

Grubb & Ellis Realty Income Trust

April 24, 1990

Mr. Alex Baillie
Source Control Inspector
CITY OF LIVERMORE
1250 Kitty Hawk Road
Livermore, CA 94550

Re: Livermore Arcade Shopping Center
Livermore, California

Dear Mr. Baillie:

In connection with a pending sale of the above-referenced property, the purchaser, Hopkins Development Company, conducted an environmental survey. In the course of that survey, the consultant, Hygienetics, Inc., documented the presence of groundwater contamination beneath the property. We enclose a copy of Hygienetics' report dated April 13, 1990.

Please don't hesitate to contact me if I can answer any questions.

Sincerely,

GRUBB & ELLIS REALTY INCOME TRUST



John E. Hyjer
Vice President

JEH:py

Enclosure

cc: Bill Adams, City of Livermore
Gil Wistar, Alameda County - Dept. of Environmental Health
Richard Hyatt, Alameda Regional Water Board
Beacon Oil Company
Steve Song, Mike's One Hour Cleaners

Phase II Subsurface Investigation
Livermore Arcade Shopping Center
First Street and South P Street
Livermore, California

Prepared for:

Hopkins Development Company
7677 Oakport Street
Suite 480
Oakland, CA 94621

Prepared by:

Hygienetics Inc.
2200 Powell Street, Suite 880
Emeryville, California

April 3, 1990
Project No. 48001-33

MW2/INVARC15

MW/gm

Hygienetics Inc.

1.0 SUMMARY OF FINDINGS

Hygienetics investigated the Livermore Arcade Shopping Center property for contaminated groundwater. Groundwater contamination was detected in two monitoring wells (MW1, MW2) installed at the Site. Chlorinated and non-chlorinated hydrocarbon contamination was identified on Site in excess of California drinking water standards. The site groundwater is currently used as a drinking water source for the city of Livermore, CA. There is a high probability remediation will be required by the regulatory agencies. Copies of this report and a completed unauthorized release form must be sent within five days to the following:

Gil Wistar
Alameda County Health Dept.
Dept. of Environmental Health
80 Swan Way, #200
Oakland, CA 94621
Telephone: (415) 271-4320

and

Lester Feldman
RWQCB
1800 Harrison, #700
Oakland, CA 94621
Telephone: (415) 464-1332

2.0 INTRODUCTION

2.1 Purpose and Scope

This is a report of a subsurface investigation of the Livermore Arcade Shopping Center property located at First Street and South P Street, Livermore, California, hereinafter referred to as the "Site". This investigation was conducted on behalf of Hopkins Development Company. The purpose of this investigation was to determine if the groundwater at the Site, which is a source of public drinking water, has been contaminated from off-site sources. This investigation is subject to the terms and limitations included as Appendix D of this report.

In order to sample the groundwater at the Site, three monitoring wells were installed at locations shown in Figure 1. Groundwater samples were collected and transferred by chain of custody procedures to a California licensed analytical laboratory. Hygienetics reviewed the results of the analysis and made further recommendations based on these results.

2.2 Site Location

The Livermore Arcade Shopping Center is located at the northwest corner of First Street and South P Street in downtown Livermore, California. Railroad Avenue borders the Site to the north. South S Street borders the Site to the west.

2.3 Site Description

The Livermore Arcade Shopping Center houses fourteen businesses, (12 retail stores and 2 restaurants). The Site occupies approximately 11.75 acres, including the asphalt parking areas and on-Site thoroughfares. Site topography appears relatively flat with surface runoff moving to the north, and west. The Site is located in a critical groundwater recharge area according to the Regional Water Quality Control Board (RWQCB).

2.4 Background

Hygienetics conducted an Environmental Site Assessment of the Livermore Arcade Shopping Center property on behalf of Hopkins Development Company in February 1990 (report dated February 27, 1990). Hygienetics discovered that a regional groundwater problem exist which effects the drinking water source for the City of Livermore. Perchloroethylene and nitrate concentrations have been found in California Water Service Well #10, down gradient from the Site.

Hygienetics found no evidence of significant oil or hazardous material spills on the Site, but considered the fact that off-site contamination may have impacted the groundwater at the Site.

From a review of files at the RWQCB, Hygienetics found ten properties with leaking underground storage tanks located within a one-mile radius of the Site. Hygienetics informed Hopkins Development Company that there is a high potential contaminated groundwater could have migrated onto the Site. Considering the given information, Hygienetics proposed to install three groundwater monitoring wells at the Site.

3.0 FIELD INVESTIGATION

3.1 Soil Boring

On March 21 and 22, 1990, three soil borings were advanced on Site by Datum Exploration of Pittsburg, California under the supervision of Hygienetics geologist, Michael Wright. The borings were drilled using a truck-mounted, CME-75 test boring drill rig equipped with 8-inch outside diameter, continuous-flight, hollow-stem augers. The auger flights were steam-cleaned

prior to use in each boring to minimize the possibility of cross-boring contamination. Each of the borings were placed to evaluate potential groundwater contamination from one On-Site and other off-site sources. Boring MW1 is located near the southeast corner of the property; boring MW2 is located in the northwestern portion of the property; boring MW3 is located near the far southwest corner of the property (Figure 1).

A geologic cross section of the Site, based on the soil data obtained from the borings shows a generalized picture of subsurface conditions (Figure 2). Monitoring wells MW1, MW2 and MW3 were drilled to a depth of 65 feet, 55 feet, and 60 feet respectively.

In general, the first five to fifteen feet of soil consisted of brown silt with poorly sorted gravel. Below the silty gravels were gravels with a brown clayey silt matrix changing to a brown silty clay matrix at depth. Brown clay lenses were noted at the 20-40 foot depth interval. No hydrocarbon odors were noticed while logging the borings or while installing the monitoring wells (Appendix A).

3.2 Groundwater Monitoring Well Installation

Monitoring wells MW1, MW2, and MW3 were installed in borings B-1, B-2, and B-3, respectively. The monitoring wells were constructed in accordance with the Alameda County Zone 7 Permitting and Construction Procedures. Monitoring wells were constructed of 2.0 inch inner diameter, flush jointed, Schedule 40 PVC risers attached to factory perforated, 0.020 inch slotted PVC well screen sections. The base of each well was fitted with a threaded PVC plug. The annuli between the screen and the auger hole were packed with #2 Monterey Sand to approximately two feet above the screen. An approximately two foot thick bentonite pellet plug was then placed above the sand. The remaining annular spaces around the riser sections were grouted with neat cement to near grade. A cast iron christie box, with galvanized steel apron, was set in concrete over each well and finished flush with the surrounding asphalt. The top of each well casing was fitted with a watertight, locking cap. Details of each wells' construction are indicated on the Well Construction Diagrams (Appendix A).

