2O	40ML	2	XP								01A,B
"	"	"	40ML	2		X							C,D
" w/HNO3	"	"	500ML	1			XP						E
" w/HCl	"	"	1L	2				XP					F,G
" w/HCl	"	"	1L	2					XP				H,I
"	"	"	500ML	1						X			J
"	"	"	1L	2							X		K,L
TRIP W/O PRES.	"	"	40ml	2							XP		02AB
TRIP W/ PRES HCl	"	"	↓	2							XP		C,D

CHAIN OF CUSTODY

Collected by: G WILLIAMS (print) | Collector's Signature:
Relinquished by: G WILLIAMS | Date/Time 2-24-93 1800 | Received by:
Relinquished by: | Date/Time | Received at Lab by: | Date/Time 2/24/93 6:00
Method of Shipment: | Sample Condition Upon Receipt: ☒ Acceptable ☐ Other (explain)

Authorized by: _____ Date _____
(Client Signature Must Accompany Request)

Please return completed form and samples to one of the Clayton Environmental Consultants, Inc. labs listed below:

22345 Roethel Drive, Novi, MI 48375 | Raritan Center, 160 Fieldcrest Ave. | 400 Chastain Center Blvd., N.W., Suite 490 | 1252 Quarry Lane, Pleasanton, CA 94566

DISTRIBUTION:
WHITE - Clayton Laboratory
YELLOW - Clayton Accounting

Clayton
ENVIRONMENTAL CONSULTANTS
A Marsh & McLennan Company

REQUEST FOR LABORATORY ANALYTICAL SERVICES

For Clayton Use Only	Page 2 of 3
Project No. 45040.01	
Batch No. 9302280	
Ind. Code	W.P.
Date Logged In 2/25/93	By TS

REPORT RESULTS TO
Name D. DALSTRACH 1 — Title
Company CEC — Dept. EE
Mailing Address
City, State, Zip
Telephone No. — Telefax No.

Purchase Order No. — Client Job No.

SEND INVOICE TO
Name
Company HARSCH — Dept.
Address
City, State, Zip ALAMEDA

Date Results Req.: STANDARD
Rush Charges Authorized? ☐ Yes ☒ No
Phone / Fax Results ☐ ☐

Samples are: (check if applicable)
☐ Drinking Water
☐ Collected in the State of New York

Special Instructions: (method, limit of detection, etc.)

* Explanation of Preservative:

ANALYSIS REQUESTED (Enter an 'X' in the box below to indicate request; Enter a 'P' if Preservative added. *)

CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	601	TDS	EPA 5030/8015 8020 GAS BTEX	3510/8015 DIESEL							FOR LAB USE ONLY
MW-16	2-24-93	H2O	40ML	2	X										03A,B
MW-16	"	"	250ML	1		X									C
MW-15	"	"	40ML	2			X								04A,B
MW-15	"	"	1 LITER	2				XP							C,D
MW-15	"	"	40ML	2	X										E,F
MW-15	"	"	250ML	1		X									G
MW-14	"	"	40ML	2			X								05A,B
MW-14	"	"	1 LITER	2				XP							C,D
MW-14	"	"	40ML	2	X										E,F
MW-14	"	"	250ML	1		X									G

CHAIN OF CUSTODY
Collected by: G WILLIAMS (print) — Collector's Signature: [signature]
Relinquished by: G WILLIAMS — Date/Time 2-24-93 1800 — Received by: — Date/Time
Relinquished by: — Date/Time — Received at Lab by: [signature] — Date/Time 2/24/93 1600
Method of Shipment: — Sample Condition Upon Receipt: ☒ Acceptable ☐ Other (explain)

Authorized by: ____________ Date ________
(Client Signature Must Accompany Request)

Please return completed form and samples to one of the Clayton Environmental Consultants, Inc. labs listed below:

22345 Roethel Drive, Novi, MI 48375
Raritan Center, 160 Fieldcrest Ave., Edison, NJ
400 Chastain Center Blvd., N.W., Suite 490
1252 Quarry Lane, Pleasanton, CA 94566

DISTRIBUTION:
WHITE - Clayton Laboratory
YELLOW - Clayton Accounting

Clayton ENVIRONMENTAL CONSULTANTS

A Marsh & McLennan Company

REQUEST FOR LABORATORY ANALYTICAL SERVICES

For Clayton Use Only	Page 3 of 3
Project No. 45040.01	
Batch No. 9302280	
Ind. Code	W.P.
Date Logged In 2/25/93	By TS

REPORT RESULTS TO

Name D. DAUGHMACH | Title

Company CEC | Dept. EE

Mailing Address

City, State, Zip

Telephone No. | Telefax No.

Purchase Order No. | Client Job No.

