

QUARTERLY GROUNDWATER MONITORING
LIVERMORE ARCADE SHOPPING CENTER
FIRST STREET AND SOUTH P STREET
LIVERMORE, CALIFORNIA

Prepared for:

Grubb & Ellis Realty Income Trust
One Montgomery Street
West Tower, 32nd Floor
San Francisco, California 94104

Prepared by:

Hygienetics, Inc.
2200 Powell Street, Suite 880
Emeryville, California 94608

September 19, 1991

Project No. 48016.04
Luksic1/Qtly. #2 Livermore Arcade

01 SEP 20 PM 12:10

TABLE OF CONTENTS

		<u>PAGE</u>
1.1	Purpose and Scope of Work	1
1.2	Site Location	1
1.3	Site Description	1
1.4	Introduction	1
1.5	Groundwater Monitoring Well Installation	2
1.6	Groundwater Sampling and Analysis	2
1.7	Results and Discussion	4

TABLES

TABLE 1 SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER
SAMPLES

FIGURES

FIGURE 1 SITE LOCATION MAP

FIGURE 2 PCE CONCENTRATION DISTRIBUTION AND WELL LOCATION
MAP

APPENDICES

APPENDIX 1 ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

APPENDIX 2 CHAIN OF CUSTODY RECORDS

1.1 Purpose of Scope of Work

This is the second quarterly groundwater monitoring report performed at the Livermore Arcade Shopping Center property located in Livermore, California, hereinafter referred to as the "Site." The investigation was conducted on behalf of Grubb & Ellis Realty Income Advisors.

The purpose of this investigation is to monitor the concentration of tetrachloroethene (also known as perchloroethylene, perk, or PCE) discovered in the groundwater at the Site. Benzene, toluene, total xylene isomers, and ethylbenzene (BTXE), common components of gasoline, were also analyzed for in the groundwater at the Site.

Hygienetics has evaluated the analytical results and presents these findings to the Regional Water Quality Control Board (RWQCB) on behalf of Grubb & Ellis.

1.2 Site Location

Livermore is located approximately 25 miles east of San Francisco Bay along Highway 580 (figure 1). 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.

1.3 Site Description

The Site is listed at the Alameda County Assessor's Office on Map 98, Page 403, Parcel 8-4. The Livermore Arcade Shopping Center, which was built in 1972, houses fourteen businesses [twelve (12) retail stores and two (2) restaurants]. The Site occupies approximately 11.75 acres, including the asphalt parking areas. Site topography is relatively flat with runoff moving to the north and west. Ornamental vegetation consists of grass, ivy, bushes, and small trees. Groundwater in the deeper aquifers is used for drinking water.

1.4 Introduction

Hygienetics is currently working on the final design of a groundwater extraction system which was approved by the Alameda County Department of Environmental Health and the State of California Regional Water Quality Control Board. The quarterly monitoring plan began on March 5, 1991, and was continued on July 25, and 26, 1991, when Hygienetics collected a groundwater sample from each of the six monitoring wells shown in Figure 2. These wells were chosen as the best sampling locations to monitor the PCE concentrations over time.

1.5 Groundwater Monitoring Well Installation

Monitoring wells were installed at various times between March and October 1990. The monitoring wells were constructed in accordance with the Alameda County Zone 7 permitting and construction procedures. Monitoring wells were constructed of 2.0 and 4.0 inch inner diameter, flush-jointed, Schedule 40 PVC pipe. The annuli between the screen and the auger hole were packed with #2 or #3 Grade Monterey Sand to at least two feet above the screen. A three-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.

1.6 Groundwater Sampling and Analysis

A groundwater sample was collected from each of the six wells on July 25, and 26, 1991. Prior to sampling, a minimum of three standing volumes of water were purged from each well utilizing a precleaned 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 BC Analytical in Emeryville, California. Chain-of-custody records are included in Appendix B.

The groundwater samples were analyzed for volatile organics by EPA Method 624. The level of the PCE concentration and other contaminants detected at each groundwater monitoring well is listed in Table 1. The laboratory data is included in Appendix A.