3.3 Groundwater Measurements

On March 23, 1990 the three monitoring wells were surveyed and the groundwater elevations measured. On March 24, 1990, the groundwater elevations were remeasured. The measurements revealed that the groundwater gradient was not in the precise direction expected.

Groundwater was measured at 42.6 feet in MW1, at 39.3 feet in MW2, and at 34.3 feet in MW3. Based on these measurements, the possible slope of the potentiometric surface across the Site at the time of measurement was to the north-northeast. There are numerous factors which affect the groundwater elevation and which would influence the slope of the potentiometric surface. These include seasonal variations in rainfall, local well pumping activity and other factors. The calculated direction of groundwater flow at the time of measurement is illustrated on Figure 1. The approximate location of the groundwater surface in the wells is also indicated on Figure 2, the Geologic Cross Section.

3.4 Groundwater Sampling and Analysis

Groundwater samples were obtained from each of the three wells on two occasions: March 23, and March 24, 1990. Prior to sampling, a minimum of three standing volumes of water were purged from each well utilizing a pre-cleaned teflon bailer. The associated equipment was cleaned between each well with de-ionized water to minimize the potential for cross contamination. All samples were immediately placed on ice and transported under chain of custody protocol to Brown and Caldwell Laboratories. Chain of custody records are included in Appendix C.

The groundwater samples were analyzed for Volatile Organic Compounds (chlorinated and non-chlorinated hydrocarbons) by EPA Method 8040 and for Total Petroleum Hydrocarbons (TPH). None of the compounds analyzed for were detected in monitoring well MW3. Analysis of the samples from monitoring well MW1 found Benzene, Toluene, Xylene and Ethylbenzene (BTX & E); and total petroleum hydrocarbons (gasoline) in the groundwater. Analysis of samples from monitoring well MW2 found TPH and tetra-chloroethylene also known as perchloroethylene. The laboratory data is included in Appendix B. The contaminant concentrations discovered in the groundwater monitoring wells and the associated MCL (maximum concentration level, allowed by the State of California Department of Health Services) are shown in Table 1.

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 Discussion

Hygienetics investigated the Livermore Arcade Shopping Center for contaminated groundwater. Gasoline-derived groundwater contamination was found at two of the three groundwater monitoring wells (MW1, MW2) installed on Site. In addition, tetrachloroethylene was detected in monitoring well MW2.

The groundwater laboratory results reveal that levels of contaminants, well in excess of California MCL's, exist in monitoring wells MW1 and MW2, both of which are down gradient from potential contamination sources. These results demonstrate that significant contamination exists at those locations and will therefore be of concern to the regulatory agencies.

The levels of benzene, toluene, xylenes, ethyl benzene, and total petroleum hydrocarbons encountered in the groundwater at monitoring well MW1 indicate probable gasoline contamination. This indicates that the source of the contamination is most likely a gasoline service station located near this well site. There is a gas station (Beacon Service Station) directly across the street and upgradient from monitoring well MW1. Given such contamination, the immediate concern of the regulatory agencies is typically to determine the source and advise the responsible party(s) to fully investigate and remediate the contaminated area.

Tetrachloroethylene, contamination, found in monitoring well MW2, was also found in California Water Service Well #10 several years ago. This was mentioned in Hygienetics' Environmental Site Assessment of the Livermore Arcade Shopping Center (2/27/90). All reports reviewed and individuals questioned could not determine a source for that contamination. It is Hygienetics' experience that this type of contamination often is caused by dry cleaning facilities using improper procedures when maintaining the dry cleaning machines. A dry cleaning facility (Mike's One Hour Cleaners) is located on-Site upgradient of MW2. Unlike gasoline which tends to float on the groundwater surface, tetrachloroethylene is more dense than water and tends to sink below the groundwater table. To determine the extent of this contamination, monitoring wells need to be drilled to the bottom of the surface aquifer so the groundwater can be sampled where the tetrachloroethylene has settled.

Due to the current use of the local aquifer as a drinking water source the regulatory authorities will most likely require an investigation into the source of the tetrachloroethylene contamination through soil borings and continued groundwater sampling. Regulators may then insist upon a long term groundwater remediation program that will clean up all contamination to below drinking water standards [Maximum Contaminant Limits (MCL's)].

4.2 Recommendations

California environmental regulations require that the owner of a contaminated site notify the proper regulatory authorities of all soil and groundwater contamination. The Site is located in a critical groundwater recharge area and the groundwater in this area is used as a source for the City of Livermore's public drinking water.

Hygienetics recommends determining the source of the gasoline contamination by fingerprinting the gasoline impacting the Site and comparing the results with the Beacon Service Station.

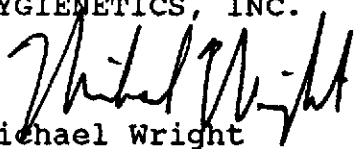
Hygienetics recommends that the Site investigation be expanded to test for soil contamination under Mike's One Hour Cleaners and to test for deep aquifer contamination. The drain pipe inside Mike's One-Hour Cleaners should be inspected for integrity by inserting a camera through the line to its connection point with the city sewer main.

Hygienetics will provide a work plan for Hopkins Development, at their request, which will outline the steps to be taken at this time, leading to remediation of the Livermore Arcade Shopping Center.

This report is respectfully submitted April 2, 1990.

Sincerely,

HYGIENETICS, INC.