SEND INVOICE TO

Name

Company HARCH | Dept.

Address

City, State, Zip

Date Results Req.: STAND | Rush Charges Authorized? ☐ Yes ☑ No | Phone / Fax Results ☐ ☐

Special Instructions: (method, limit of detection, etc.)

* Explanation of Preservative: HCl

Samples are: (check if applicable)
☐ Drinking Water
☐ Collected in the State of New York

ANALYSIS REQUESTED (Enter an 'X' in the box below to indicate request; Enter a 'P' if Preservative added. *)

CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	HOLD										FOR LAB USE ONLY
~~Mw-22~~			L												
TRIP BLANK W/FREE HCl	2-24-93	H_2O	40ML	2	X										CDEF GH
" " W/O FREE	"	"	40ML	2	X										

CHAIN OF CUSTODY

Collected by: E WILLIAMS (print) | Collector's Signature:

Relinquished by: E WILLIAMS | Date/Time | Received by: | Date/Time

Relinquished by: | Date/Time | Received at Lab by: | Date/Time 2/25/93 600

Method of Shipment: | Sample Condition Upon Receipt: ☐ Acceptable ☐ Other (explain)

Authorized by: _____ Date _____

(Client Signature Must Accompany Request)

Please return completed form and samples to one of the Clayton Environmental Consultants, Inc. labs listed below:

22345 Roethel Drive, Novi, MI 48375 | Raritan Center, 160 Fieldcrest Ave. | 400 Chastain Center Blvd., N.W., Suite 490 | 1252 Quarry Lane, Pleasanton, CA 94566

DISTRIBUTION:
WHITE - Clayton Laboratory
YELLOW - Clayton Accounting

APPENDIX B

EXTRACTED SOIL VAPOR AND GROUNDWATER TREATMENT SYSTEM DRAWINGS

SCOPE OF WORK

DESIGN, PERMITTING, AND INSTALLATION OF A SOIL AND GROUNDWATER REMEDIATION SYSTEM

CONSULTANTS

CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS
1517 PALMETTO AVENUE SUITE 4
PACIFICA, CALIFORNIA 94044
TELEPHONE (415) 738-1115

AGENCIES

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 ELLIS STREET
SAN FRANCISCO, CALIFORNIA 94109

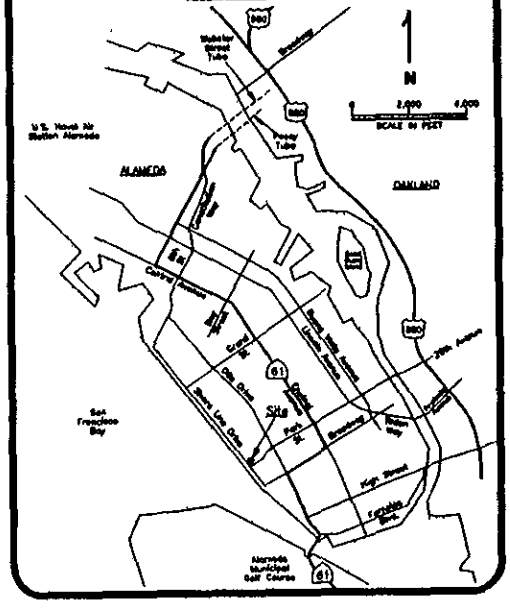
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
2101 WEBSTER STREET, SUITE 500
OAKLAND, CALIFORNIA 94612

EAST BAY MUNICIPAL UTILITIES DISTRICT
P.O. BOX 24055
OAKLAND, CALIFORNIA 94623-1055

ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY
DEPARTMENT OF ENVIRONMENTAL HEALTH
HAZARDOUS MATERIALS DIVISION
80 SWAN WAY, ROOM 200
OAKLAND, CALIFORNIA 95621

