SUBSURFACE INVESTIGATION
LIVERMORE ARCADE SHOPPING CENTER
FIRST STREET AND SOUTH P STREET
LIVERMORE, CALIFORNIA

Oct 12, 1990

Prepared for:

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October 12, 1990

Project No. 48001.36

MW4/R0016ARC

Hygienetics Inc.

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1.0 SUMMARY OF FINDINGS

Hygienetics' investigation revealed Tetrachloroethene (PCE) contamination of the groundwater originating at a dry cleaning facility at the Livermore Arcade Shopping Center.

Analysis of groundwater samples showed a maximum PCE level of 5700 ug/l (equivilant to parts per billion) in the groundwater below the dry cleaners.

The plume has moved along the groundwater flow gradient approximately 900 feet to the north-northeast of the Site under neighboring properties.

Discusssions with the Regional Water Quality Control Board and Alameda County indicated that groundwater remediation of the Site shall be required to a cleanup standard of 5 ug/l. Concentrations of PCE in the soil were judged as low enough to not require remediation.

Minimum of 6 years of pump/treat required, according to initial estimates.

2.0 INTRODUCTION

2.1 Purpose and Scope of Work

This is a report of a subsurface investigation 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 Trust, referred to in this report as "Grubb & Ellis."

The purpose of this investigation is to determine the vertical and horizontal extent of tetrachloroethene (also known as perchloroethylene, perk, or PCE) contamination discovered in the groundwater at the Site. benzene, toluene, total xylene isomers, and ethylbezene (BTXE), common components of gasoline, were also detected in the groundwater at the Site. The gasoline contamination is considered to have originated from an off-site source. Hygienetics did not focus on the gasoline contamination problem in this investigation.

Groundwater monitoring wells were installed and soil borings were drilled at various locations on and off of the Site. Groundwater and soil samples were collected and transferred by chain of custody procedures to BC Analytical, a California certified environmental laboratory. The groundwater and soil samples were analyzed for chlorinated and non-chlorinated hydrocarbons by EPA Methods 624 or 8240 respectively.

Hygienetics evaluated the analytical results and presented preliminary findings to the Regional Water Quality Control Board (RWQCB) on behalf of Grubb & Ellis. Hygienetics obtained various permits from State, county, and city agencies, and assisted in securing operating agreements from private individuals involved in the investigation. This investigation is subject to the terms and limitations included as Appendix D of this report.

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. Livermore is located approximately 25 miles east of San Francisco Bay along Highway 580. Railroad Avenue borders the Site to the north. South S Street borders the Site to the west.

2.3 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.

The Site is located in a critical groundwater recharge area according to the State of California 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 (report dated February 27, 1990). Hygienetics discovered that an on-Site groundwater problem exists which could affect the drinking water source for the City of Livermore. Chlorinated and non-chlorinated hydrocarbon compounds including PCE and gasoline components were discovered in the groundwater upon the installation of three monitoring wells.

At the request of Grubb & Ellis, Hygienetics proposed a plan of action which was approved by the RWQCB and the County of Alameda. Hygienetics designed a subsurface investigation to determine the source of and the horizontal and vertical extent of PCE contamination at the Site. The primary source of PCE contamination appears to have been a dry cleaning facility which has operated on-Site since about 1982 (currently the site of "Mike's Cleaners"). The prior operator of the facility is suspected of discharging PCE waste directly into the floor drain into a flowing sewer connection line. A television survey of the 4 inch sewer connection

showed that there is a break in the sewer pipe. The PCE is believed to have become highly dilluted in the pipe and to have entered the soil through this break. It has subsequently been washed through the soil by the steady leakage of the pipe. After confirming that "Mike's Cleaners" is the locus of the PCE contamination, monitoring wells were installed in order to define the vertical and horizontal boundaries of the PCE plume.

The gasoline contamination detected in the groundwater is believed to be from a source southeast of the Site and Alameda County officials are attempting to identify that source. Hygienetics was informed by Gil Wister of Alameda County Department of Health Services that PCE contamination has resulted in the closure of several California Water Service (CWS) wells in the City of Livermore. Hygienetics contacted CWS and recieved water testing rsults from their Livermore wells. The two wells closest to the Site, CWS-3 and CWS-8 have never shown PCE contamination according to tests performed until 1988. CWS denied Hygienetics request for access to the wells for the purpose of resampling and testing.

3.0 FIELD INVESTIGATION

3.1 Regional Geology and Groundwater

The Site is located in Township 3 South, Range 1 East, Section 17, of the Mt. Diablo Baseline Meridian. United States Geological Survey Quadrangle Maps show the surface elevation at the Site to be approximately 470 feet above MSL (mean sea level).

The Site is underlain by Tertiary age Livermore Gravels which consist of massive beds of rounded gravel cemented by a sandy clay matrix. Approximately 100 feet of Quarternary Alluvial Fan deposits overlay the Livermore Gravels in the Site vicinity. The Alluvial Fan deposits consist of semi-consolidated deposits of clay, silt, sand, and gravel in a matrix of clayey sand.

The Site is located in the Mocho Sub-basin which is a division of the Livermore Valley Groundwater Basin. Groundwater in the Site vicinity ranges from unconfined in near surface zones to confined in deeper zones (Department of Water Resources Bulletin 118-2, 1974). The first groundwater encountered in monitoring wells at the Site is approximately 40 feet below the surface and is moving in a north-northwest direction. The Site is located in a groundwater recharge area as designated by the RWQCB.

The City of Livermore water supply is provided from a combination of water wells operated by California Water Service Company (CWS) and treated surface water from the South Bay Aquaduct, which is operated by Alameda County Zone 7 Flood Control. Six CWS water wells are located within a one-mile radius of the Site.

Two CWS wells (CWS-3 and CWS-8) are located downgradient and in close proximity to the Site. Original boring logs from these wells were obtained from CWS and were reviewed for stratigraphic information and to check the screened intervals of the wells. CWS-3 was constructed in 1924 and is continuously screened from 280 feet to 412 feet. The stratigraphy is described as alternating clay and gravel zones to approximately 420 feet with several distinct clay zones above the screened interval. These clay layers may act as an aquiclude. CWS-8 was constructed in 1948 and is intermittantly screened from 122 feet to 263 feet. The boring log shows soil formations described as alternating clay and gravel zones. Four distinct yellow clay zones are recorded between the ground surface and the top of the screened interval.

3.2 Soil Borings and Soil Sampling

On March 25, 1990 and July 24 1990, four (4) soil borings were advanced on-Site by Datum Exploration under the

supervision of Hygienetics. The borings were drilled using a truck-mounted, CME-75 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 soil and groundwater contamination from a suspected on-site source. The borings were placed along a sanitary sewer pipe which originated from a floor drain located in Mike's One Hour Cleaners. Soil samples were collected and sent to BC Analytical Laboratory by chain of custody procedures for analysis by EPA method 8240. In addition, field screening of soil samples was performed using an Organic Vapor Monitor (OVM). The OVM detects concentrations of volatile organics which accumulate in the headspace of the soil sample jars. A summary of all soil sampling and analysis is shown in Table 3. Soil samples were taken at five foot intervals using a split spoon sampler and brass tubes. In monitoring well MW7 continuous sampling and logging was performed. This boring log most accurately reflects the stratigraphy at the Site.

Geologic units encountered in the fifteen wells at the Site consist of lenses and channels of interbedded silty clay and silty, sandy, clayey gravels (Figure 3). At approximately twenty feet in many of the wells, a prominent silty clay layer, two to ten feet thick is found, although it is not

laterally continuous thoughout the area of investigation. In monitoring well MW15, a different unit is found, in that a silty clay layer that began at a depth of approximately 20 feet appeared to grade to a fine gravelly clay at a depth of 55 feet. The overall stratigraphy displays characteristics of generally low permeability in zones of slow groundwater recharge. The groundwater migration pathways appear to be thin, meandering micro-channels.

3.3 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 or 4.0 inch inner diameter, flush-jointed, Schedule 40 PVC risers attached to factory-perforated, 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 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. Details of each well's construction are indicated on the Well Construction Diagrams (Appendix A).

3.4 Groundwater Measurements

All monitoring well locations were surveyed and the groundwater elevations measured on March 24 and October 11, 1990. On both occasions, the calculated direction of groundwater flow was to the north-northwest. There are numerous factors which affect the groundwater elevation and which would influence the slope of the potentiometric surface. These include surface recharge variations, rainfall, local well pumping activity, and periodic discharges from the South Bay Aquaduct. A calculated direction of groundwater flow is illustrated on Figure 1.

3.5 Groundwater Sampling and Analysis

Groundwater samples were obtained from each of the fifteen wells between the dates of April 26 and October 10, 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 BC Analytical. 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 8240. Some of the samples were analyzed for total petroleum hydrocarbons (TPH). The level of PCE concentrations detected at each groundwater monitoring well is listed in Figure 4. The laboratory data is included in Appendix B. The contaminant concentrations discovered in the groundwater monitoring wells are shown in Table 1.

4.0 RESULTS

The results of the analytical testing showed that PCE is present at levels far exceeding the Califorinia drinking water standard of 5 ug/l. The highest result of 5800 ug/l was found in a grab sample taken from the soil boring B1, directly under the sewer pipe at "Mike's Cleaners". Analysis from other monitoring wells showed the PCE plume to be moving in the calculated direction of groundwater flow (north-northwest) and has reached a length of approximately 900 feet.

Monitoring wells MW8 and MW9 showed a series of chloronated compounds commonly identified as byproducts of chlorine disinfection in the public water supply. These compounds are not believed to have originated with the PCE plume.

The PCE plume extends north from the Site across the western portion of Miller's Outpost Shopping Center, and apparently ends across the Southern Pacific Railroad tracks near Lambaren Avenue. The analytical results of groundwater samples from monitoring wells 3,4,5 and 9 give evidence of the southern and eastern extent of the PCE contamination as they are low or non detectable concentrations. Results at monitoring well 15 defines the northwestern extent of contamination. All chlorinated and non-chlorinated hydrocarbons were non detectable there. PCE concentration

levels at monitoring wells 6 and 10 show a decrease of one order of magnitude from the concentration detected in MW2.