Table 1
Summary of Analytical Results

Groundwater Samples

<u>Sample Location</u>	<u>Parameter</u>	<u>Concentration (µg/l)</u>	<u>Date Sampled</u>
MW6	Tetrachloroethene*	74	7/25/91
	Chloroform	1.1	
MW7	Trichloroethene	230	7/26/91
	Tetrachloroethene*	1600	
	cis-1,2-Dichloroethene	120	
	Benzene	331	
MW9	Chloroform	1.0	7/25/91
	Total Xylene Isomers	0.7	
MW13	Tetrachloroethene*	30	7/25/91
MW14	Trichloroethene	0.7	
	Tetrachloroethene*	1.1	
	cis-1,2-Dichloroethene	2.1	
MW10	Tetrachloroethene*	22	7/26/91

* Also known as perchloroethylene, perk, PCE

µg/l = micrograms per liter (equivalent to parts per billion)

1.7 Results and Discussions

The aerial extent of the PCE plume has remained the same as previously shown in Hygienetics Subsurface Investigation, October 12, 1990 (Figure 2).

The PCE concentration in groundwater at monitoring well MW-6 increased from 43 µg/l, as sampled on March 5, 1991 to 74 µg/l detected in this recent sampling. Compounds suspected to be degradation products of the PCE are present in the groundwater at monitoring wells MW7 and MW14.

Gasoline compounds were detected in this latest groundwater sampling at MW-7 and MW-9. These did not appear in any of the previous sampling rounds. The

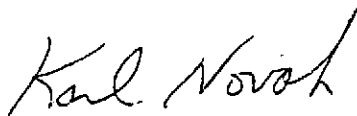
gasoline plume extending onto the Site from the southwest edge of the property appears to be affecting these wells.

Chloroform was detected in groundwater at monitoring well MW-7 and MW-9. In this case, it may be a by-product of chlorine which is used as a disinfectant in potable water systems.

Sincerely,

HYGIENETICS, INC.