Michael Wright
Geologist

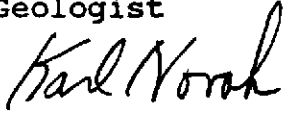

Karl Novak
Regional Manager
Environmental Site Assessment Group

TABLE 1
SUMMARY OF ANALYTICAL RESULTS

TABLE 1

SUMMARY OF ANALYTICAL RESULTS

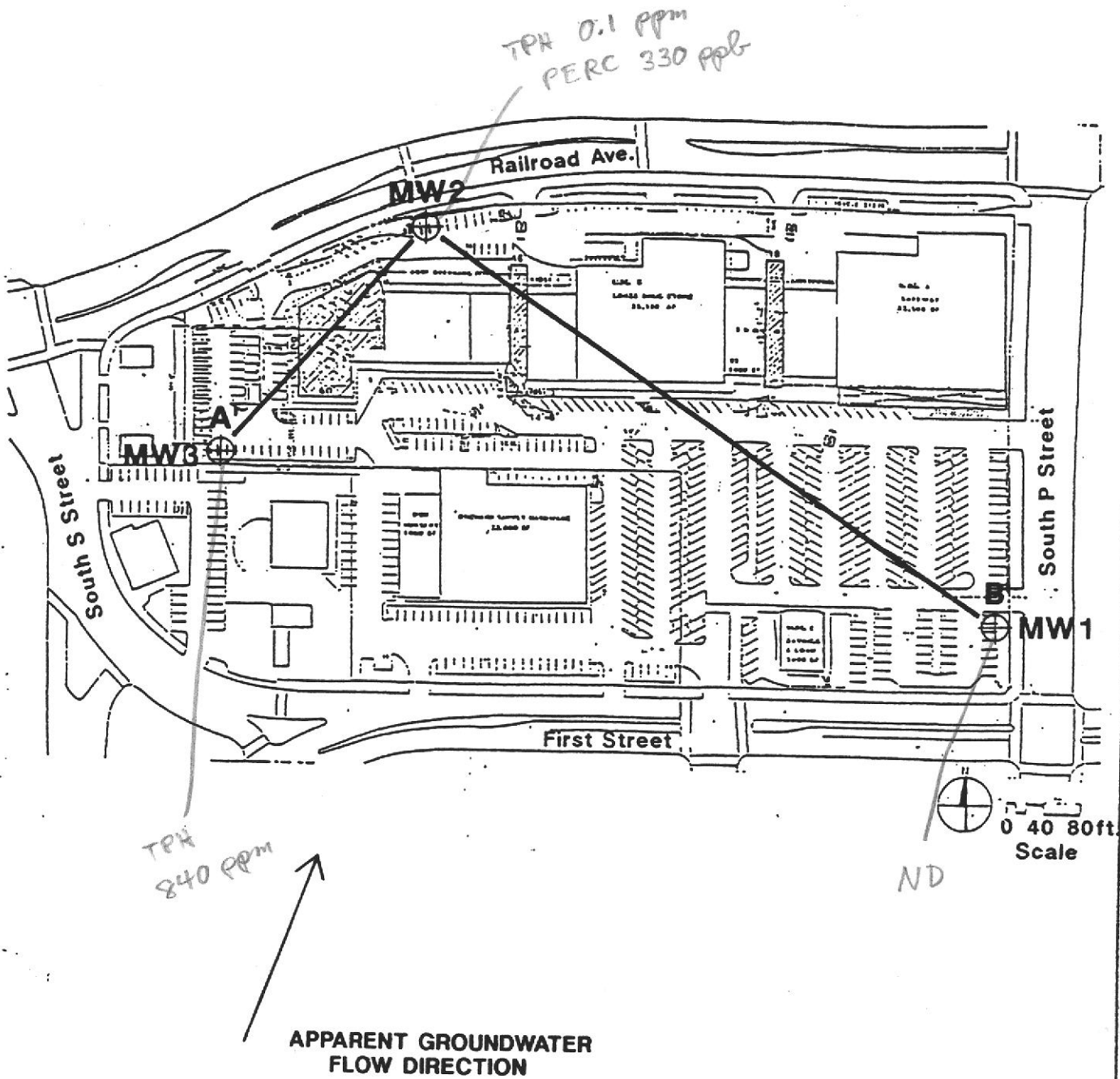
	MW1	MW2	MW3
TPH	840,000	100	<50
BENZENE	11,000(1)	<	<
TOLUENE	22,000(100)	<	<
TOTAL XYLENES	20,000(1750)	<	<
ETHYL BENZENE	3,400(680)	<	<
TETRACHLOROETHYLENE*	<	330(5)	<

Results in parts per billion

TPH(g) = Total Petroleum Hydrocarbons as gasoline

< = Below laboratory detection limit

* = Also known as Perchloroethylene (PCE)



WELL LOCATION MAP
Arcade Shopping Center
Livermore, California



Hygienetics Inc.
Industrial Hygienists
Architects / Engineers
Environmental Consultants