The edge of a gasoline contamination plume appears to have impacted monitoring wells 1, 2, 5, 7, 9, and 12. The source for this contamination is currently believed to be an off-site source to the southeast of the Site. 1,1,1-trichoroethane was also discovered at lower levels and may be associated with the PCE plume as either an original contaminant or as a decay product of PCE.

TABLE 1

Summary of Analytical Results

Groundwater Samples

Sample Location	Parameter	Concentration (ug/l)	Date Sampled
B1-U	Trichloroethene	140	5/25/90
	*Tetrachloroethene	5,800	
	Total Xylene Isomers	79	
B2-U	*Tetrachloroethene	820	5/25/90
MW1	TPH (gasoline)	84,000	3/23/90
	Benzene	11,000	
	Ethylbenzene	3,400	
	Toluene	22,000	
	Total Xylene Isomers	20,000	
MW2	TPH (gasoline)	100	3/24/90
	*Tetrachloroethene	330	
MW3	N.D.	--	3/23/90
MW4	N.D.	--	5/30/90
MW5	Benzene	400	5/30/90
	Ethylbenzene	31	
	Toluene	22	
	*Tetrachloroethene	2	
	Total Xylene Isomers	45	
	C5-C15 Hydrocarbons	500	
MW6	*Tetrachloroethene	35	6/04/90
MW7	TPH (C4-C12)	12,000	6/04/90
	Benzene	63	
	Trichloroethene	26	
	Toluene	11	
	*Tetrachloroethene	900	
	Total Xylene Isomers	840	
	cis-1,2-Dichloroethene	140	
	C5-C9 Hydrocarbons	30	

* = Also known as perchloroethylene, perk, PCE
N.D. = Non Detectable

TABLE 1 (Continued)

Summary of Analytical Results

Groundwater Samples

Sample Location	Parameter	Concentration (ug/l)	Date Sampled
MW8	Bromodichloromethane	2	7/26/90
	Chloroform	2	
	Trichloroethene	17	
	*Tetrachloroethene	580	
	cis-1,2-Dichloroethene	6	
MW9	Bromodichloromethane	10	7/26/90
	Bromoform	2	
	Chloroform	20	
	Ethyl Benzene	3	
MW10	*Tetrachloroethene	35	8/25/90
MW11	*Tetrachloroethene	100	8/25/90
MW12	Chloroform	1	9/06/90
	Trichloroethene	1.1	
	Toluene	1.4	
	*Tetrachloroethene	170	
MW13	*Tetrachloroethene	23	9/24/90
	*Tetrachloroethene	36	
MW14	Trichloroethene	1	9/24/90
	*Tetrachloroethene	5	
	cis-1,2-Dichloroethene	5	
MW15	N.D.		10/10/90

* = Also known as perchloroethylene, perk, PCE
N.D. = Non Detectable

TABLE 2

Summary of Analytical Results

Soil Samples

Sample Location	Parameter	Concentration (mg/kg)	Date Sampled
B1-12'	N.D.	-	5/25/90
B1-16'	1,1,1-Trichloroethane	1.0	5/25/90
	*Tetrachloroethene	0.3	
B1-44'	1,1,1-Trichloroethane	0.9	5/25/90
	*Tetrachloroethene	2.3	
B1-54'	1,1,1-Trichloroethane	1.9	5/25/90
	*Tetrachloroethene	0.2	
	C10 Hydrocarbon	4.0	
B2-4'	*Tetrachloroethene	0.5	5/25/90
B2-54'	1,1,1-Trichloroethane	1.7	5/25/90
	*Tetrachloroethene	0.2	
MW4-21'	N.D.	-	5/29/90
MW5-26'	1,1,1-Trichloroethane	3.5	5/29/90
MW6-20'	N.D.	-	5/31/90
MW7-19.5'	1,1,1-Trichloroethane	0.5	6/01/90
MW7-31'	*Tetrachloroethene	0.3	6/01/90
MW7-41.3'	*Tetrachloroethene	0.4	6/01/90
MW7-61'	1,1,1-Trichloroethane	0.3	6/01/90
	C6-C13 Hydrocarbon	60	
MW7-66.5'	N.D.	-	6/01/90
B3-12.5'	*Tetrachloroethene	0.3	7/26/90
B3-16.5'	*Tetrachloroethene	0.5	7/26/90

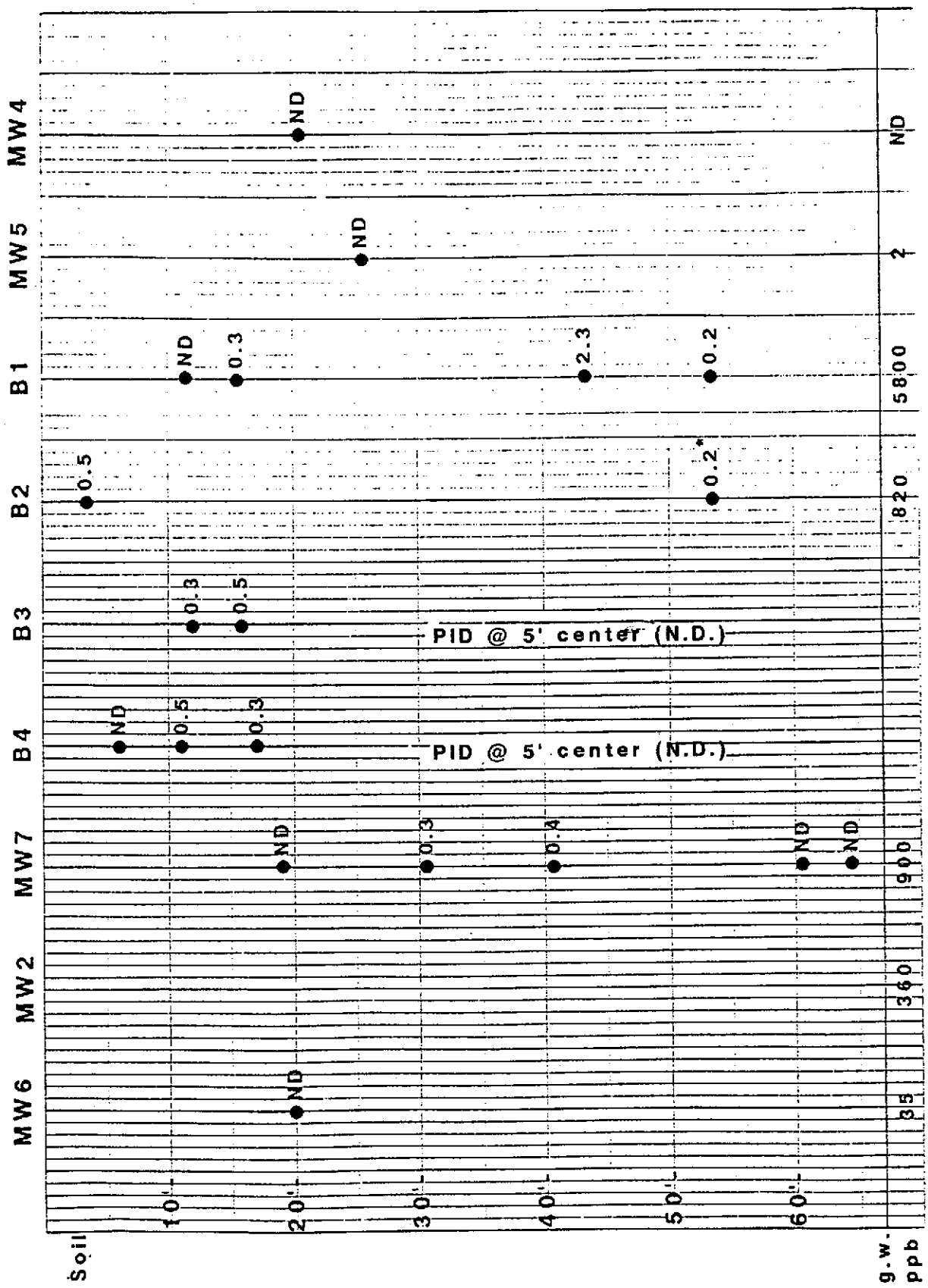
* = Also known as perchloroethylene, perk, PCE
N.D. = Non Detectable

Summary of Analytical Results

Soil Samples

Sample Location	Parameter	Concentration (mg/kg)	Date Sampled
B4-6.5'	N.D.	-	7/26/90
B4-11.5'	*Tetrachloroethene	0.5	7/26/90
B4-17.5'	*Tetrachloroethene	0.3	7/26/90

* = Also known as perchloroethylene, perk, PCE
N.D. = Non Detectable



Soil Sampling Location and PCE Concentration

Livermore Arcade
Livermore, California

Hygienetics Inc.
Industrial Hygienists
Architects / Engineers
Environmental Consultants

PROJECT NO. 48001-36
DRN. BY CH
TABLE 3

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REV. | DATE | DESCRIPTION

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5.0 DISCUSSION

PCE is one of the 212 substances for which OSHA established a more protective permissible exposure limits. The EPA regulates PCE under the Clean Water Act, CERCLA; the Food , Drug and Cosmetic Act, RCRA, and the Safe Drinking Water Act. It is considered an air pollutant, a water pollutant and can become a hazardous waste. The maximum contamination level (MCL) in groundwater, allowed by the State of California Department of Health is 5 ppb (parts per billion).

PCE and compounds suspected to be degradation products of PCE were discovered in the soil and groundwater at the Site. The highest concentrations were detected in groundwater samples taken from boring B1 and monitoring well MW7, which are located immediately outside of Mike's Cleaners. Soil samples with detectable concentrations of PCE were collected in the same area, below the broken sewer line.

PCE is a solvent used extensively in the dry cleaning industry. It has a density of 1.63 times greater than water, consequently when spilled or released into the environment in a pure form it will tend to seep through soils and will continue to desend through the groundwater, lodging in lenses and pockets. The PCE at this Site appears to have been highly dilluted as it reached the groundwater table and has not ben found at levels exceeding its solubility level in water. As a result, it appears to have remained in and

traveled along the upper aquifer at depths of 40 feet to 60 feet. The PCE in the soil does not appear at levels exceeding 2.3 mg/l and appears to be localized around the broken pipe. The continuous leaking of the pipe for the four years since the last suspected discharge of PCE may have washed the soil of the PCE contamination and also provided an additional driving force for the spread of the PCE groundwater plume by raising the groundwater table.