Michael Luksic
Environmental Scientist

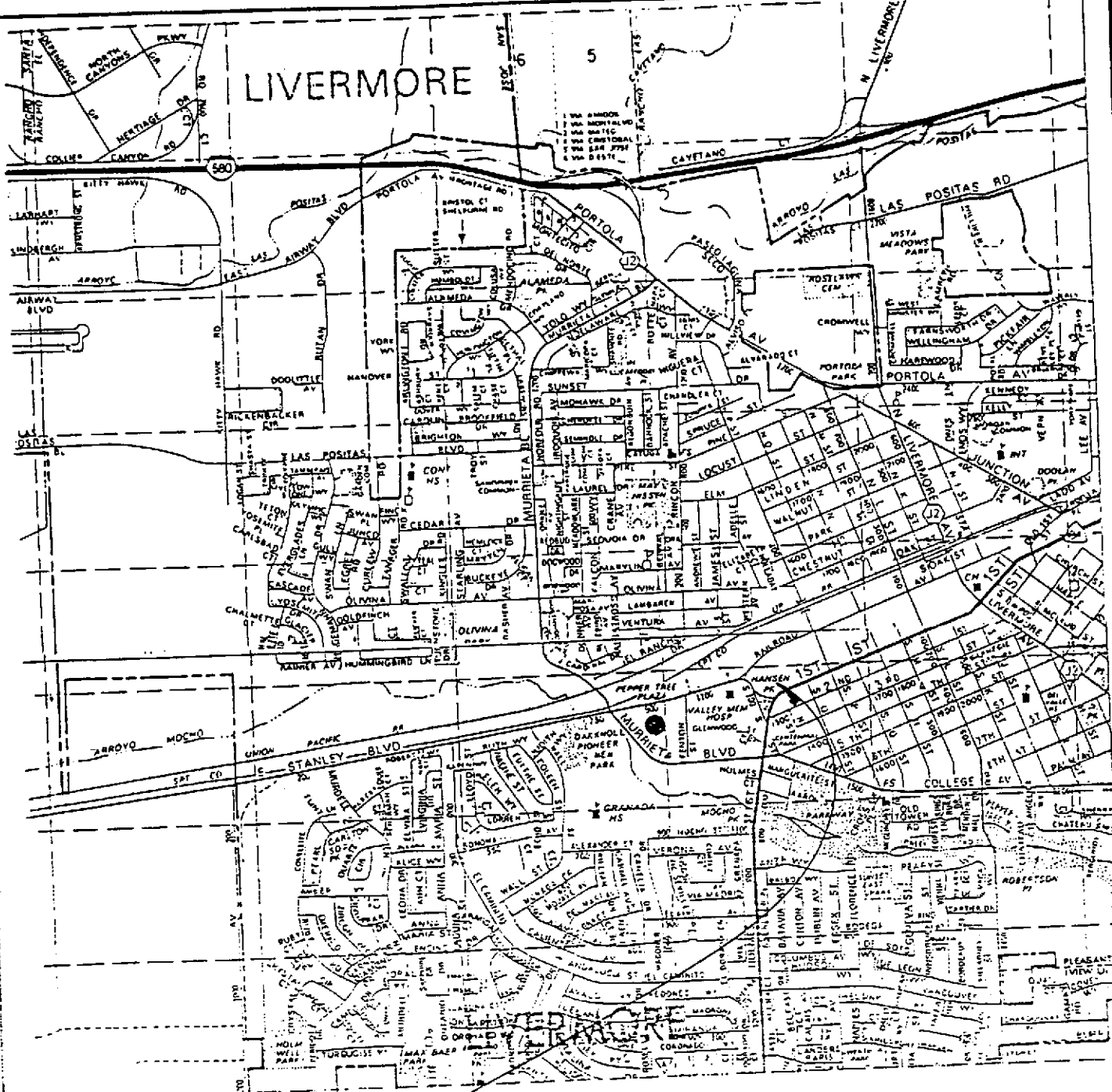


Karl Novak
Program Manager

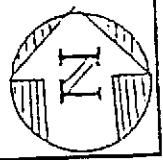
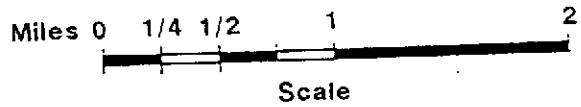
ML:sh

Project No. 48016.04
Luksic1/Qtly.#2LivermoreArcade

LIVERMORE



SITE LOCATION



SITE MAP
 ARCADE SHOPPING CENTER
 Livermore, California



Hygienetics Inc.
 Industrial Hygienists
 Architects / Engineers
 Environmental Consultants