INDEX OF DRAWINGS

VICINITY MAP

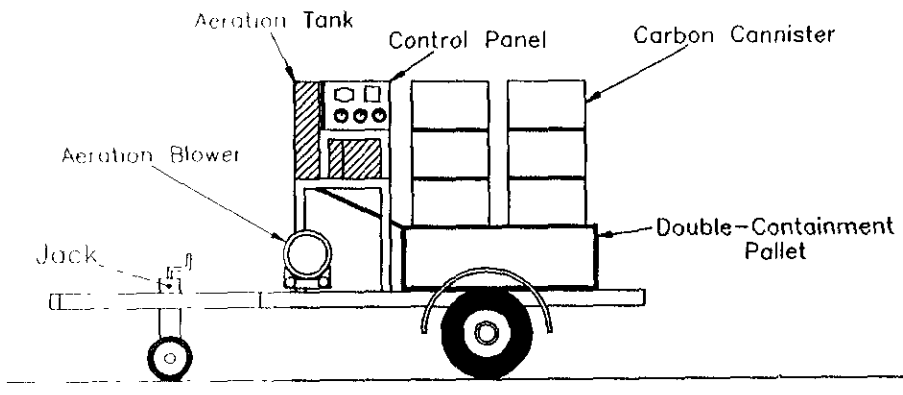


CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

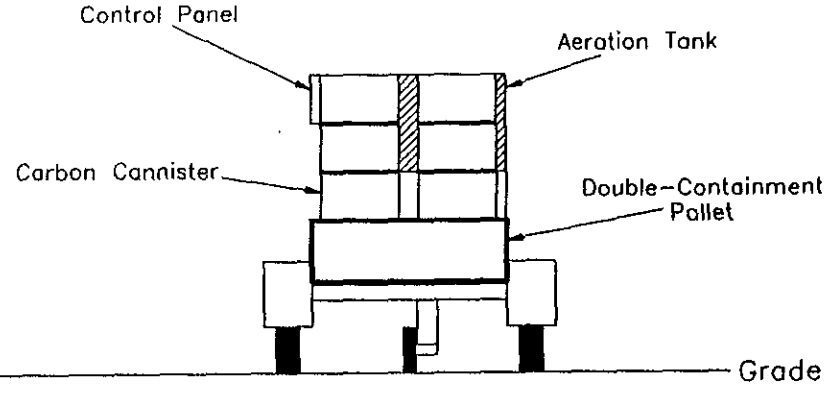
CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

Proposed Construction at:
FORMER TEXACO SERVICE STATION
2375 SHORELINE DRIVE
ALAMEDA, CALIFORNIA

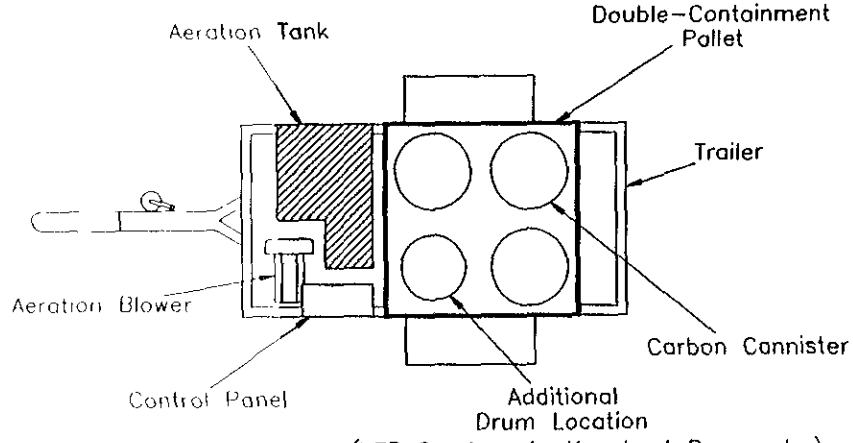
SIDE VIEW



REAR VIEW



PLAN VIEW



Instrumentation Readouts

Flow Meter
Flow Totalizer
Inlet High Pressure Switch
Inlet High-High Pressure Switch
Aeration Tank High-High Level Switch
Activated Carbon High Pressure Switch

Sample Ports

Influent (Between Aeration Tank And First Carbon Cannister)
Effluent (Between Carbon Cannisters)
Easy Disconnects At Carbon Cannisters