6.0 AGENCY DISCUSSIONS

Hygienetics presented preliminary groundwater analysis esults and final soil testing results to Mr. Rico Duazo of the RWQCB and Mr. Gil Wister of Alameda County Department of Environmental Health on August 9, 1990. Both Mr. Wister and Mr. Duazo indicated that PCE levels in the soil were low and that soil remediation would not be required as long as the 4 inch sewer pipe was replaced. Groundwater remediation, however, would be required and would be expected to meet California drinking water standards. Mr. Wister also stated that since Hygienetics could not find a source of gasoline contamination on Site, he would investigate the neighboring Beacon Oil station as a potential source. The Delta Environmental Company has recently been granted permission to sample wells on the Arcade Site on behalf of Beacon Oil.

Hygienetics spoke with the City of Livermore Sanitation District regarding the discharge of treated groundwater into the city sewer system. City of Livermore representitives stated that only treated groundwater could be discharged into the sewer and that the goal of the treatment system should be California drinking water standards (5 ug/l for PCE, 1 ug/l for benzene).

7.0 Groundwater Remediation Plan

Hygienetics proposes to install a groundwater remediation system that would pump from two (2) extraction wells and treat groundwater with two (2) liquid phase carbon adsorption systems. One system would be placed near the location of the release at Mike's Cleaners and be connected to a newly constructed extraction well optimized to provide maximum yield from the formation. An additional system would be placed downgradient in the parking lot behind the Millers Outpost Shopping Center and extract groundwater from monitoring well MW12.

Conceptual hydrogeologic computer modeling of the area was also performed by Hygienetics to aid in the remediation design. The parameters chosen were varied over a wide range to bracket various scenarios. Using the likely variables of a 1/2 gallon per minute pumping rate , transmissivity of 500 gpd/ft, storativity of 0.01, and a steady state pumping period of 48 hours the model indicated the radius of influence for each well would be approximately 350 feet. This distence is sufficient is sufficient to draw the plume back to the extraction wells. This conceptual model shall be calibrated by Hygienetics by pump testing the extraction wells. Hygienetics actually plans on operating the extraction wells at 1 to 2 gpm. This higher pumping rate shall increase the drawdown in the wells and increase the radius of influence of the wells.

A liquid phase carbon adsorption system can remove organics contaminants to below the drinking water standard. Hygienetics proposes to use a duel drum system to treat the groundwater before discharging it to the public sewer system. The used carbon drums with PCE adsorbed onto the granular carbon will be taken away by a liscensed hazardous waste hauler for either regulatory approved disposal or regeneration.

High quality submersible pumps will be used in the extraction wells to provide long-lasting, low-maintenance pumping service. The entire system shall be contained in vandal proof steel sheds. All connection lines shall be trenched and buried for permanent installation. A temporary electric pole shall be erected and an overhead electric line shall be connected to a control box on each system. The sheds will be provided with decorative siding to match surrounding exteriors. A fire suppression system shall be provided for each system as required by the Livermore Fire Prevention Office.

Theoretical calculations by Hygienetics show that the groundwater extraction system would have to be operated for 6 years to reduce the contamination levels to below drinking water standards. However, many unforseen but reguarly occurring hydrogeologic conditions could substantially increase the required pumping period. These factors include: hydraulic short circuiting from a clean sand lense; low permeabilities restricting their radius of

influence in certain areas; vertical flow transporting contamination out of the surface aquifer; and low yields limiting flow rates to the remediation system. In addition regulatory action limits could change in the future requiring a more stringent remediation plan.

8.0 Schedule and Cost Estimates

Hygienetics has determined the schedule for implementation of the remediation plan and has calculated the associated costs. The tasks to be performed upto but not including the system installation are as follows:

Hydrgeologic Testing: This activity includes pump testing both extraction wells for calibration of the aquifer model. This activity shall require the use of a field crew and specialized pumps and transducers. Data reduction shall be required to determine aquifer parameters.

RWQCB Negotiation: A minimum of three meetings are anticipated along with continued liason and discussion. Backup information, clarifications, and responses to agency comments are usually required.

Survey/Topo Map: A topographic map of the Site is required for preparation of the final plans. A field survey is necessary to

tie in local benchmarks. Detail drawings shall also be required for the final design phase.

Final Design: Final plans shall be drawn that specify all equipment, line connections, and design details. Full size sheets shall be prepared along with thorough specifications.

Access Negotiations: The current Site owner (Grubb and Ellis) shall have to negotiate with the owners of Millers Outpost Shopping Center for access for the groundwater remediation system. The assistence of the RWQCB may be required .

Cal Water Sampling: Permission to sample CWS wells #8 and #3 has been requested by Hygienetics and is being obtained by the RWQCB.

Discharge Permit: A permit to discharge treated groundwater to the Livermore sewer system must be obtained.

System Installation: The groundwater systems shall be put in place with all city permits obtained. Two duel carbon liquid phase adsorption systems shall be installed in sheds. Submersible pumps shall be installed in the wells and all discharge lines shall be buried for permanent installation.

Pipe Replacement: The 4 inch sewer connection pipe must be replaced and any contaminated soil in the excavation trench removed.

Start Up: Liason with the RWQCB and Alameda County shall be required during this period. Weekly sampling to meet discharge permit requirments must also be performed.

Quarterly Monitoring: Quarterly sampling of 6 monitoring wells as required by the RWQCB shall be performed for the duration of the remediation. Sampling can only be suspended when repeated quarterly sampling has shown no contamination.

Maintenance: Periodic maintenance of the mechanical systems shall be required in addition to yearly replacement of the carbon drums for the duration of the remediation.

Discharge: A fee is charged by the City of Livermore for all discharges to the public sewer system.

Shutdown: The system shall be shutdown and the site restored to its original condition upon completion of the remediation.

As indicated in Section 7.0, the theoretical time period required for remediation of the groundwater to below drinking water standards is 6 years. Unexpected conditions at the Site could increase this period substantially and total costs would increase as a function of the yearly operating costs (quarterly monitoring and maintenance). These costs are currently shown as a lump sum

cost for the the entire 6 year length of the project without interest and escalation calculations.

This report is respectfully submitted October 12, 1990.

Sincerely,

HYGIENETICS, INC.

Michael Wright, R.E.A.
Project Geologist

Karl Novak, P.E., R.E.A.
Program Manager
Environmental Site Assessment Group

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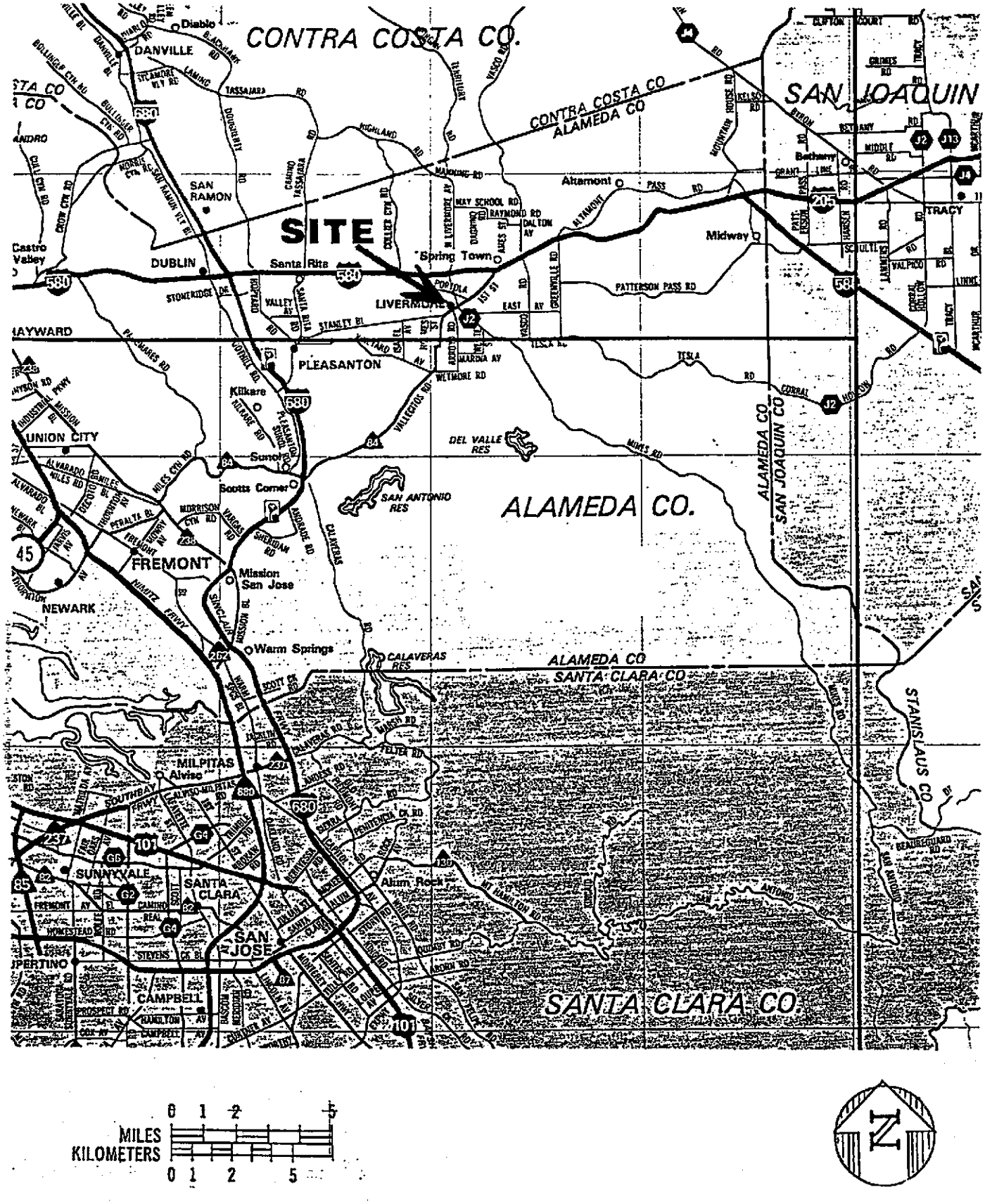