PROJECT NO
48016.04
 DRN B

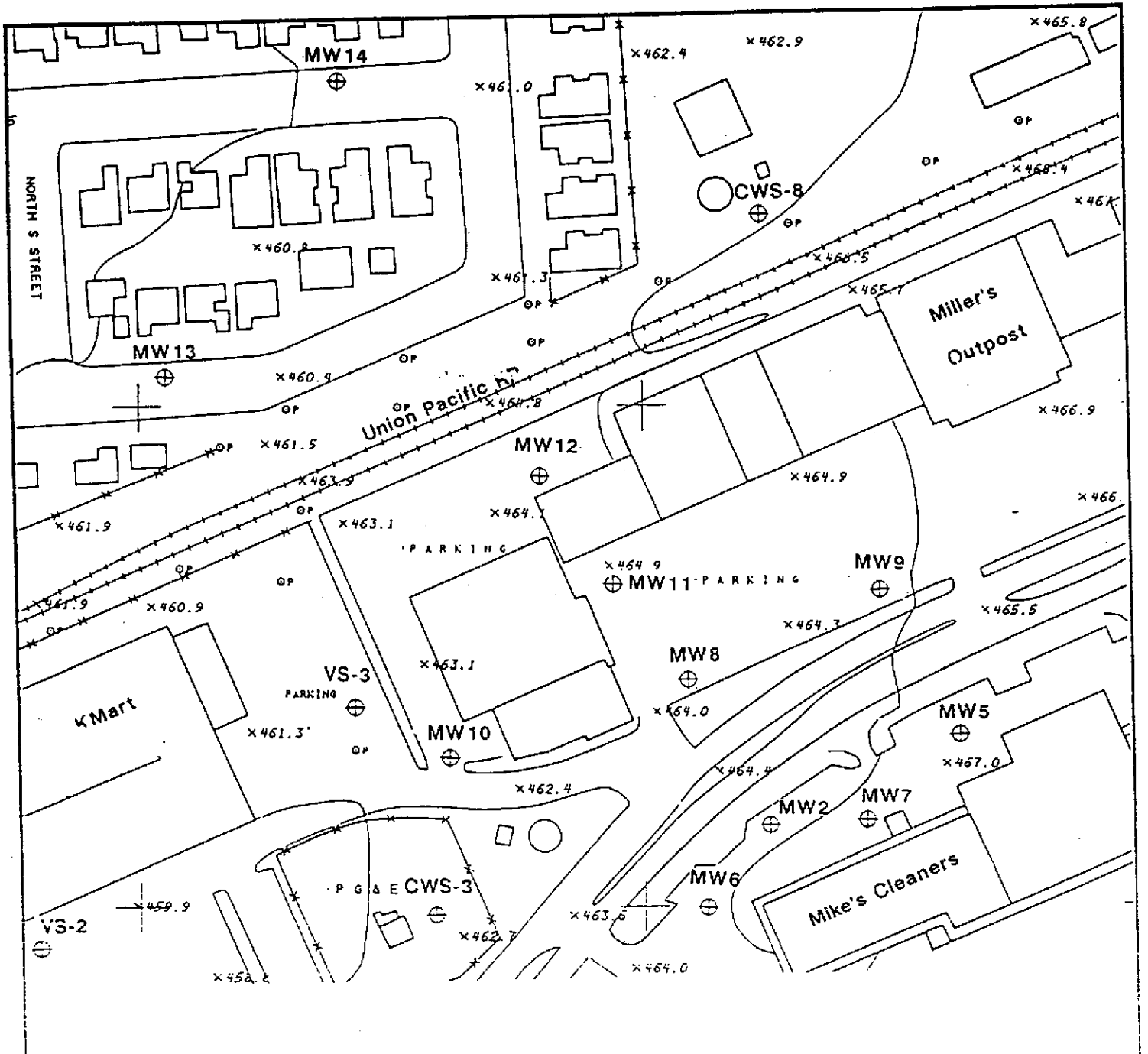
FIGURE 1

DATE
3/91

REV. DATE DESCRIPTION

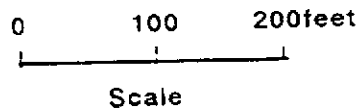
159219

MAKEPEACE



LEGEND

- MW 10
⊕ Hygienetics Monitoring Well.
- VS-1
⊕ Versar Monitoring Well
- CWS-3
⊕ California Water Service Well



ARCHADE SHOPPING CENTER

Livermore, California



Hygienetics Inc.
Industrial Hygienists
Architects / Engineers
Environmental Consultants