Remote Signal Capabilities

Water Flow
Total Water Flow
On/Off Status

0 4 8

APPROXIMATE SCALE IN FEET

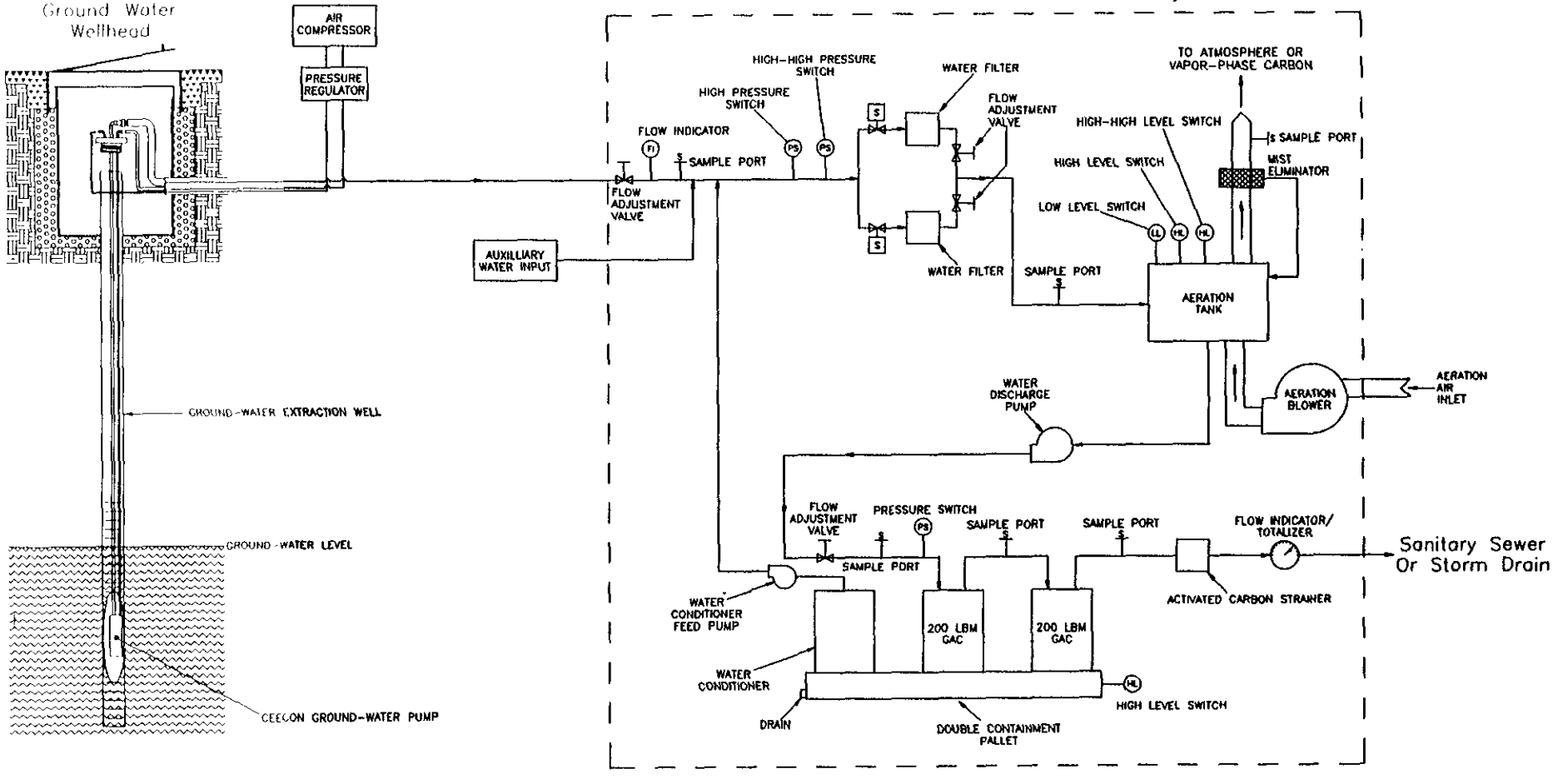
CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

Drawing: GTS-1

Date: 5/1/92

Trailer-Mounted Groundwater Treatment System

CEECON Skid-Mounted or Trailer-Mounted Ground-Water Treatment System



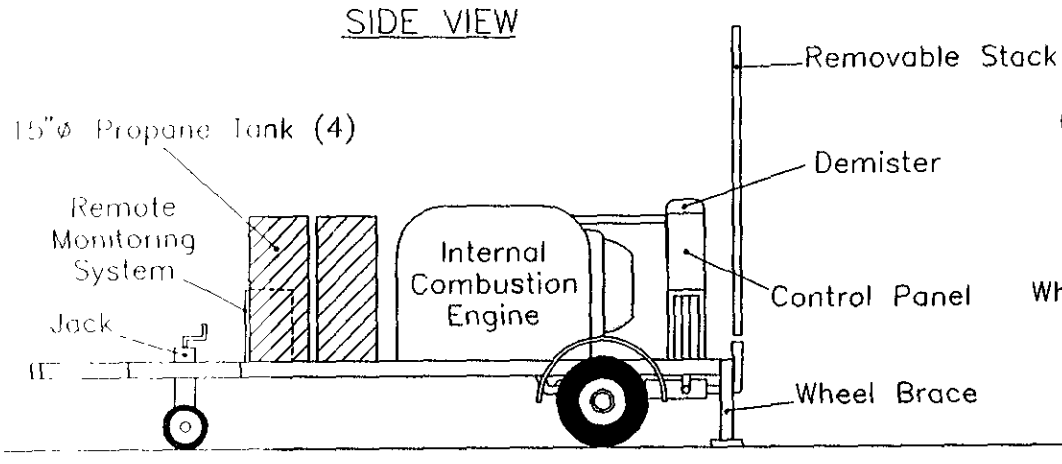
CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