SITE LOCATION MAP Livermore Arcade Livermore, California	Hygienetics Inc. Industrial Hygienists Architects / Engineers Environmental Consultants	PROJECT NO. 48001-36 DRWN. BY	FIGURE 1	DATE 10/90

REV.	DATE	DESCRIPTION

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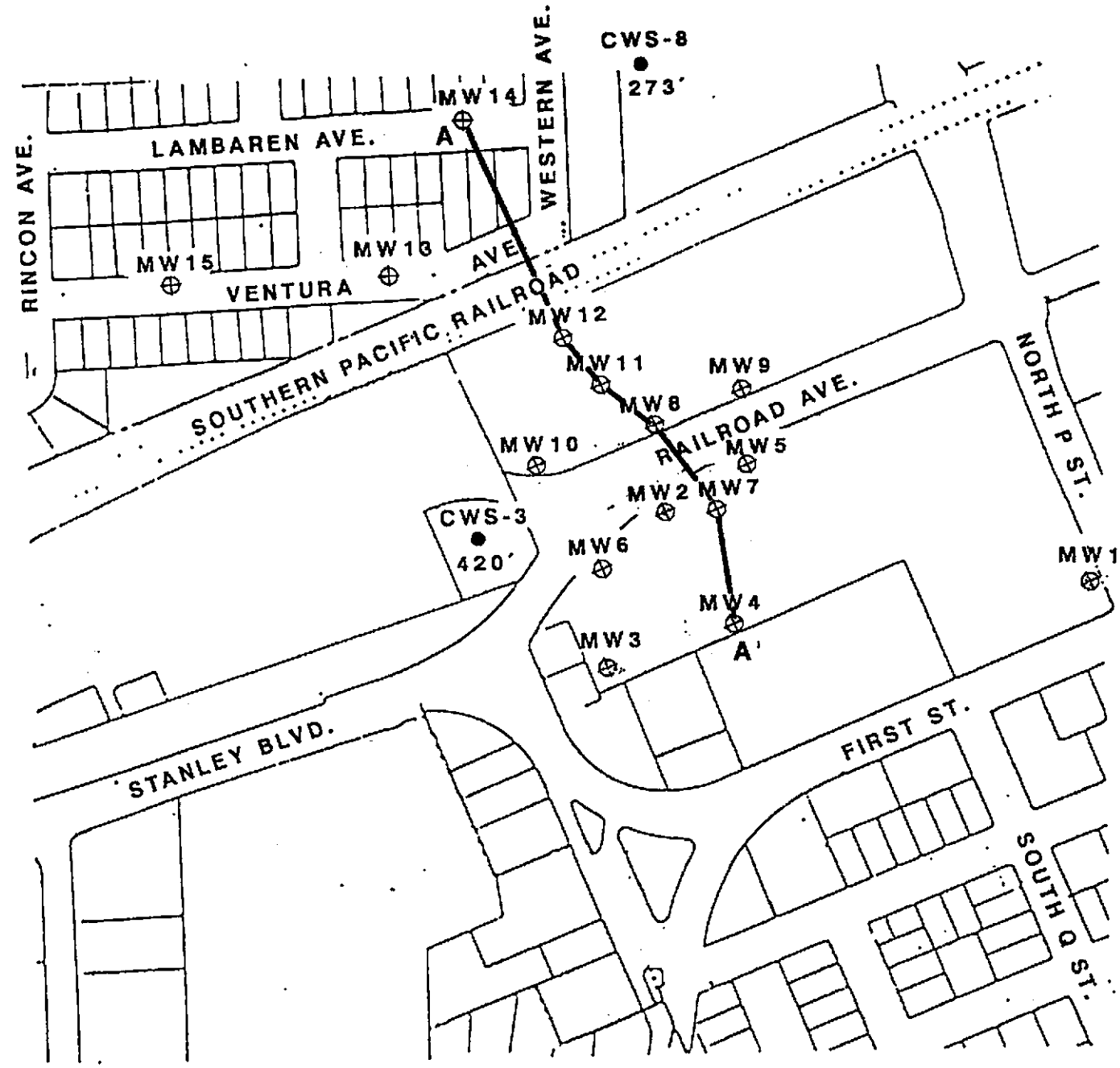

WELL LOCATION Livermore Arcade Livermore, California	Hygienetics Inc. Industrial Hygienists Architects / Engineers Environmental Consultants	PROJECT NO. 4800136 DRN. BY	FIGURE 2
		REV. | DATE | DESCRIPTION	DATE 10/90

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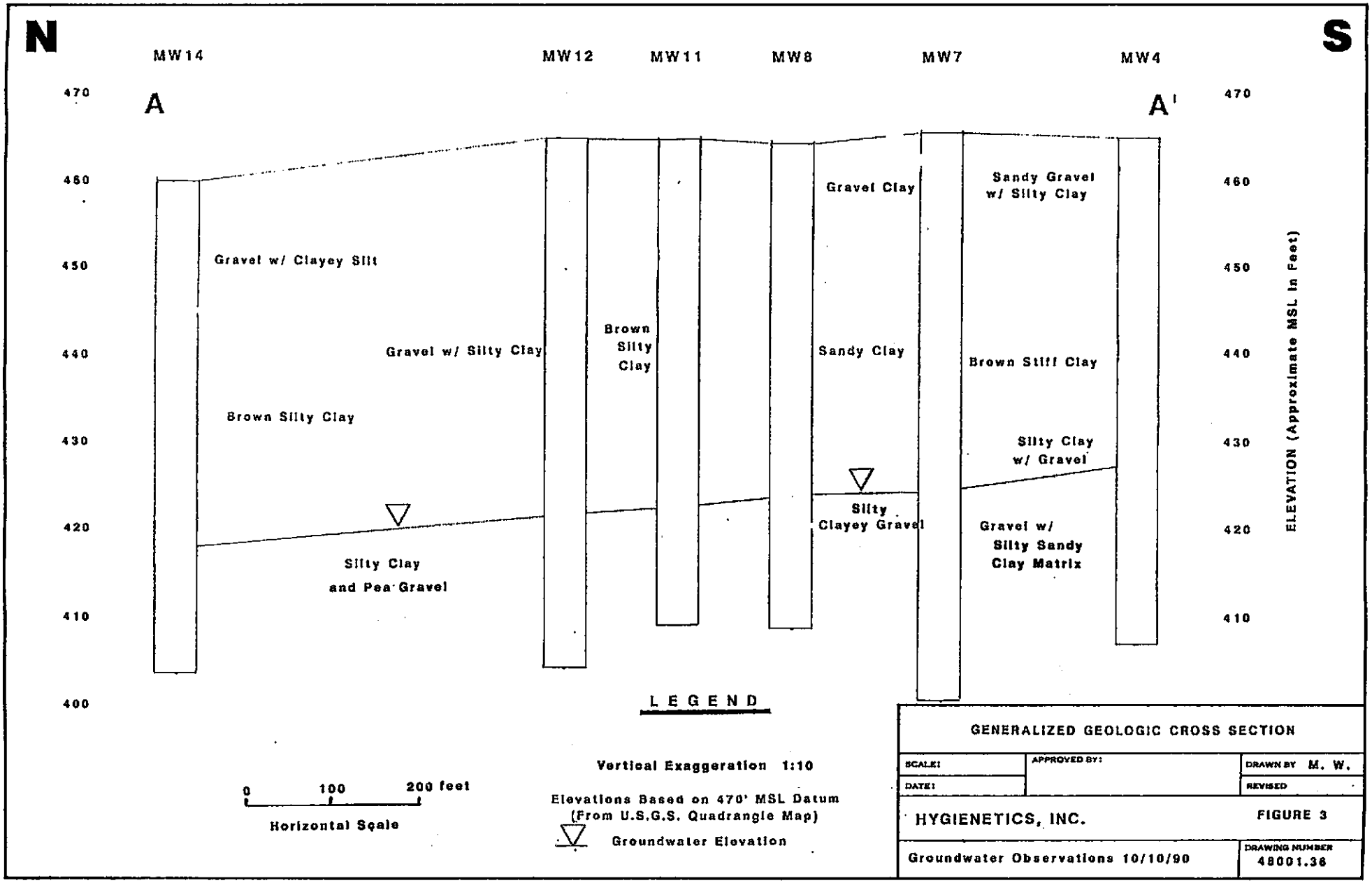