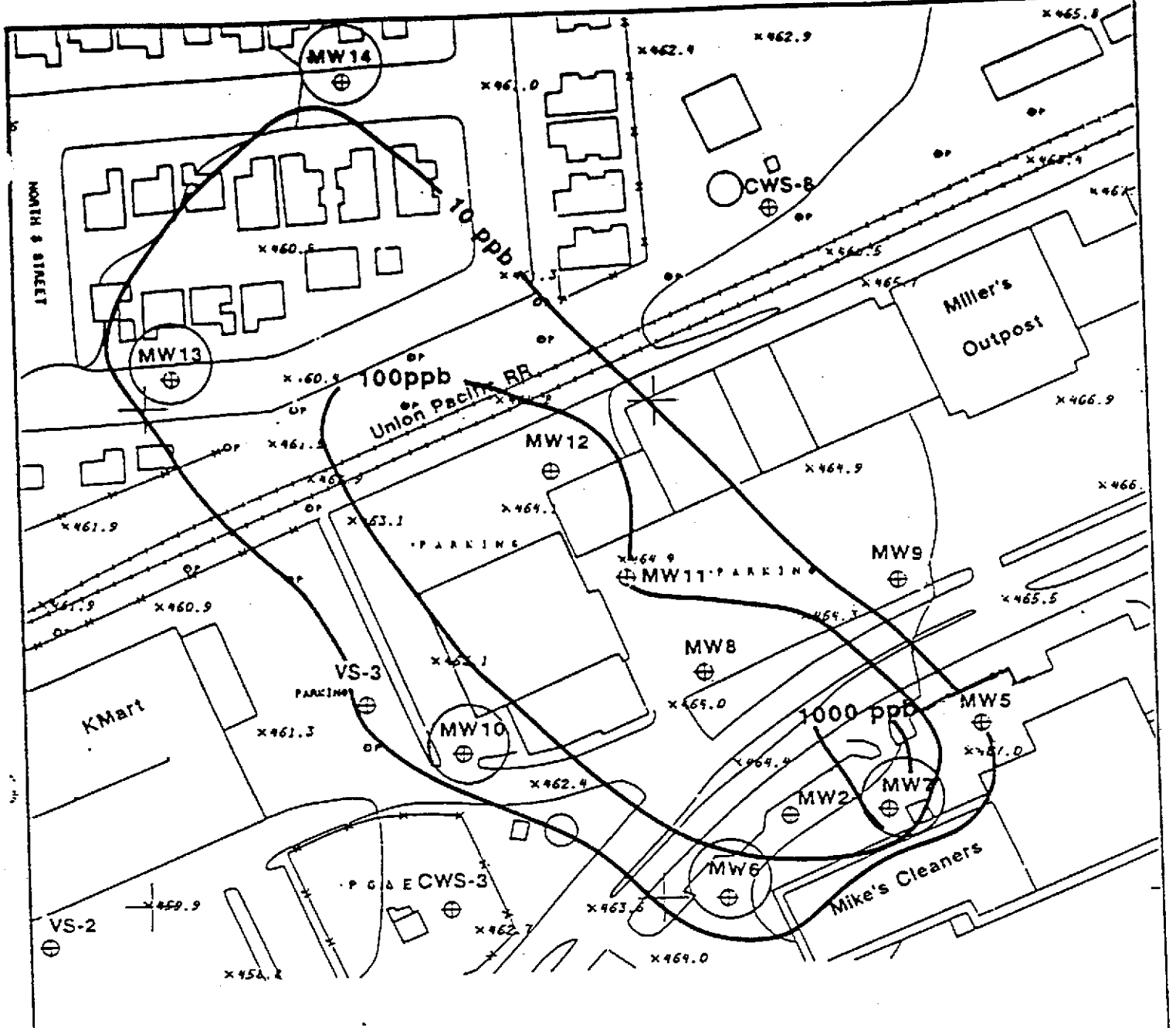
PROJECT NO
48016.04
DRN. 8*

FIGURE 2

DATE
3/91

REV | DATE | DESCRIPTION

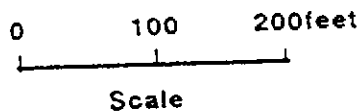
159219



LEGEND

- MW10
⊕ Hygienetics Monitoring Well
- VS-1
⊕ Versar Monitoring Well
- CWS-3
⊕ California Water Service Well

- MW7
⊕ Sampled Monitoring Well



PCE DISTRIBUTION
ARCADE SHOPPING CENTER
Livermore, California



Hygienetics Inc.
Industrial Hygienists
Architects / Engineers
Environmental Consultants

PROJECT NO.
48016.04

FIGURE 2

DATE
3/91

REV. | DATE | DESCRIPTION

159219

MAKEPEACE

APPENDIX 1

ANALYTICAL RESULTS FOR
GROUNDWATER SAMPLES

Analytical Report

LOG NO: E91-07-618

Received: 26 JUL 91

Mailed: AUG 15 1991

Mr. Mike Bennett
Hygienetics
2200 Powell Street Suite 880
Emeryville, California 94608