Drawing: GTS-2

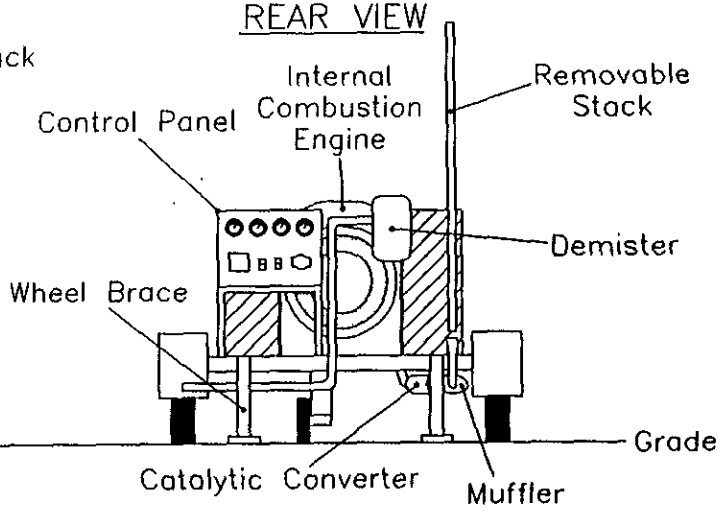
Date: 5/1/92

Ground-Water Extraction And Treatment System Process Diagram

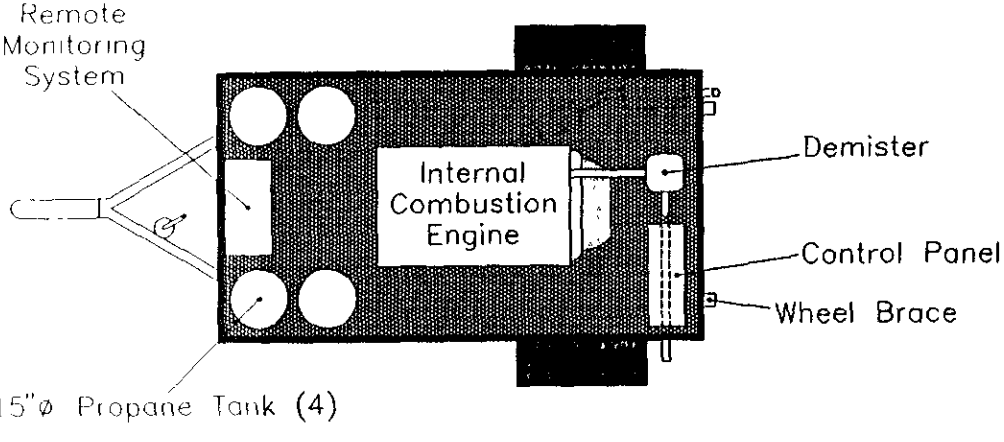
SIDE VIEW



REAR VIEW



PLAN VIEW



Instrumentation Readouts

Engine Flow Meter
Engine R.P.M.
Engine Temperature In Degrees Fahrenheit
Engine Intake Vacuum In Inches Of Mercury
Well Vacuum In Inches Of Water Column
Well Air Flow In Cubic Feet Per Minute
Well Air Flow Temperature In Degrees Fahrenheit

Sample Ports

Influent (Engine Intake)
Effluent (Stack)