GENERALIZED GEOLOGIC CROSS SECTION

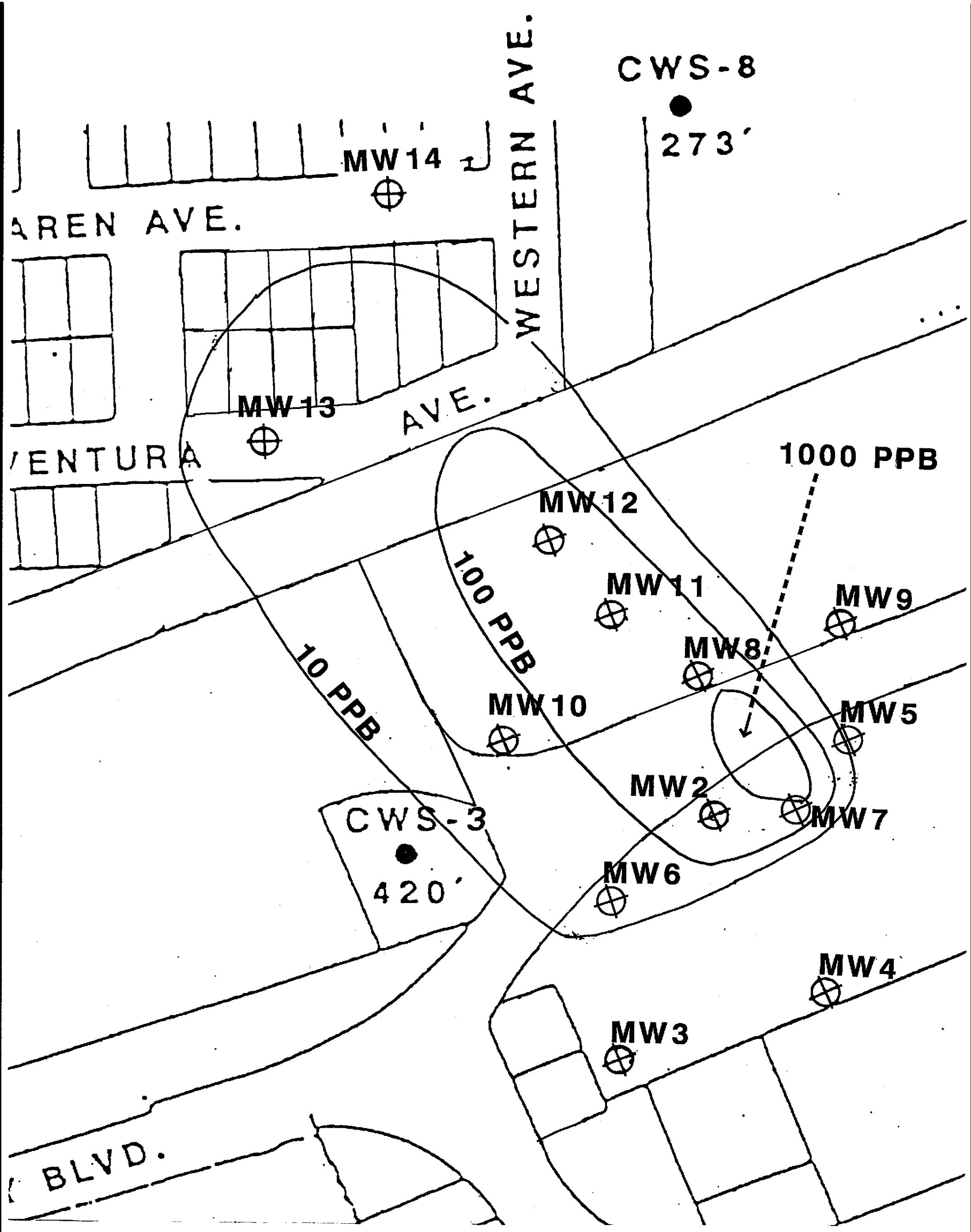
SCALE:	APPROVED BY:	DRAWN BY M. W.
DATE:		REVISED

HYGIENETICS, INC. FIGURE 3

Groundwater Observations 10/10/90 | DRAWING NUMBER 48001.36

FIGURE 4

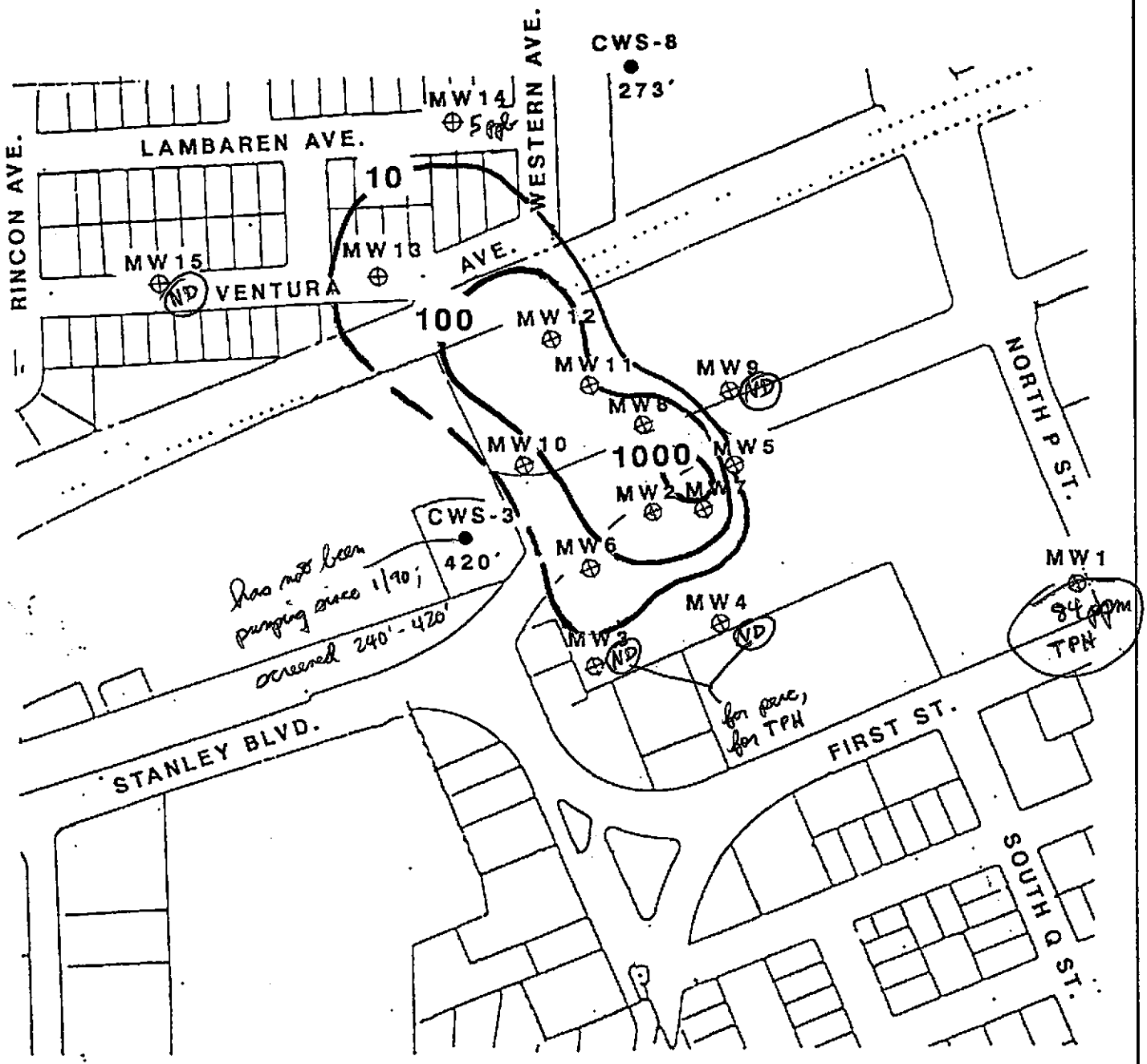
PCE CONCENTRATION DISTRIBUTION



LIVERMORE ARCADE SHOPPING CENTER

TETRACHLOROETHYLENE

PLUME



LEGEND

- Monitoring Well Location
- California Water Service Well
- 10 Contour of PCE (Concentration in ppb)
- Inferred Contour

0 250 500 feet

APPROXIMATE SCALE

GW flow is approximately due north, w/ a small westerly component

Livermore Arcade
Livermore, California

Hygienetics Inc.
Industrial Hygienists
Architects / Engineers
Environmental Consultants

PROJECT NO. 48001-38
DRN. BY

FIGURE 4

DATE 10/90

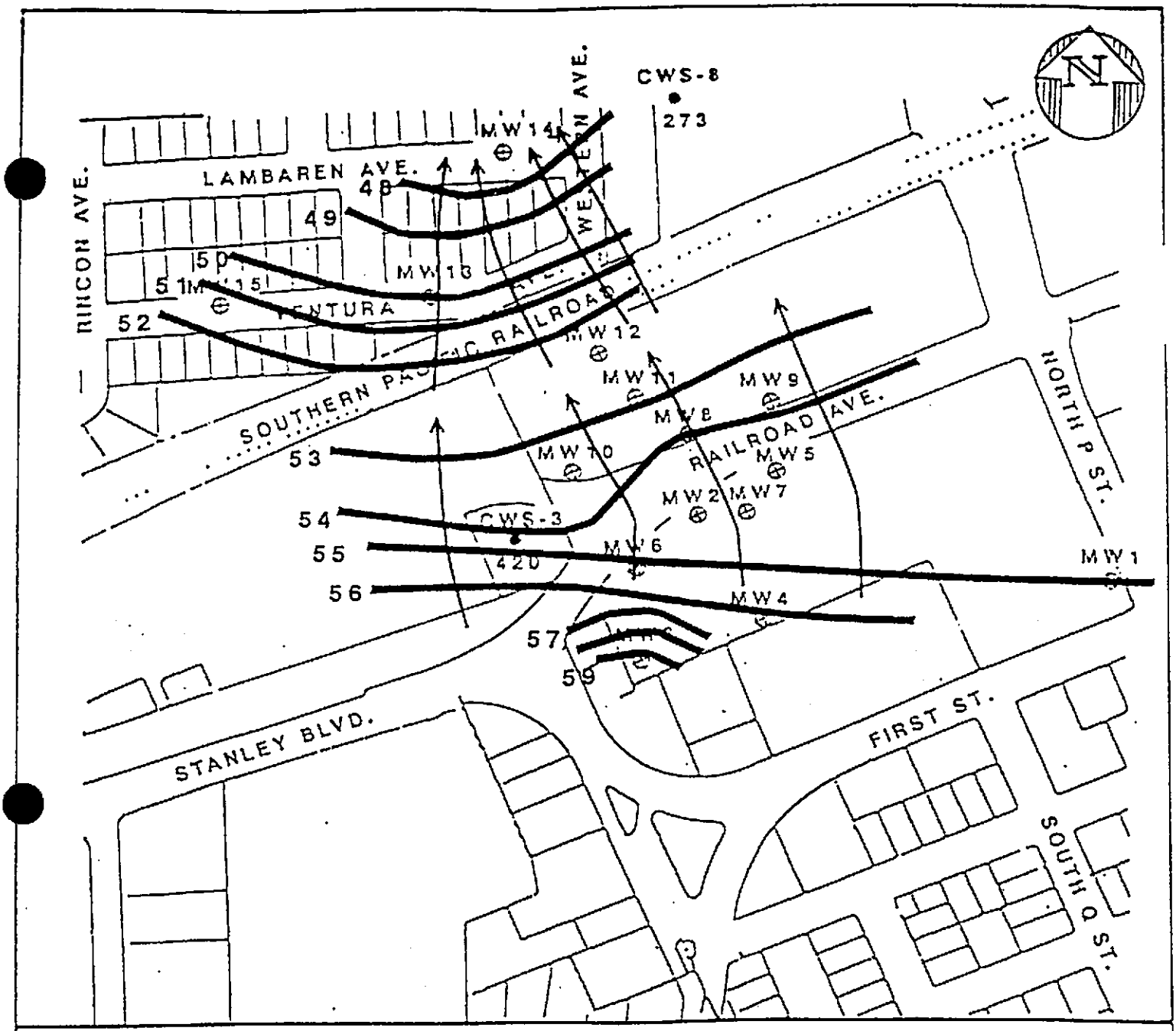
REV. | DATE | DESCRIPTION

153811

MAKEPEACE

FIGURE 5

GROUNDWATER FLOW DIRECTION



LEGEND

⊕ Monitoring Well Location

● California Water Service Well

56 Groundwater Elevation Contours

(Values based on relative elevation of 100ft)