PROJECT NO.
48001-33

FIGURE 1

DATE
3/90

DRN. BY

REV | DATE | DESCRIPTION

153811

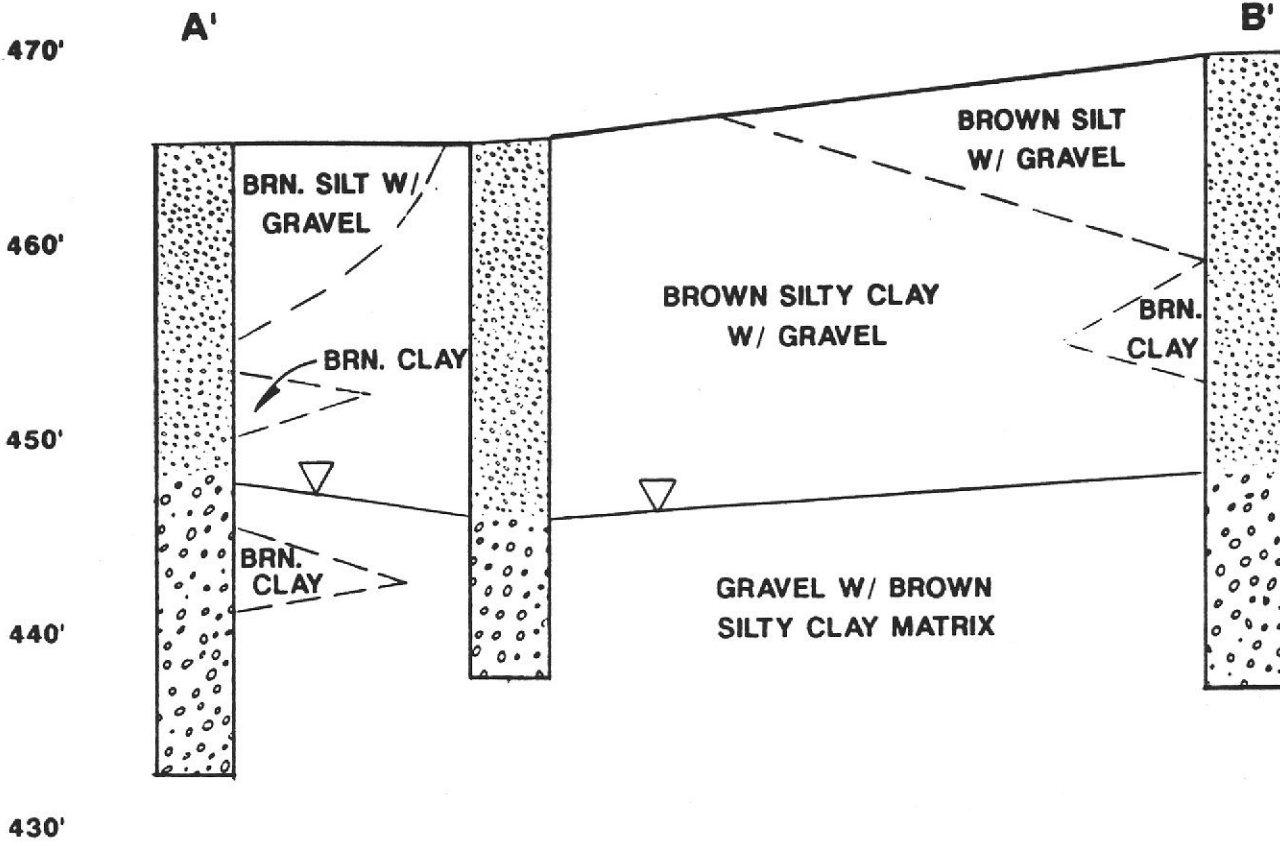
MAKEPEACE

FIGURE 2
GEOLOGIC CROSS SECTION

MW3

MW2

MW1



▽ GROUND WATER LEVEL
 VERTICAL SCALE: 1"=20'-0"
 HORIZONTAL SCALE: 1"=200'-0"
 VERTICAL EXAGGERATION= 10:1

GROUND WATER OBSERVATIONS
 MARCH 23,24, 1990
 ELEVATIONS BASED ON 470' MSL DATUM

GEOLOGICAL
 CROSS SECTION
 Arcade Shopping Center
 Livermore, California



Hygienetics Inc.
 Industrial Hygienists
 Architects / Engineers
 Environmental Consultants

PROJECT NO.
48001-33

FIGURE 2

DATE

3/90

REV.	DATE	DESCRIPTION

153811

APPENDIX A

BORING LOGS AND MONITORING WELL CONSTRUCTION DIAGRAMS



Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING : S.E. Corner of Site at South P & First Street	PROJECT : Arcade II		BORING NO. MW1
	PROJECT NO. 48001.33		TOTAL DEPTH 65'
	PROJECT MGR. :		LOGGED BY: MW
	DRILLING CONTRACTOR : Datum Exploration		
	DRILL RIG TYPE : CME-75		
	DRILLERS NAME : Steve		INSPECTOR:
STARTED, TIME : 9:00		DATE: 3/21/90	
SURFACE ELEV. : 470'		COMPLETED, TIME :	
DATUM :		DATE:	
BORING DIAMETER : 8"		BORING DEPTH (ft.)	65
		CASING DEPTH (ft.)	60
		WATER DEPTH (ft.)	45'
TYPE		TIME :	
SIZE I.D.		DATE :	
HAMMER WT.		BACKFILLED, TIME :	DATE :
HAMMER FALL			BY :

SAMPLE			TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION
NL	PEN	REC.							
			A				5		asphalt 4'
			A				10		brown silt with gravel med. rd.
			A				15		gravel with brown silt, no odor gravel with brown silt, slight moisture gravel poorly sorted, med. rd.
			A				20		
			A				22		brown clayey silt to silty clay, moist
			A				25		

GROUND SURFACE TO _____		USED _____ CASING THEN _____	
SAMPLE TYPE B = DRY C = CORED V = WASHED UP = UNDISTURBED PISTON TP = TEST PIT A = AUGER V = VANE TEST UT = UNDISTURBED THINWALL SS = SPLIT SPOON	PROPORTIONS USED TRACE 0 TO 10% LITTLE 10 TO 20% SOME 20 TO 35% COM 35 TO 50%	140 lb WT. X 30" FALL ON O.D. SAMPLER COHESIONLESS DENSITY COHESIVE CONSISTENCY 0-4 VERY LOOSE 0-2 VERY SOFT 4-10 LOOSE 2-4 SOFT 10-20 MED. DENSE 4-8 MED. STIFF 20-30 DENSE 8-15 STIFF 30+ VERY DENSE 15-30 VERY STIFF 30+ HARD	SUMMARY EARTH BORING _____ ROCK CORING _____ SAMPLES _____ HOLE NO. _____



Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade II PROJECT NO.: 48001.33 LOGGED BY: MW BORING NO.: MW1

SAMPLE			TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION
NO.	PEN	REC.							
			A				30		brown silty clay, some gravel, moist, stiff, no odor
			A				35		
			A				40		
			A				45		brown silty clay and gravel, med. sorting moist, no odor, wet @ 45'
			A				50		gravel and brown silty clay
			A				55		gravel and brown silty clay
			A				60		gravel and brown silty clay
			A				65		T.D.

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE B = DRY C = CORED V = VASHED UP = UNDISTURBED PISTON TP = TEST PIT A = AUGER V = VANE TEST UT = UNDISTURBED THINWALL SS = SPLIT SPOON	PROPORTIONS USED TRACE 0 TO 10% LITTLE 10 TO 20% SOME 20 TO 35% AFB 35 TO 50%	140 lb. WT. X 30" FALL ON 2" O.D. SAMPLER COHESIONLESS DENSITY COHESIVE CONSISTENCY		SUMMARY EARTH BORING _____ ROCK CORING _____ SAMPLES _____
		0-4 VERY LOOSE 4-10 LOOSE 10-30 MED. DENSE 30-50 DENSE 50+ VERY DENSE	0-2 VERY SOFT 2-4 SOFT 4-8 MED. STIFF 8-15 STIFF 15-30 VERY STIFF 30+ HARD	



Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING : NW corner of Site NW of Mike's 1 hr. Cleaners	PROJECT :	ARCADIE II	BORING NO.:	MW2
	PROJECT NO. :		TOTAL DEPTH:	55'
	PROJECT MGR. :		LOGGED BY:	MW
	DRILLING CONTRACTOR :	Datam Exploration		
	DRILL RIG TYPE :	CME-75		
	DRILLERS NAME :	Steve	INSPECTOR:	
	STARTED, TIME :	3:30pm	DATE:	3/21/90

SURFACE ELEV. :	462.5'	COMPLETED, TIME :		DATE:	
DATUM :		BORING DEPTH (ft.)			
BORING DIAMETER :	8"	CASING DEPTH (ft.)			
CASING	SAMPLER	CORE BAR	WATER DEPTH (ft.)		
TYPE			TIME :		
SIZE I.D.	2"		DATE :		
HAMMER WT.			BIT		
HAMMER FALL			BACKFILLED, TIME :	DATE :	BY :

SAMPLE			TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6' ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION
NO.	PEN	REC.							
			A				5		asphalt about 3", brown silt with gravel slightly silty clay, dark brown moist, gravels poorly sorted
			A				10		gravel and brown silty clay matrix (gravels are serpentine, SS, siltstone, etc.) some rounding, no odor
			A				15		gravel with brown silty clay more % silty clay, moist
			A				20		no odor
			A				25		brown silty clay, trace gravel moist, no odor