Remote Signals

Propane Level
Engine ON/OFF Status

0 4 8

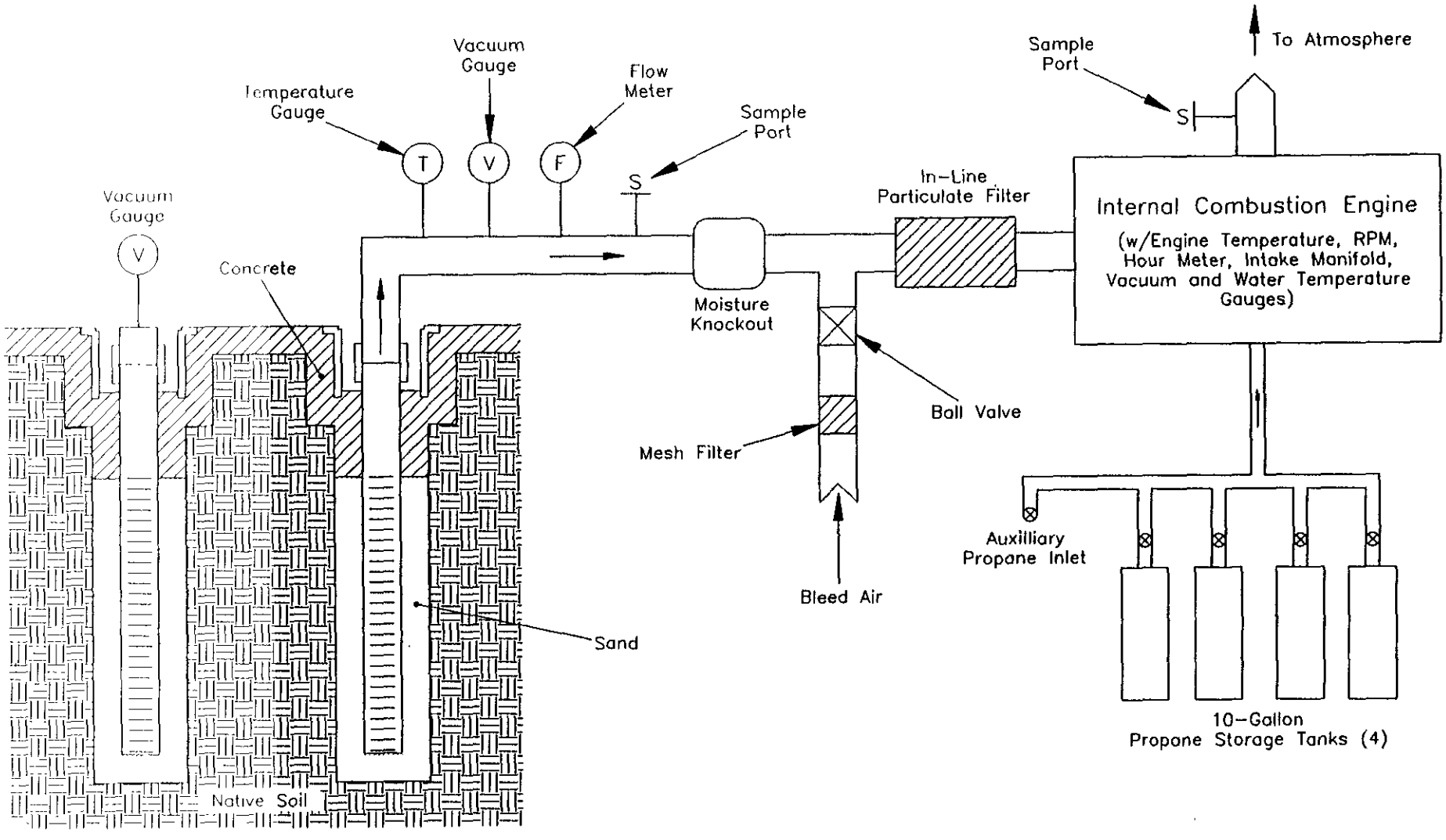
APPROXIMATE SCALE IN FEET

CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

Drawing: VET-1

Date: 5/1/92

Vapor-Extraction Internal Combustion Engine