0 250 500 feet

APPROXIMATE SCALE

GROUNDWATER FLOW DIRECTIONS Livermore Arcade Livermore, California	Hygienetics Inc. Industrial Hygienists Architects / Engineers Environmental Consultants	4800136	FIGURE 5	10/90

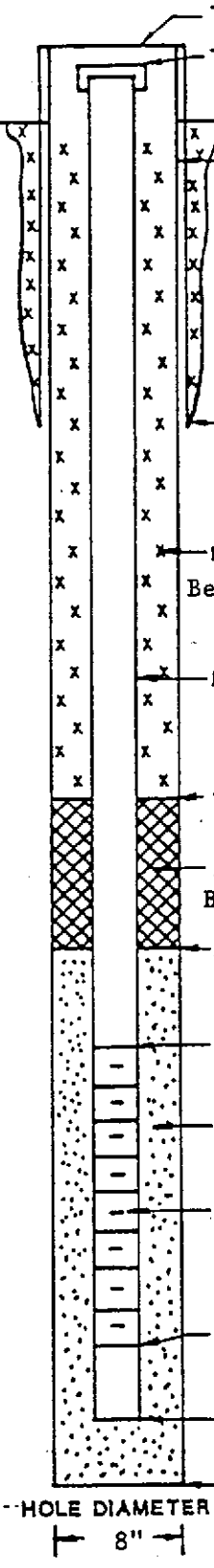
MAKEPEACE

APPENDIX A

BORING LOGS AND MONITORING WELL CONSTRUCTION DIAGRAMS

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
DIA.: NA TYPE: NA		
	NA	NA
TYPE:		
DIA.: 2" TYPE: PVC		
	34	436
TYPE: 3/8" Volclay Tablets		
	36	434
	44.6	425.4
TYPE: #2 Monterey Sand		
DIA.: 2" TYPE: PVC OPENING WIDTH: 0.02: TYPE:		
	59.6	410.4
	60	410
	65	405

METHOD DRILLED: Hollow Stem Auger

METHOD DEVELOPED:

TIME DEVELOPED:

COMMENTS:

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		EDITED BY:
	DRILL RIG TYPE: CME-75		
	DRILLERS NAME: Steve		INSPECTOR:
SURFACE ELEV.: 470'	STARTED, TIME: 9:00		DATE: 3/21/90
DATUM:	COMPLETED, TIME:		DATE:
BORING DIAMETER: 8"	BORING DEPTH (ft.)	65	
	CASING DEPTH (ft.)	60	
	WATER DEPTH (ft.)	45'	
	TIME:		
	DATE:		
	BACKFILLED, TIME:	DATE:	BY:

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.			
HAMMER WT.			BIT
HAMMER FALL			

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

SOIL IDENTIFICATION

REMARKS INCLUDE COLOR, GRADUATION, TYPE OF SOIL, ETC. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, SEAMS, ETC.

GROUND SURFACE TO _____ USED _____ CASING; THEN _____

SAMPLE TYPE

D = DRY C = CORED W = 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 O.D. SAMPLER

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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.: MW1

SAMPLE NO.	PEN	REC.	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, SEAMS AND ETC.)
			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

D = DRY C = CORED W = 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

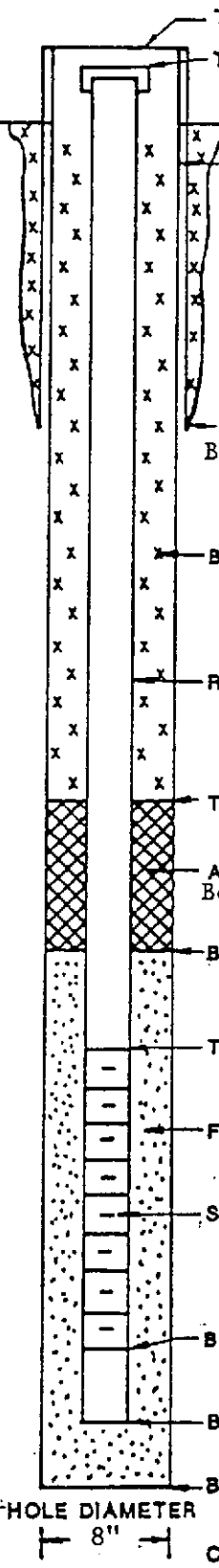
COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 LOOSE	2-4 SOFT
10-30 MED. DENSE	4-8 MED. STIFF
30-50 DENSE	8-15 STIFF
50+ VERY DENSE	15-30 VERY STIFF
	30+ HARD

SUMMARY:

EARTH BORING _____
ROCK CORING _____
SAMPLES _____

GROUND WATER MONITOR WELL INSTALLATION	PROJECT: ARCADE	JOB NO. 48001.33	WELL NO. MW2
DRILLING CONTRACTOR: DATUM EXPLORATION	COORDINATES:		
BEGUN: / FINISHED:	SUPERVISOR: M.W. / DRILLER: Steve	WELL SITE: Northwest	WATER LEV. DEPTH/EL.

REFERENCE POINT & ELEVATION:



GENERALIZED GEOLOGIC LOG

	DEPTH IN feet (bgs)	ELEV. IN feet (msl)
	0	462.5
SURFACE CASING: DIA.: TYPE:		
	NA	NA
BOTTOM OF SURFACE CASING Bentonite/Portland		
BACKFILL: TYPE:		
RISER CASING: DIA.: 2" TYPE: PVC		
	31	431.5
TOP OF SEAL		
ANNULAR SEAL: Bentonite TYPE: 3/8" Volclay Tablets		
	33	429.5
BOTTOM OF SEAL		
	35	427.5
TOP OF SCREEN		
FILTER MATERIAL: Sd TYPE: #2		
SCREEN: DIA.: 2" TYPE: PVC OPENING WIDTH: TYPE:		
	513	412/5
BOTTOM OF SCREEN		
	50.3	412.2
BOTTOM OF SUMP		
	55	407.5
BOTTOM OF HOLE		

METHOD DRILLED: Hollw Stem Auger

METHOD DEVELOPED:

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :

NW corner of Site
NW of Mike's 1 hr. Cleaners

PROJECT : Arcade II

BORING NO.: MW2

TOTAL DEPTH: 55'

PROJECT NO. :

LOGGED BY: MW

PROJECT MGR. :

EDITED BY:

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 DIAMETER : 8"

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.	2"		
HAMMER WT.			BIT
HAMMER FALL			

BORING DEPTH (ft.)				
CASING DEPTH (ft.)				
WATER DEPTH (ft.)				
TIME :				
DATE :				

BACKFILLED, TIME : DATE : BY :

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION (REMARKS INCLUDE COLOR, GRADUATION, TYPE OF SOIL, ETC. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, SEAMS, ETC.)
									asphalt about 3", brown silt with gravel
			A				5		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
									brown silty clay, trace gravel
			A				25		moist, no odor

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

B = DRY C = CORED W = 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 O.D. SAMPLER

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
			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 = CORED W = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THIN WALL
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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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:

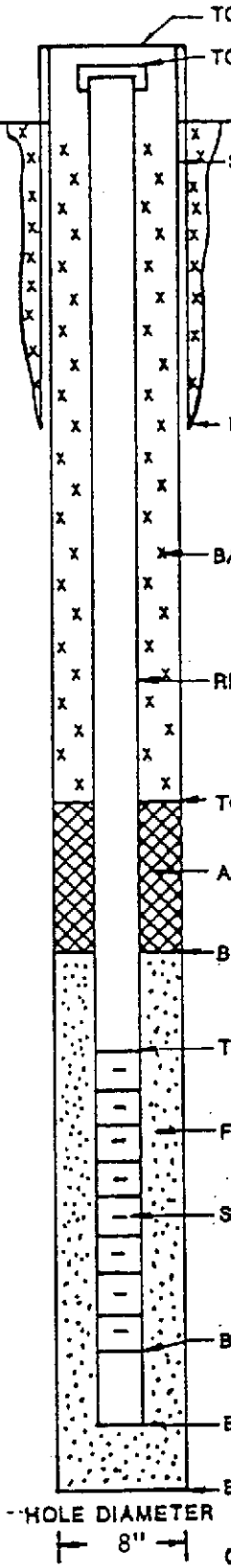
EARTH BORING _____
ROCK CORING _____
SAMPLES _____

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:	WATER LEV. DEPTH/EL.
FINISHED:	DRILLER: Steve	Southwest	

REFERENCE POINT & ELEVATION:

GENERALIZED GEOLOGIC LOG



	DEPTH IN feet (bgs)	ELEV. IN feet (msl)
	0	467.6
DIA.: TYPE:	NA	NA
DIA.: 2" TYPE: PVC	35'	427.6
TYPE: 3/8" Volclay Tablets	37	425.6
	39.3	423.3
TYPE: #2 Monterey Sand		
DIA.: 2" TYPE: PVC OPENING WIDTH: 0.02" TYPE:	59'.3	403.3
	59'.7	402.9
	60	402.6

METHOD DRILLED: Hollow Stem Auger

METHOD DEVELOPED:

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :

SW corner by empty lot

PROJECT : Arcade II

PROJECT NO. : 48001-33

PROJECT MGR. :

DRILLING CONTRACTOR : Datum Exploration

DRILL RIG TYPE : CME-75

DRILLERS NAME : Steve

STARTED, TIME : 10:30am

COMPLETED, TIME :

BORING NO.: MW3

TOTAL DEPTH: 60'

LOGGED BY: MW

EDITED BY:

INSPECTOR:

DATE: 3/22/90

DATE:

SURFACE ELEV. : 462.6

DATUM :

BORING DIAMETER : 8"