GROUND SURFACE TO _____	USED _____ CASING: _____ THEN _____		
SAMPLE TYPE B = DRY C = CONED V = WASHED UP = UNDISTURBED PISTON TP = TEST PIT A = AUGER V = VANE TEST UT = UNDISTURBED THINWALL SS = SPLIT SPOON	PROPORTIONS USED TRACE 0 TO 10% LITTLE 10 TO 20% SOME 20 TO 35% DIV 35 TO 50%	140 lb WT. X 30° FALL ON O.D. SAMPLER COHESIONLESS DENSITY COHESIVE CONSISTENCY 0-4 VERY LOOSE 0-2 VERY SOFT 4-8 LOOSE 2-4 SOFT 10-30 MED. DENSE 4-8 MED. STIFF 30-50 DENSE 8-15 STIFF 50+ VERY DENSE 15-30 VERY STIFF 30+ HARD	SUMMARY EARTH BORING: _____ ROCK CORING: _____ SAMPLES: _____ HOLE NO. _____



Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade II PROJECT NO.: 48001.33 LOGGED BY: MW BORING NO.: MW2

SAMPLE			TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION
NO.	PEN	REC.							
			A				30		brown silty clay with gravel
			A				35		no odor, moist
			A				40		wet at 41' gravel and brown silty clay
			A				45		
			A				50		gravel and brown silty clay
			A				55		gravel and brown silty clay

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE B = DRY C = CORES V = WASHED UP = UNDISTURBED PISTON TP = TEST PIT A = AUGER V = VANE TEST UT = UNDISTURBED THINWALL SS = SPLIT SPOON	PROPORTIONS USED TRACE 0 TO 10% LITTLE 10 TO 20% SOME 20 TO 35% AND 35 TO 50%	140 lb. WT. X 30" FALL ON 2" O.D. SAMPLER		SUMMARY EARTH BORING _____ ROCK CORING _____ SAMPLES _____
		COHESIONLESS DENSITY 0-4 VERY LOOSE 4-8 LOOSE 8-16 MED. DENSE 16-30 DENSE 30+ VERY DENSE	COHESIVE CONSISTENCY 0-2 VERY SOFT 2-4 SOFT 4-8 MED. STIFF 8-15 STIFF 15-20 VERY STIFF 20+ HARD	



Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING : SW corner by empty lot	PROJECT :	BORING NO.:
	Arcade II	MW3
	PROJECT NO. :	TOTAL DEPTH:
	48001-33	60'
	PROJECT MGR. :	LOGGED BY:
		MW
	DRILLING CONTRACTOR :	EDITED BY:
	Datum Exploration	
	DRILL RIG TYPE :	
	CME-75	
	DRILLERS NAME :	INSPECTOR:
	Steve	
	STARTED, TIME :	DATE:
	10:30am	3/22/90

SURFACE ELEV. :	462.6	COMPLETED, TIME :	DATE:
DATUM :		BORING DEPTH (ft.)	
BORING DIAMETER :	8"	CASING DEPTH (ft.)	
		WATER DEPTH (ft.)	
		TIME :	
		DATE :	
		BACKFILLED, TIME :	DATE :
			BY :

SAMPLE			TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION
NCL	PEN	REC.							
			A				5		asphalt 3"-4", black clayey silt changing to brown with gravel
			A				10		brown silt with gravel
			A				15		gravel with brown silt matrix
			A				20		no odor, loose
			A				25		gravel with brown silty matrix
			A						no odor
			A						gravel with slightly clayey silt
			A						silty clay with gravel, no odor

RETURN SURFACE TO _____ USED _____ CASING _____ THEN _____

SAMPLE TYPE D = DRY C = CORES V = WASHED UP = UNDISTURBED PISTON TP = TEST PIT A = AUGER V = VANE TEST UT = UNDISTURBED THINWALL SS = SPLIT SPOON	PROPORTIONS USED TRACE 0 TO 10% LITTLE 10 TO 20% SOME 20 TO 35% DNS 35 TO 50%	140 lb WT. X 30" FALL ON O.D. SAMPLER		SUMMA EARTH BORE ROCK CORES SAMPLES HOLE NO.
		COHESIONLESS DENSITY 0-4 VERY LOOSE 4-10 LOOSE 10-20 MED DENSE 20-30 DENSE 30+ VERY DENSE	COHESIVE CONSISTENCY 0-2 VERY SOFT 2-4 SOFT 4-8 MED STIFF 8-15 STIFF 15-20 VERY STIFF 20+ HARD	



Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade II

PROJECT NO.: 48001-33

LOGGED BY: MW

BORING NO.: MW

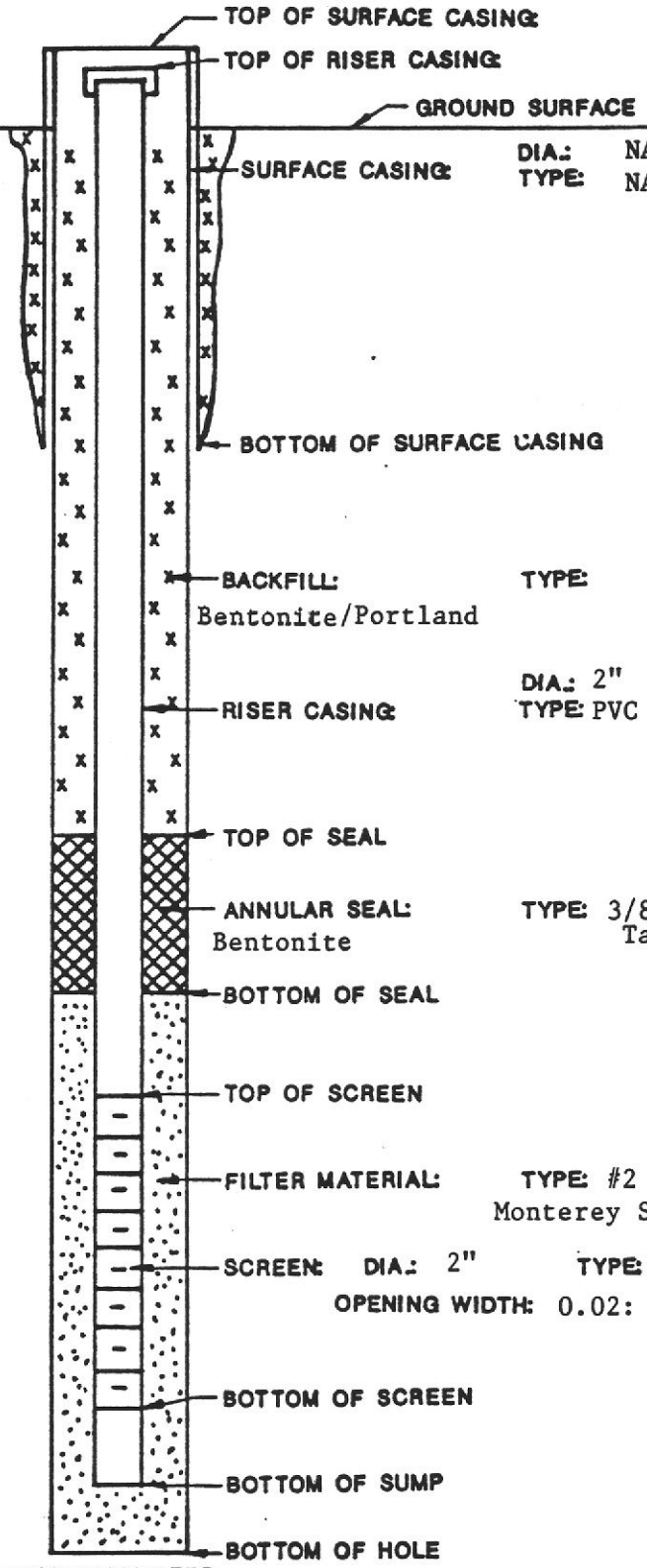
SAMPLE			TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6' ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION REMARKS INCLUDE COLOR, GRADATION, TYPE OF SOIL, ETC., ROCK-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, JEANS AND ETC.
NO.	PEN	REC.							
			A				30		gravels and brown silty clay no odor
			A				35		brown silty clay and gravel
			A				40		brown silty clay and gravel
			A				45		*groundwater between 40'-45' brown slightly silty clay, very moist with fine gravels, no odor, wet
			A				50		brown clay and gravels, wet no odor
			A				55		gravels with b.s.c., wet
			A				60		gravels with b.s.c., wet