Project: 48016-04

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
07-618-1	MW-7	26 JUL 91	
07-618-2	MW-10	26 JUL 91	
PARAMETER		07-618-1	07-618-2
Volatile Organics (EPA 624)			
Date Analyzed		08.09.91	08.09.91
Date Extracted		08.09.91	08.09.91
Dilution Factor, Times		20	1
1,1,1-Trichloroethane, ug/L		<20	<1
1,1,2,2-Tetrachloroethane, ug/L		<20	<1
1,1,2-Trichloroethane, ug/L		<20	<1
1,1-Dichloroethane, ug/L		<20	<1
1,1-Dichloroethene, ug/L		<20	<1
1,2-Dichloroethane, ug/L		<20	<1
1,2-Dichlorobenzene, ug/L		<20	<1
1,2-Dichloropropane, ug/L		<20	<1
1,3-Dichlorobenzene, ug/L		<20	<1
1,4-Dichlorobenzene, ug/L		<20	<1
2-Chloroethylvinylether, ug/L		<20	<1
2-Hexanone, ug/L		<20	<1
4-Methyl-2-Pentanone, ug/L		<20	<1
Acetone, ug/L		<200	<10
Acrolein, ug/L		<200	<10
Acrylonitrile, ug/L		<200	<10
Bromodichloromethane, ug/L		<20	<1
Bromomethane, ug/L		<20	<1
Benzene, ug/L		31	<1
Bromoform, ug/L		<20	<1
Chlorobenzene, ug/L		<20	<1
Carbon Tetrachloride, ug/L		<20	<1
Chloroethane, ug/L		<20	<1

Analytical Report

LOG NO: E91-07-618

Received: 26 JUL 91


Mr. Mike Bennett
Hygienetics
2200 Powell Street Suite 880
Emeryville, California 94608

Project: 48016-04

REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
07-618-1	MW-7	26 JUL 91	
07-618-2	MW-10	26 JUL 91	
PARAMETER		07-618-1	07-618-2
Chloroform, ug/L		<20	<1
Chloromethane, ug/L		<20	<1
Carbon Disulfide, ug/L		<20	<1
Dibromochloromethane, ug/L		<20	<1
Ethylbenzene, ug/L		<20	<1
Freon 113, ug/L		<20	<1
Methyl ethyl ketone, ug/L		<400	<20
Methylene chloride, ug/L		<100	<5
Styrene, ug/L		<20	<1
Trichloroethene, ug/L		230	<1
Trichlorofluoromethane, ug/L		<20	<1
Toluene, ug/L		<20	<1
Tetrachloroethene, ug/L		1600	22
Vinyl acetate, ug/L		<20	<1
Vinyl chloride, ug/L		<20	<1
Total Xylene Isomers, ug/L		<20	<1
cis-1,2-Dichloroethene, ug/L		120	<1
cis-1,3-Dichloropropene, ug/L		<20	<1
trans-1,2-Dichloroethene, ug/L		<20	<1
trans-1,3-Dichloropropene, ug/L		<20	<1


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

Analytical Report

LOG NO: E91-07-597

Received: 25 JUL 91

Mailed: AUG 13 1991

Mr. Mike Wright
Hygienetics
2200 Powell Street Suite 880
Emeryville, California 94608

Project: 48016-04

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
07-597-1	MW-14-01,02	25 JUL 91
07-597-2	MW-13-03,04	25 JUL 91
07-597-3	MW-09-05,06	25 JUL 91
07-597-4	MW-06-08	25 JUL 91