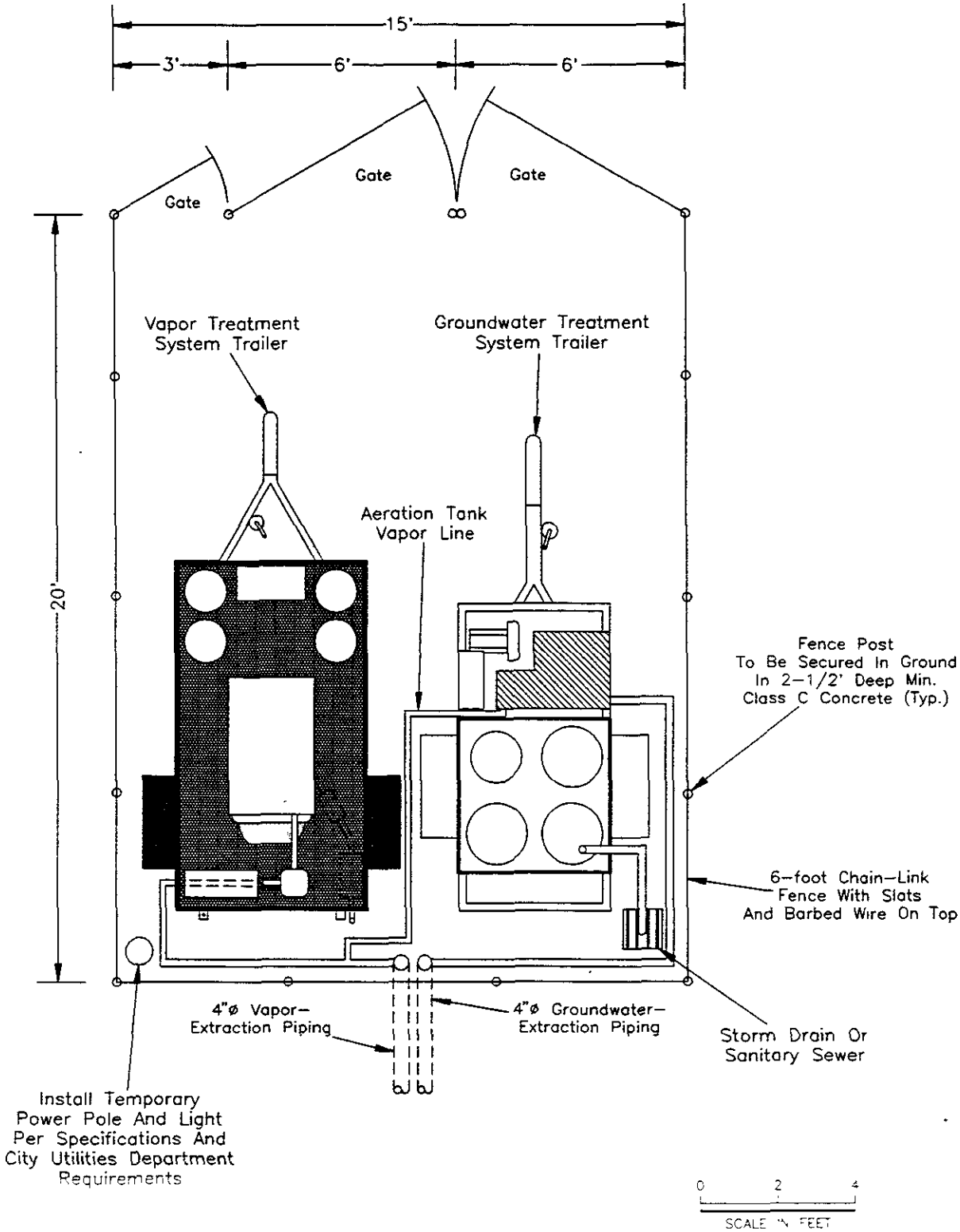


CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

Drawing: VET-2

Date: 5/1/92

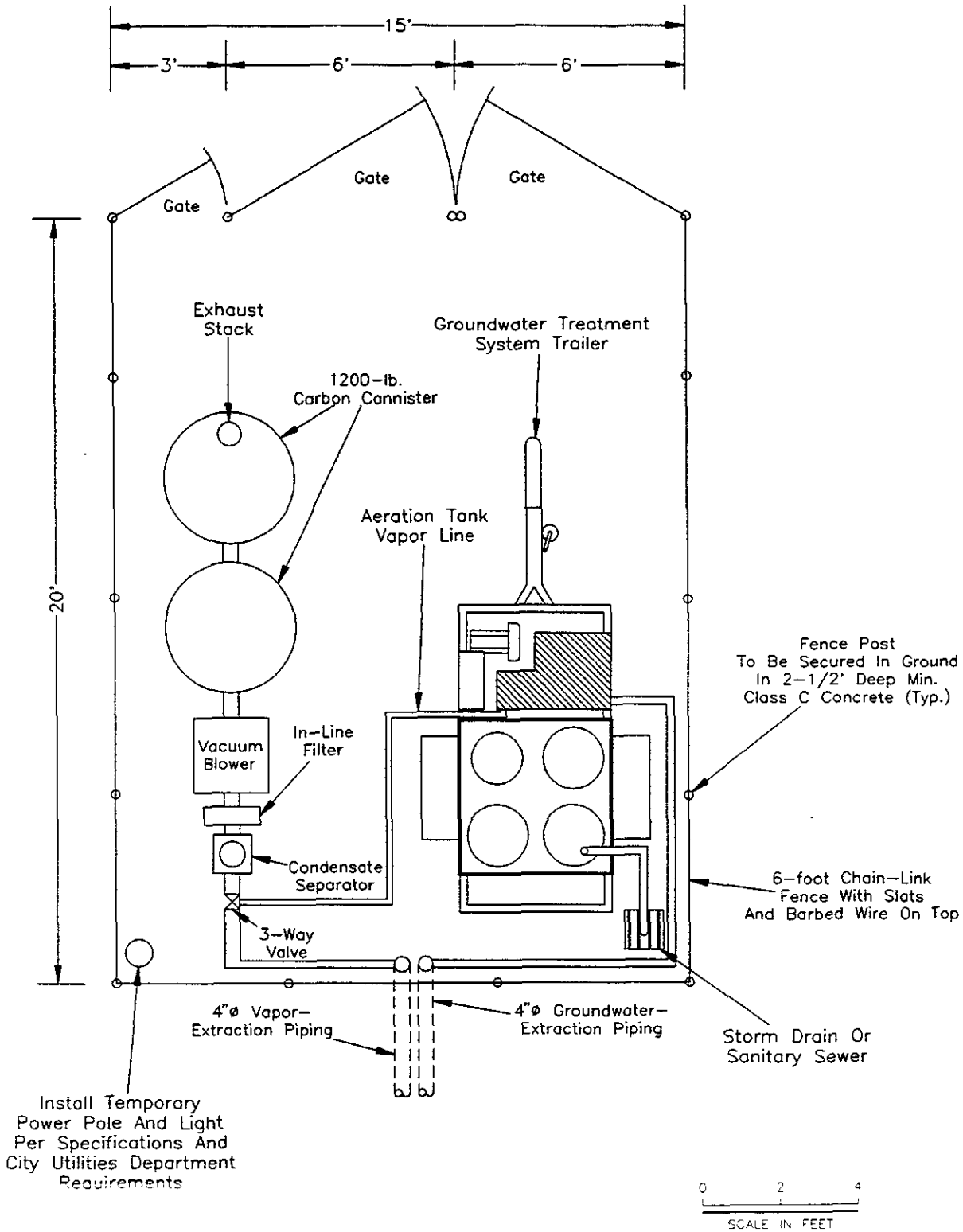
Vapor-Extraction Test Internal Combustion Engine Process Diagram



CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

Drawing RCL-1 | Date: 9/15/92

Initial Remediation Compound Layout



CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

Long-Term Remediation Compound Layout

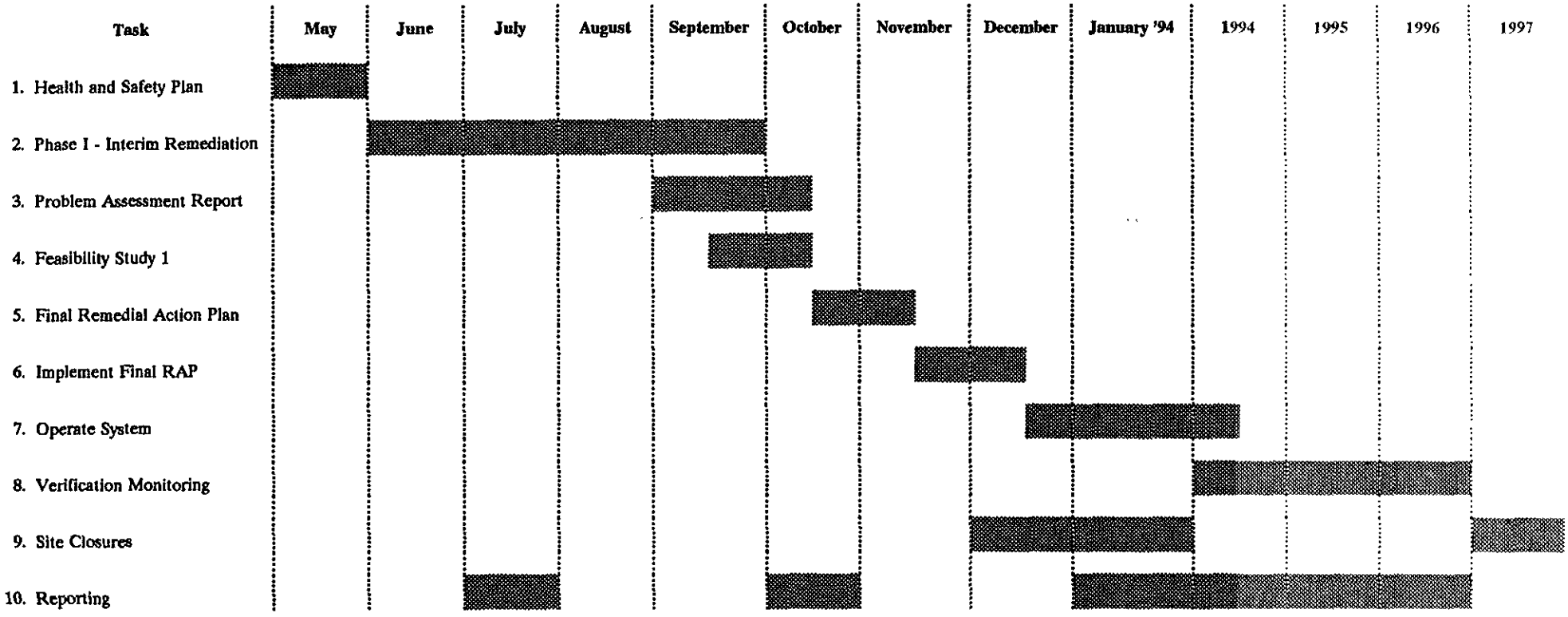
Drawing PCL-2

Date. 9/15/92

APPENDIX C

SCHEDULE OF REMEDIATION

SCHEDULE OF REMEDIATION



Target Report Dates:

Next Quarterly Update	- July 9
PAR	- October 16
FS	- October 16
Final RAP	- December 17