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE D - DRY C - CONES V - WASHED UP - UNDISTURBED PISTON TP - TEST PIT A - AUGER V - VANE TEST UT - UNDISTURBED THRWALL SS - SPLIT SPOON	PROPORTIONS USED TRACE 1 TO 100 LITTLE 10 TO 200 SOME 20 TO 350 AFB 35 TO 500	140 lb. WT. X 30" FALL ON 2" O.D. SAMPLER COHESIONLESS DENSITY COHESIVE CONSISTENCY		SUMMA EARTH BORING ROCK CORING SAMPLED _____
		1-4 VERY LOOSE 4-10 LOOSE 10-30 MED. DENSE 30-50 DENSE 50+ VERY DENSE	0-2 VERY SOFT 2-4 SOFT 4-8 MED. STIFF 8-15 STIFF 15-30 VERY STIFF 30+ HARD	

GROUND WATER MONITOR WELL INSTALLATION	PROJECT: ARCADE II JOB NO. 48001.33	WELL NO. MW1
DRILLING CONTRACTOR: DATUM EXPLORATION	COORDINATES:	
BEGUN: 9:00am FINISHED: 3:00pm	SUPERVISOR: MW DRILLER: Steve	WELL SITE: Southeast
		WATER LEV. DEPTH/EL.

REFERENCE POINT & ELEVATION:



DEPTH IN feet (bgs)	ELEV. IN feet (msl)
0	470
NA	NA
34	436
36	434
44.6	425.4
59.6	410.4
60	410
65	405

GENERALIZED GEOLOGIC LOG

METHOD DRILLED:
Hollow Stem Auger

METHOD DEVELOPED:

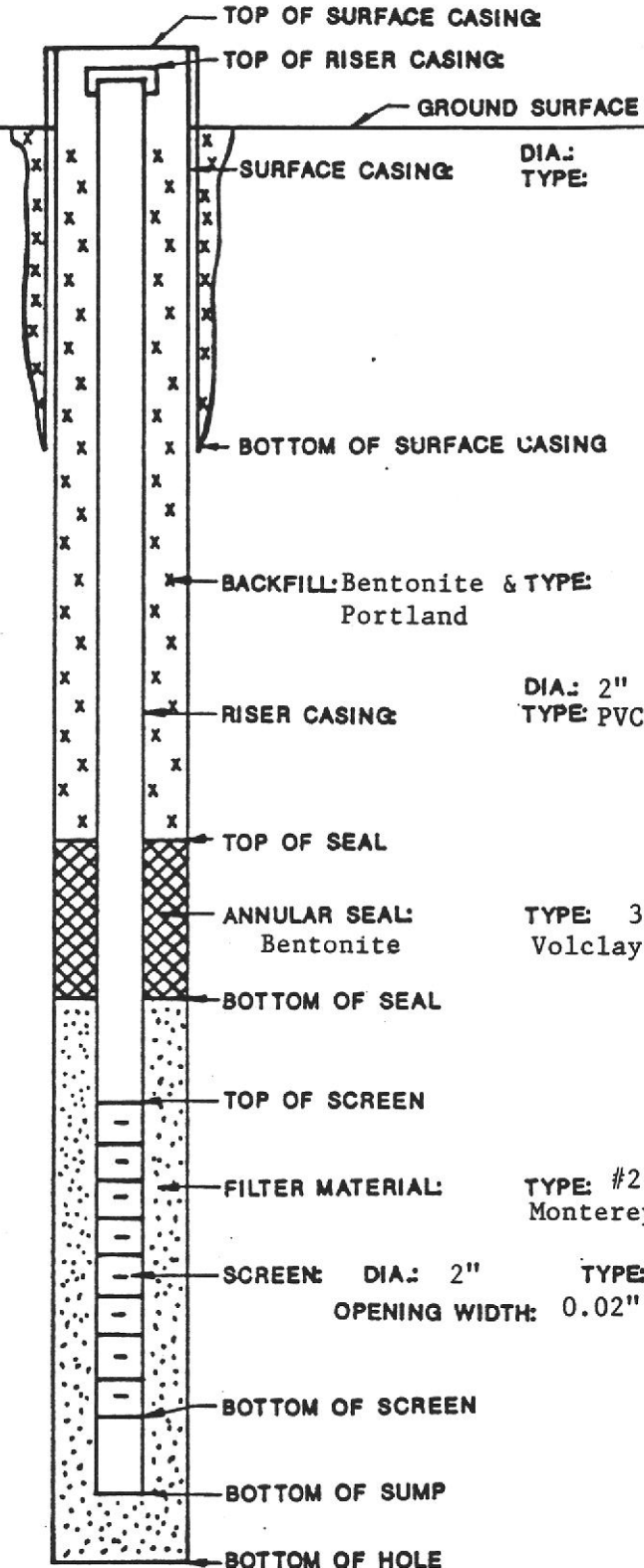
TIME DEVELOPED:



COMMENTS:

GROUND WATER MONITOR WELL INSTALLATION		PROJECT: ARCADE II JOB NO. 48001.33	WELL NO. MW3
DRILLING CONTRACTOR: DATUM EXPLORATION		COORDINATES:	
BEGUN:	SUPERVISOR: M.W.	WELL SITE: Southwest	WATER LEV. DEPTH/EL.
FINISHED:	DRILLER: Steve		

REFERENCE POINT & ELEVATION:



DEPTH IN feet (bgs)	ELEV. IN feet (msl)
0	467.6
NA	NA
35'	427.6
37	425.6
39.3	423.3
59'.3	403.3
59'.7	402.9
60	402.6

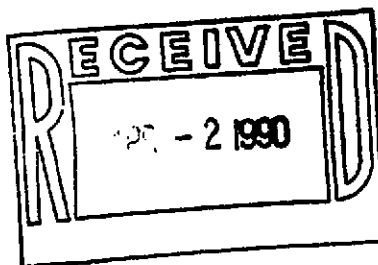
METHOD DRILLED: Hollow Stem Auger
 METHOD DEVELOPED:
 TIME DEVELOPED:

HOLE DIAMETER 8" COMMENTS:

APPENDIX B

LABORATORY ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

Analytical Report



LOG NO: E90-03-827

Received: 26 MAR 90

Reported: 28 MAR 90

Mr. Michael Wright
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: Arcade

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
03-827-1	M1(A)	23 MAR 90
03-827-2	M2(A)	24 MAR 90
03-827-3	M3(A)	23 MAR 90
03-827-4	M1(B)	23 MAR 90
03-827-5	M2(B)	24 MAR 90

PARAMETER	03-827-1	03-827-2	03-827-3	03-827-4	03-827-5
TPH - Volatile Hydrocarbons					
Date Analyzed	03.27.90	03.26.90	03.26.90	---	---
Dilution Factor, Times	50	1	1	---	---
C4 to C12 Hydrocarbons, ug/L	840000	100	<50	---	---
Fuel Characterization, .	GAS	GAS	---	---	---

This Fuel Characterization is a qualitative identification based upon a visual comparison of sample chromatograms with those from authentic standards.



Analytical Report

LOG NO: E90-03-827

Received: 26 MAR 90
Reported: 28 MAR 90

Mr. Michael Wright
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: Arcade

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
03-827-1	M1(A)	23 MAR 90				
03-827-2	M2(A)	24 MAR 90				
03-827-3	M3(A)	23 MAR 90				
03-827-4	M1(B)	23 MAR 90				
03-827-5	M2(B)	24 MAR 90				
PARAMETER	03-827-1	03-827-2	03-827-3	03-827-4	03-827-5	
TPH - Volatile Hydrocarbons						
Date Analyzed	03.27.90	03.26.90	03.26.90	---	---	
Dilution Factor, Times	50	1	1	---	---	
C4 to C12 Hydrocarbons, ug/L	840000	100	<50	---	---	
Fuel Characterization, .	GAS	GAS	---	---	---	

Analytical Report

LOG NO: E90-03-827

Received: 26 MAR 90
Reported: 28 MAR 90

Mr. Michael Wright
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: Arcade

REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
03-827-1	M1(A)	23 MAR 90				
03-827-2	M2(A)	24 MAR 90				
03-827-3	M3(A)	23 MAR 90				
03-827-4	M1(B)	23 MAR 90				
03-827-5	M2(B)	24 MAR 90				
PARAMETER	03-827-1	03-827-2	03-827-3	03-827-4	03-827-5	
Purgeable Priority Pollutants						
Date Extracted	---	---	---	03.26.90	03.26.90	
1,1,1-Trichloroethane, ug/L	---	---	---	<100	<1	
1,1,2,2-Tetrachloroethane, ug/L	---	---	---	<100	<1	
1,1,2-Trichloroethane, ug/L	---	---	---	<100	<1	
1,1-Dichloroethane, ug/L	---	---	---	<100	<1	
1,1-Dichloroethene, ug/L	---	---	---	<100	<1	
1,2-Dichloroethane, ug/L	---	---	---	<100	<1	
1,2-Dichloropropane, ug/L	---	---	---	<100	<1	
1,3-Dichloropropene, ug/L	---	---	---	<100	<1	
2-Chloroethylvinylether, ug/L	---	---	---	<100	<1	
2-Hexanone, ug/L	---	---	---	<1000	<10	
Acetone, ug/L	---	---	---	<1000	<10	
Acrolein, ug/L	---	---	---	<1000	<10	
Acrylonitrile, ug/L	---	---	---	<100	<1	
Bromodichloromethane, ug/L	---	---	---	<100	<1	
Bromomethane, ug/L	---	---	---	<100	<1	
Benzene, ug/L	---	---	---	11000	<1	
Bromoform, ug/L	---	---	---	<100	<1	
Chlorobenzene, ug/L	---	---	---	<100	<1	
Carbon Tetrachloride, ug/L	---	---	---	<100	<1	
Chloroethane, ug/L	---	---	---	<100	<1	
Chloroform, ug/L	---	---	---	<100	<1	

Analytical Report

LOG NO: E90-03-827

Received: 26 MAR 90

Reported: 28 MAR 90

Mr. Michael Wright
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: Arcade

REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
03-827-1	M1(A)	23 MAR 90				
03-827-2	M2(A)	24 MAR 90				
03-827-3	M3(A)	23 MAR 90				
03-827-4	M1(B)	23 MAR 90				
03-827-5	M2(B)	24 MAR 90				
PARAMETER		03-827-1	03-827-2	03-827-3	03-827-4	03-827-5
Chloromethane, ug/L		---	---	---	<100	<1
Carbon Disulfide, ug/L		---	---	---	<100	<1
Dibromochloromethane, ug/L		---	---	---	<100	<1
Ethylbenzene, ug/L		---	---	---	3400	<1
Freon 113, ug/L		---	---	---	<100	<1
Methyl ethyl ketone, ug/L		---	---	---	<2000	<20
Methyl isobutyl ketone, ug/L		---	---	---	<100	<1
Methylene chloride, ug/L		---	---	---	<100	<1
Styrene, ug/L		---	---	---	<100	<1
Trichloroethene, ug/L		---	---	---	<100	<1
Trichlorofluoromethane, ug/L		---	---	---	<100	<1
Toluene, ug/L		---	---	---	22000	<1
Tetrachloroethene, ug/L		---	---	---	<100	330
Vinyl acetate, ug/L		---	---	---	<100	<1
Vinyl chloride, ug/L		---	---	---	<100	<1
Total Xylene Isomers, ug/L		---	---	---	20000	<1
cis-1,2-Dichloroethene, ug/L		---	---	---	<100	<1
trans-1,2-Dichloroethene, ug/L		---	---	---	<100	<1
trans-1,3-Dichloropropene, ug/L		---	---	---	<100	<1
Semi-Quantified Results **						
C5-C13 Hydrocarbons, ug/L		---	---	---	20000	---

Analytical Report

LOG NO: E90-03-827

Received: 26 MAR 90

Reported: 28 MAR 90

Mr. Michael Wright
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: Arcade

REPORT OF ANALYTICAL RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
03-827-1	M1(A)	23 MAR 90
03-827-2	M2(A)	24 MAR 90
03-827-3	M3(A)	23 MAR 90
03-827-4	M1(B)	23 MAR 90
03-827-5	M2(B)	24 MAR 90