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.			
HAMMER WT.			BIT
HAMMER FALL			

BORING DEPTH (ft.)				
CASING DEPTH (ft.)				
WATER DEPTH (ft.)				
TIME :				
DATE :				

BACKFILLED, TIME : DATE : BY :

SAMPLE NO.	PEN	REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION
									REMARKS INCLUDE COLOR, GRADUATION, TYPE OF SOIL, ETC. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, SEAMS, ETC.
			A				5		asphalt 3"-4", black claey silt changing to brown with gravel
									brown silt with gravel
			A				10		gravel with brown silt matrix
									no odor, loose
			A				15		gravel with brown silty matrix
									no odor
			A				20		gravel with slightly clayey silt
			A				25		silty clay with gravel, no odor

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

D = DRY C = CORED W = 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 O.D. SAMPLER

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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.: MW3

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
			A				30		gravels and brown silty clay
									no odor
			A				35		brown silty clay and gravel
			A		—		40		brown silty clay and gravel
									*groundwater between 40'-45'
			A				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 = CORED W = 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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: _____

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :

PROJECT : Arcade

BORING NO.: B1

TOTAL DEPTH: 44'

PROJECT NO. : 48001.36

LOGGED BY: Karl Novak

PROJECT MGR. : Karl Novak

EDITED BY:

DRILLING CONTRACTOR : Datum

DRILL RIG TYPE : B-57

DRILLERS NAME : Jim

INSPECTOR:

STARTED, TIME :

DATE:

COMPLETED, TIME :

DATE:

SURFACE ELEV. :

DATUM :

BORING DIAMETER : 8"

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.			
HAMMER WT.			BIT
HAMMER FALL			

BORING DEPTH (ft.)								
CASING DEPTH (ft.)								
WATER DEPTH (ft.)								
TIME :								
DATE :								

BACKFILLED, TIME : DATE : BY :

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, STAINS, ETC.)
							1		3" asphalt
							2		
							3		
							4		brown silty clayey gravel
							5		
							6		
							7		wet
							8		
							9		sandy gravel-very wet
							10		some clay, wet
							11		
			2x 3 rings		50/6"		12		dry, hard, sub angular gravel w/brown silty clay matrix
							13		
							14		
			2x 3" ring				15		

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

S = BAG C = CORED V = VANED
U = 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 O.D. SAMPLER

COHESIONLESS DENSITY		COHESIVE CONSISTENCY	
0-4	VERY LOOSE	0-2	VERY SOFT
4-10	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 FOUND _____

ROCK FOUND _____

SAMPLES _____

HOLE NO.

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001-36 | LOGGED BY: Karl Novak | BORING NO.: B1

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
							16		gravel w/silty clay matrix
							20		brown clay, moist
									gravel w/silty clay
							25		gravel w/silty clay
							30		gravel w/silty clay
							35		gravel w/silty clay
							40		gravel w/silty clay

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

D = 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%
AND	35 TO 50%

140 lb. WT. X 30" FALL ON 2" O.D. SAMPLER

COHESIONLESS DENSITY		COHESIVE CONSISTENCY	
0–4	VERY LOOSE	0–2	VERY SOFT
4–10	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 _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Karl Novak | BORING NO.: B1

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
			2x 3" brass tubes				42		
							43		
							44		
							45		brown silty clayey gravels
							50		Soil Gas (PID) B1-10' 8.0 ppm B1-14' 3.7 ppm B1-16' 0.0 ppm B1-44' 76.0 ppm B1-54' 23.4 ppm
							55		Total depth
							60		

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

D = 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 1 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 BORING _____
SAMPLED _____

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :

deviated hole on north side of dry cleaners approximately 25° towards the building

PROJECT : Arcade

BORING NO.: B2

TOTAL DEPTH:

PROJECT NO. : 48001.36

LOGGED BY: Karl Novak

PROJECT MGR. : Karl Novak

EDITED BY:

DRILLING CONTRACTOR : Datum Exploration

DRILL RIG TYPE : B-57

DRILLERS NAME : Jim & Gene

INSPECTOR:

STARTED, TIME :

DATE:

SURFACE ELEV. :

COMPLETED, TIME :

DATE:

DATUM :

BORING DIAMETER : 8"

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.	4"	2"	
HAMMER WT.		149 lbs	BIT
HAMMER FALL		30"	

BORING DEPTH (ft.)				
CASING DEPTH (ft.)				
WATER DEPTH (ft.)				
TIME :				
DATE :				

BACKFILLED, TIME : DATE : BY :

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION (REMARKS INCLUDE COLOR, GRADUATION, TYPE OF SOIL, ETC. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, SEAMS, ETC.)
									dark brown (black) organic
									clayey silt
							5		gravel w/light brown silty
									clay matrix
							10		
							15		dry
							20		more clay w/some gravels
							25		moist

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

B = DRY C = CORED W = 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 O.D. SAMPLER

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 | PROJECT NO.: 48001.36 | LOGGED BY: Karl Novak | BORING NO.: B2

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
							30		gravel w/brown silty clay matrix
							35		gravel w/brown silty sandy clay matrix
							40		
							45		
							50		wet gravels w/sandy clay matrix
							55		total depth (on 25° angle)

P I D
depth (25°) ppm
4' 92
45' 0.0

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

D = DRY C = CORED W = 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

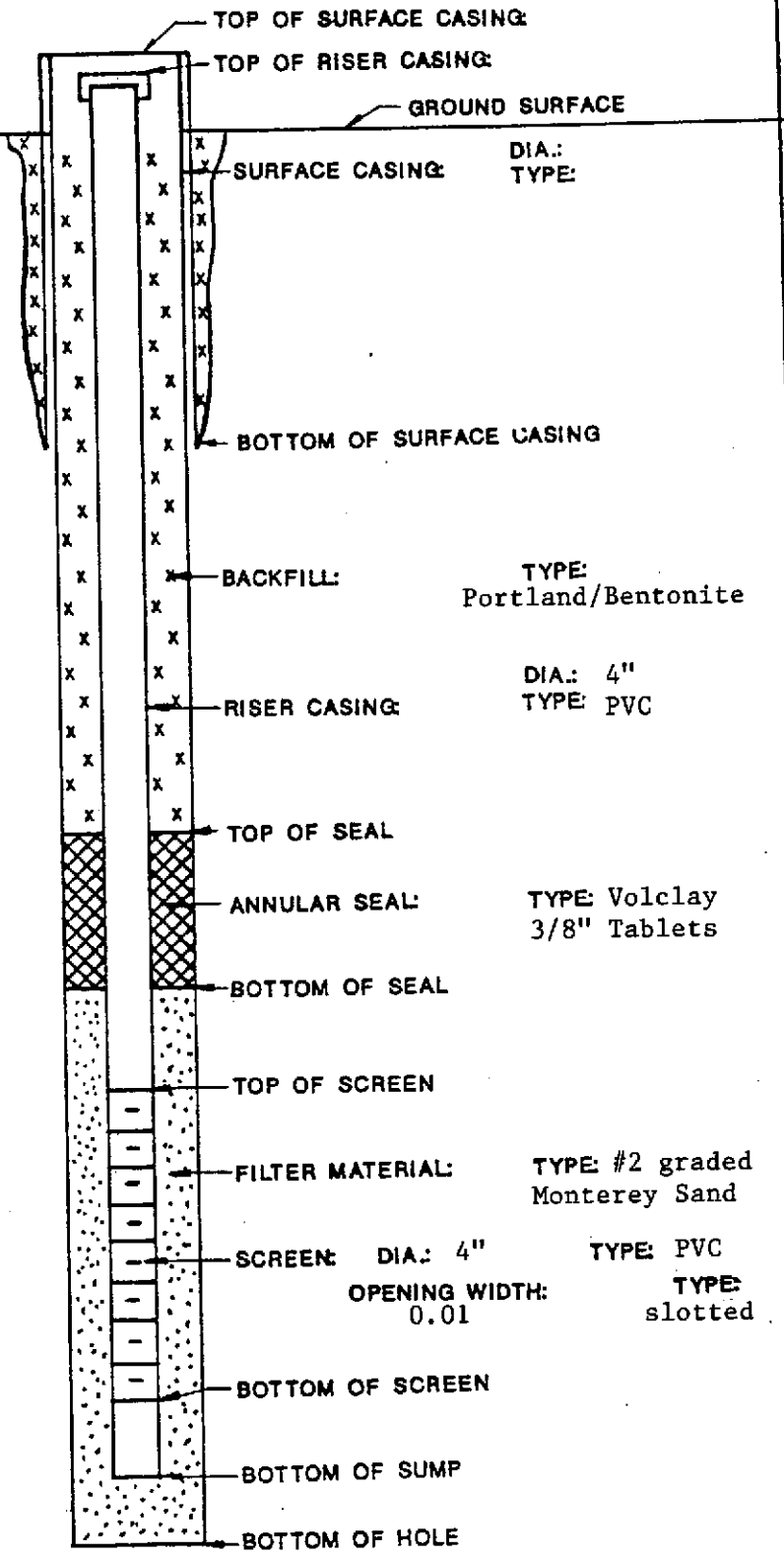
COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 LOOSE	2-4 SOFT
10-30 MED. DENSE	4-8 MED. STIFF
30-50 DENSE	8-15 STIFF
50+ VERY DENSE	15-30 VERY STIFF
	30+ HARD

SUMMARY:

EARTH BORING _____
ROCK CORING _____
SAMPLES _____

GROUND WATER MONITOR WELL INSTALLATION	PROJECT: Arcade	JOB NO. 48001.36	WELL NO. MW4
DRILLING CONTRACTOR: Datum	COORDINATES:		
BEGUN: 10:30 FINISHED: 1:30	SUPERVISOR: Mike Wright DRILLER: Jim & Gene	WELL SITE: MW4	WATER LEV. DEPTH/EL.