PARAMETER	07-597-1	07-597-2	07-597-3	07-597-4
Volatile Organics (EPA 624)				
Date Analyzed	08.03.91	08.03.91	08.03.91	08.03.91
Date Extracted	08.03.91	08.03.91	08.03.91	08.03.91
Dilution Factor, Times	0.5	0.5	0.5	0.5
1,1,1-Trichloroethane, ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane, ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane, ug/L	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane, ug/L	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene, ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane, ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene, ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane, ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene, ug/L	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene, ug/L	<0.5	<0.5	<0.5	<0.5
2-Chloroethylvinylether, ug/L	<0.5	<0.5	<0.5	<0.5
2-Hexanone, ug/L	<0.5	<0.5	<0.5	<0.5
4-Methyl-2-Pentanone, ug/L	<0.5	<0.5	<0.5	<0.5
Acetone, ug/L	<5	<5	<5	<5
Acrolein, ug/L	<5	<5	<5	<5
Acrylonitrile, ug/L	<5	<5	<5	<5
Bromodichloromethane, ug/L	<0.5	<0.5	<0.5	<0.5
Bromomethane, ug/L	<0.5	<0.5	<0.5	<0.5
Benzene, ug/L	<0.5	<0.5	<0.5	<0.5
Bromoform, ug/L	<0.5	<0.5	<0.5	<0.5
Chlorobenzene, ug/L	<0.5	<0.5	<0.5	<0.5

Analytical Report

LOG NO: E91-07-597

Received: 25 JUL 91

Mr. Mike Wright
 Hygienetics
 2200 Powell Street Suite 880
 Emeryville, California 94608

Project: 48016-04

REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
07-597-1	MW-14-01,02	25 JUL 91
07-597-2	MW-13-03,04	25 JUL 91
07-597-3	MW-09-05,06	25 JUL 91
07-597-4	MW-06-08	25 JUL 91

PARAMETER	07-597-1	07-597-2	07-597-3	07-597-4
Carbon Tetrachloride, ug/L	<0.5	<0.5	<0.5	<0.5
Chloroethane, ug/L	<0.5	<0.5	<0.5	<0.5
Chloroform, ug/L	<0.5	<0.5	1.0	1.1
Chloromethane, ug/L	<0.5	<0.5	<0.5	<0.5
Carbon Disulfide, ug/L	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane, ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene, ug/L	<0.5	<0.5	<0.5	<0.5
Freon 113, ug/L	<0.5	<0.5	<0.5	<0.5
Methyl ethyl ketone, ug/L	<10	<10	<10	<10
Methylene chloride, ug/L	<2	<2	<2	<2
Styrene, ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethene, ug/L	0.7	<0.5	<0.5	<0.5
Trichlorofluoromethane, ug/L	<0.5	<0.5	<0.5	<0.5
Toluene, ug/L	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene, ug/L	1.1	30	<0.5	74
Vinyl acetate, ug/L	<0.5	<0.5	<0.5	<0.5
Vinyl chloride, ug/L	<0.5	<0.5	<0.5	<0.5
Total Xylene Isomers, ug/L	<0.5	<0.5	0.7	<0.5
cis-1,2-Dichloroethene, ug/L	2.1	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene, ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene, ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene, ug/L	<0.5	<0.5	<0.5	<0.5
Semi-Quantified Results **				
Difluorochloromethane, ug/L	20	---	---	---



Analytical Report

LOG NO: E91-07-597

Received: 25 JUL 91

Mr. Mike Wright
Hygienetics
2200 Powell Street Suite 880
Emeryville, California 94608

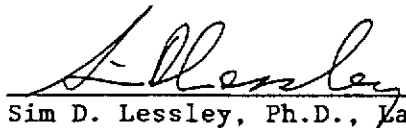
Project: 48016-04

REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
07-597-1	MW-14-01,02	25 JUL 91
07-597-2	MW-13-03,04	25 JUL 91
07-597-3	MW-09-05,06	25 JUL 91
07-597-4	MW-06-08	25 JUL 91
PARAMETER	07-597-1 07-597-2 07-597-3 07-597-4	