PARAMETER	03-827-1	03-827-2	03-827-3	03-827-4	03-827-5
-----------	----------	----------	----------	----------	----------

** Quantification based upon comparison of total ion count of the compound with that of the nearest internal standard.

Analytical Report

LOG NO: E90-03-827

Received: 26 MAR 90

Reported: 28 MAR 90

Mr. Michael Wright
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: Arcade

REPORT OF ANALYTICAL RESULTS

Page 5

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
03-827-6	M3(B)	23 MAR 90
PARAMETER	03-827-6	
Purgeable Priority Pollutants		
Date Extracted	03.26.90	
1,1,1-Trichloroethane, ug/L	<1	
1,1,2,2-Tetrachloroethane, ug/L	<1	
1,1,2-Trichloroethane, ug/L	<1	
1,1-Dichloroethane, ug/L	<1	
1,1-Dichloroethene, ug/L	<1	
1,2-Dichloroethane, ug/L	<1	
1,2-Dichloropropane, ug/L	<1	
1,3-Dichloropropene, ug/L	<1	
2-Chloroethylvinylether, ug/L	<1	
2-Hexanone, ug/L	<1	
Acetone, ug/L	<10	
Acrolein, ug/L	<10	
Acrylonitrile, ug/L	<10	
Bromodichloromethane, ug/L	<1	
Bromomethane, ug/L	<1	
Benzene, ug/L	<1	
Bromoform, ug/L	<1	
Chlorobenzene, ug/L	<1	
Carbon Tetrachloride, ug/L	<1	
Chloroethane, ug/L	<1	
Chloroform, ug/L	<1	
Chloromethane, ug/L	<1	
Carbon Disulfide, ug/L	<1	
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	



Analytical Report

LOG NO: E90-03-827

Received: 26 MAR 90
Reported: 28 MAR 90

Mr. Michael Wright
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

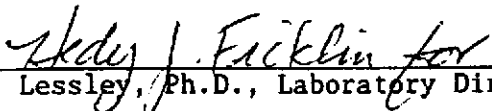
Project: Arcade

REPORT OF ANALYTICAL RESULTS

Page 6

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
03-827-6	M3(B)	23 MAR 90
PARAMETER	03-827-6	
Freon 113, ug/L	<1	
Methyl ethyl ketone, ug/L	<20	
Methyl isobutyl ketone, ug/L	<1	
Methylene chloride, ug/L	<1	
Styrene, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Vinyl acetate, ug/L	<1	
Vinyl chloride, ug/L	<1	
Total Xylene Isomers, ug/L	<1	
cis-1,2-Dichloroethene, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	

Verbal results were reported to Kevin Skaritt on 03.28.90. T. Blake


Sim D. Lessley, Ph.D., Laboratory Director

APPENDIX C
CHAIN OF CUSTODY RECORDS

Client name Hygienetics	Project or PO# Arcade
Address 2200 Powell St. St. 880	Phone # 547 3886
City, State, Zip Emeryville, CA	Report attention Michael Wright

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by	Number of containers	Analyses required										Remarks		
						TPH	624											
M1(A)	3/23	2:00pm	GW H ₂ O		1	X												Headspace
M1(B)	3/23	2:00pm	GW H ₂ O		1		X											Headspace
M2(A)	3/24	3:00pm	GW H ₂ O		1	X												
M2(B)	3/24	3:00pm	GW H ₂ O		1		X											
M3(A)	3/23	3:00pm	GW H ₂ O		1	X												Headspace
M3(B)	3/23	3:00pm	GW H ₂ O		1		X											
																		48 hr. Turn Around

Signature	Print Name	Company	Date	Time
Relinquished by <i>Michael Wright</i>	Michael Wright	Hygienetics	3/26/90	10:30am
Received by <i>[Signature]</i>	<i>[Signature]</i>	BIA	3/26/90	10:30
Relinquished by				
Received by				
Relinquished by				
Received by Laboratory				

B C ANALYTICAL
 55 Powell Street, Emeryville, CA 94608 (415) 428-2300
 901 Western Avenue, Glendale, CA 91201 (818) 247-5737
 1200 Pacific A Anaheim, CA 92805 (714) 978-0113

Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client's expense.
 Disposal arrangements: _____

*KEY: AQ—Aqueous NA—Nonaqueous SL—Sludge
 GW—Groundwater SO—Soil OT—Other PE—Petroleum

LIMITATIONS

The findings set forth in the attached Site Assessment report are strictly limited in time and scope to the date of the evaluation(s). The conclusions presented in the Report are based solely on the services described therein, and not on scientific tasks or procedures beyond the scope of agreed upon services or the time and budgeting restraints imposed by the client.

The purpose of this report was to assess the physical characteristics of the subject site with respect to the presence in the environment of hazardous material or oil. No specific attempt was made to check on the compliance of present or past owners or regulations, environmental or otherwise.

Partial findings of this investigation are based on data provided by others. No warranty is expressed or implied with the usage of such data. Much of the information provided in this report is based upon personal interviews and research of all available documents, records and maps held by the appropriate government and private agencies. This is subject to the limitations of historical documentation, availability and accuracy of pertinent records, and the personal recollection of those persons contacted by Hygienetics.

Observations were made of the site and of structures on the site as indicated within the Report. Where access to portions of the site or to structures on the site was unavailable or limited, Hygienetics is unable to render an opinion as to the presence of hazardous material or oil, or to the presence of indirect evidence relating to hazardous material or oil, in that portion of the site or structure. In addition, Hygienetics renders no opinion as to the presence of hazardous material or oil, where direct observation of the interior walls, floor or ceiling of a structure on a site was obstructed by objects or coverings on or over these surfaces.

The initial site investigation took into account the natural and man-made features of the site, including any unusual or suspect phenomenon. These factors, combined with the site's geology, hydrology, topography, and past and present land uses served as a basis for choosing a methodology and location for subsurface exploration as well as ground water and subsurface sampling, if done. The subsurface data, if provided, is meant as a representative overview of the site.

The conclusions and recommendations contained in this report may be based in part upon various types of chemical data and are contingent upon their validity. As indicated within the

Report, some of these data are preliminary "screening" level data, and should be confirmed with quantitative analyses if more specific information is necessary. It should be noted that variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time, and other factors. Should additional data or variations of current data become available in the future, these data should be reviewed, and the conclusions and recommendations presented herein modified accordingly.

Chemical analyses may have been performed for specific parameters during the course of this site assessment, as described in the text. However, it should be noted that additional chemical constituents not searched for during the current study may be present in soil and/or ground water at the site.

The presence of radioactive materials, biological hazards and asbestos was not investigated unless specifically noted otherwise.