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


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

APPENDIX 2

CHAIN OF CUSTODY RECORDS

CHAIN OF CUSTODY RECORD

1 VOA Sample

BCA Log Number 9107577

Client name <i>Hygienetics</i>				Project or PON <i>48016-04</i>		Analyses required <i>624</i>					
Address <i>2200 Powell St. suite 880</i>				Phone # <i>415-547-3886</i>							
City, State, Zip <i>Emeryville, CA 94608</i>			Report attention <i>Mike Wright</i>								
Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by <i>Mike Luksic & Rob Fitzburg</i>	Number of containers	Remarks					
Sample description											
<i>01</i>	<i>7-25</i>	<i>1220</i>	<i>GW</i>	<i>40 ml VOA MW-14-01</i>	<i>1</i>						
<i>02</i>	<i>7-25</i>	<i>1220</i>	<i>GW</i>	<i>40 ml VOA MW-14-02</i>	<i>1</i>						
<i>03</i>	<i>7-25</i>	<i>1255</i>	<i>GW</i>	<i>40 ml VOA MW-13-03</i>	<i>1</i>						
<i>04</i>	<i>7-25</i>	<i>1255</i>	<i>GW</i>	<i>40 ml VOA MW-13-04</i>	<i>1</i>						
<i>05</i>	<i>7-25</i>	<i>1440</i>	<i>GW</i>	<i>40 ml VOA MW 9-05</i>	<i>1</i>						
<i>06</i>	<i>7-25</i>	<i>1440</i>	<i>GW</i>	<i>40 ml VOA MW-9-06</i>	<i>1</i>						
<i>08</i>	<i>7-25</i>	<i>1550</i>	<i>GW</i>	<i>40 ml VOA MW-6-08</i>	<i>1</i>						

Signature	Print Name	Company	Date	Time
<i>Mike Luksic</i>	<i>Mike Luksic</i>	<i>Hygienetics</i>	<i>7-25-91</i>	<i>1750</i>
<i>J. Anderson</i>	<i>J. Anderson</i>	<i>BCA</i>	<i>7/25/91</i>	<i>1750</i>
Relinquished by				
Received by				
Relinquished by				
Received by				
Relinquished by				
Received by Laboratory				

B C ANALYTICAL

- 1255 Powell Street, Emeryville, CA 94608 (415) 428-2300
- 801 Western Avenue, Glendale, CA 91201 (818) 247-5737
- 1200 Pacific Avenue, 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

CHAIN OF CUSTODY RECORD

BCA Log Number 9107618

Client name <u>Hygienetics</u>				Project or PO# <u>48016-04</u>		Analyses required Hazardous sample special handling required								
Address <u>2200 Powell St. suite 888</u>				Phone # <u>415-577-3886</u>										
City, State, Zip <u>Emeryville, CA 94608</u>			Report attention <u>Mike Wright</u>											
Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by	Sample description	Number of containers	Remarks							
				<u>Mike Luksic</u>										
<u>1W7</u> 09	<u>7-26</u>	<u>945</u>	<u>GW</u>		<u>80 ml VOA</u>	<u>1</u>								
" 10	<u>7-26</u>	<u>945</u>	<u>GW</u>		<u>"</u>	<u>1</u>								
<u>1W10</u> 11	<u>7-26</u>	<u>1030</u>	<u>GW</u>		<u>"</u>	<u>1</u>								
" 12	<u>7-26</u>	<u>1030</u>	<u>GW</u>		<u>"</u>	<u>1</u>								

Signature	Print Name	Company	Date	Time
Relinquished by <u>Mike Luksic</u>	<u>Mike Luksic</u>	<u>Hygienetics</u>	<u>7-26-91</u>	<u>12:20</u>
Received by <u>Kathy O'Brien</u>	<u>Kathy O'Brien</u>	<u>BCA</u>	<u>7-26-91</u>	<u>12:20</u>
Relinquished by				
Received by				
Relinquished by				
Received by Laboratory				

- BC ANALYTICAL**
- 1255 Powell Street, Emeryville, CA 94608 (415) 428-2300
 - 801 Western Avenue, Glendale, CA 91201 (818) 247-5737
 - 1200 Pacifico Avenue, 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