REFERENCE POINT & ELEVATION:



DEPTH IN Feet	ELEV. IN
0	
25	
28	
30	
50	
58	

METHOD DRILLED: hollow stem auger

METHOD DEVELOPED:

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :
approximately 70' south of cleaners

PROJECT : Arcade
BORING NO.: MW4
TOTAL DEPTH:
PROJECT NO. : 48001.36
LOGGED BY: Mike Wright
PROJECT MGR. : Karl Novak
EDITED BY:
DRILLING CONTRACTOR : Datum Exploration
DRILL RIG TYPE : B-57
DRILLERS NAME : Jim and Gene
INSPECTOR:
STARTED, TIME : 10:30 am
DATE: 5/29/90
COMPLETED, TIME : 1:30 pm
DATE: 5/29/90

SURFACE ELEV. :
DATUM :
BORING DIAMETER :

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.		140 lbs.	BIT
HAMMER WT.		30 lbs.	
HAMMER FALL			

BORING DEPTH (ft.)	58'		
CASING DEPTH (ft.)	50'		
WATER DEPTH (ft.)			
TIME :			
DATE :			
BACKFILLED, TIME :	DATE :		BY :

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION
							1		2" asphalt
							2		
							3		
							4		
							5		medium brown sandy clayey gravel
									rounded to sub angular gravel
									w/silty clayey sand
1	6"	1	SS	10	29		10		medium round gravel w/silty clayey sand
									no odor
							15		gravels w/silty, clayey, sand

REMARKS INCLUDE COLOR GRADUATION, TYPE OF SOIL, ETC. ROCKS-COLOR, TYPE CONDITION, HARDNESS, DRILLING TIME, STEAM, ETC.

GROUND SURFACE TO _____ USED _____ CASING, THEN _____

SAMPLE TYPE
S = SPT C = CORED W = WASHED
U = 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 S.S. SAMPLER

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 BOUND
ROCK BOUND
SAMPLES
HOLE NO.

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Mike Wright | BORING NO.: MW4

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" OF 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, SEAMS AND ETC.)
							16		
							17		
							18		
							19		
1	18"	1	SS	21.5	67		20		sandy unsorted gravel w/silty clay matrix-more clay than above, hard, reddish brown
									dry to moist clay w/fine gravels
							25		
									gravels w/more clay
1	18"	2/3	SS	31	18	21	30		slightly moist, unsorted gravel w/silty clayey matrix more % clays unsorted gravels w/silty sandy clay, dry
							35		
							40		gravel w/silty clay, dry
							41		

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

D = DRY C = CORED W = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE	1 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

COHESIONLESS DENSITY

0–4	VERY LOOSE
4–10	LOOSE
10–30	MED. DENSE
30–50	DENSE
50+	VERY DENSE

COHESIVE CONSISTENCY

0–2	VERY SOFT
2–4	SOFT
4–8	MED. STIFF
8–15	STIFF
15–30	VERY STIFF
30+	HARD

SUMMARY

EARTH BORING _____
ROCK BORING _____
SAMPLES _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Mike Wright | BORING NO.: MW4

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
							42		silty clay w/gravels
							43		gravels w/silty clay matrix
							44		sub angular, unsorted gravels
							45		
									wet
							50		gravel w/ silty, sandy, clay
									sands are saturated
									clay nodules are dry to moist
1	18"	1	SS	55	50		55		wet
									Total Depth
							60		

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

B = BAG C = CORE V = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE	1 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

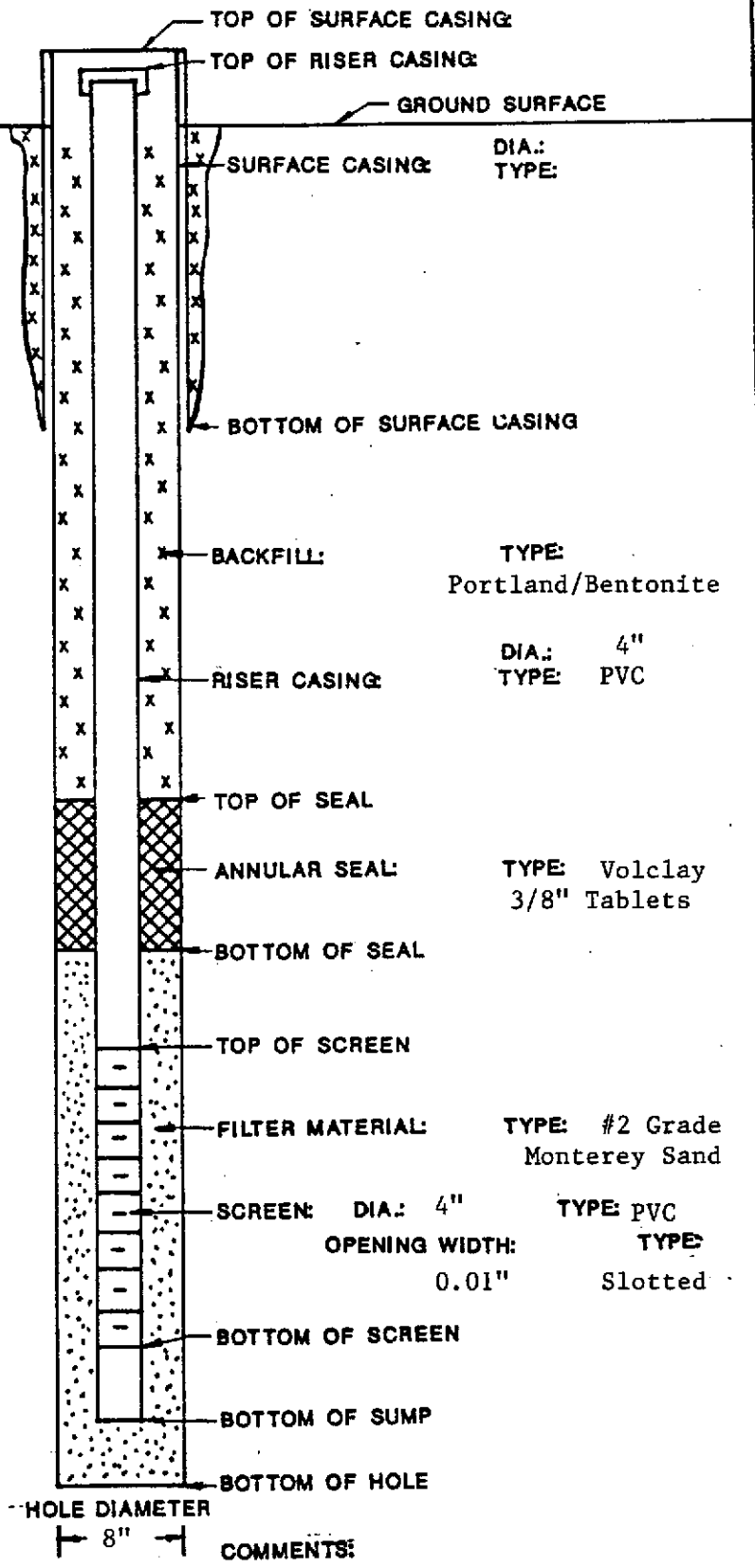
COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0–4 VERY LOOSE	0–2 VERY SOFT
4–10 LOOSE	2–4 SOFT
10–30 MED. DENSE	4–8 MED. STIFF
30–50 DENSE	8–15 STIFF
50+ VERY DENSE	15–30 VERY STIFF
	30+ HARD

SUMMARY

EARTH BORING _____
ROCK CORING _____
SAMPLES _____

GROUND WATER MONITOR WELL INSTALLATION	PROJECT: Arcade	JOB NO. 48001-36	WELL NO. MW5
DRILLING CONTRACTOR: Datum	COORDINATES:		
BEGUN: / FINISHED:	SUPERVISOR: / DRILLER:	WELL SITE: MW5	WATER LEV. DEPTH/EL.

REFERENCE POINT & ELEVATION:



DEPTH IN Feet	ELEV. IN
0	
20	
23	
30	
50	
50.25	
60	

METHOD DRILLED:

METHOD DEVELOPED:

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :

PROJECT : Arcade	BORING NO.: MW5
	TOTAL DEPTH: 55'
PROJECT NO. : 48001.36	LOGGED BY: Mike Wright
PROJECT MGR. : Karl Novak	EDITED BY:
DRILLING CONTRACTOR : Datum Exploration	
DRILL RIG TYPE : B-57	
DRILLERS NAME : Jim and Gene	INSPECTOR:
STARTED, TIME : 3:00 pm	DATE: 5/29/90
COMPLETED, TIME : 4:30 pm	DATE: 5/29/90

SURFACE ELEV. :
DATUM :
BORING DIAMETER :

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.			BIT
HAMMER WT.			
HAMMER FALL			

BORING DEPTH (ft.)	55'		
CASING DEPTH (ft.)	50'		
WATER DEPTH (ft.)	41'		
TIME :			
DATE :			
BACKFILLED, TIME :	DATE :	BY :	

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, STAINS, ETC.)
									3" asphalt, black silty sand (fill)
									unsorted gravel, subangular
									brown silty matrix
							5		
									unsorted subangular gravel
1	18"	2/3	SS	10.5	37		10		w/brown sandy clayey silt matrix
									pea gravel w/dry clay no odor
									"
							15		
							20		more silty clay in gravel, no odor
									brown silty clay, stiff
1	18"	1	SS	25	11/12		25		slightly moist

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

D = DRY C = CORED W = 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	25 TO 35%
AND	35 TO 50%

140 lb WT. X 30" FALL ON O.D. SAMPLER

COHESIONLESS DENSITY

0-4	VERY LOOSE
4-10	LOOSE
10-30	MED. DENSE
30-50	DENSE
50+	VERY DENSE

COHESIVE CONSISTENCY

0-2	VERY SOFT
2-4	SOFT
4-8	MED. STIFF
8-15	STIFF
15-30	VERY STIFF
30+	HARD

SUMMARY :

EARTH FOUND _____
ROCK FOUND _____
SAMPLES _____
HOLE NO. _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Mike Wright | BORING NO.: MW5

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, BEDS AND ETC.)
							30		more unsorted (pea-1" dia) with silty clay matrix
									brown silty clay with little gravel
							35		increase in % gravel
									wet at 41'
				Tried to sample-hit rock			40		unsorted gravels w/silty clay matrix
1	18"	1	SS	45	18	27 40	45		(dry zones of clay-wet in gravels)
							50		(dry zones of clay-wet in gravels)
							55		(dry zones of clay-wet in gravels)
							60		Total Depth
							65		

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

D = DRY C = CORED W = 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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:

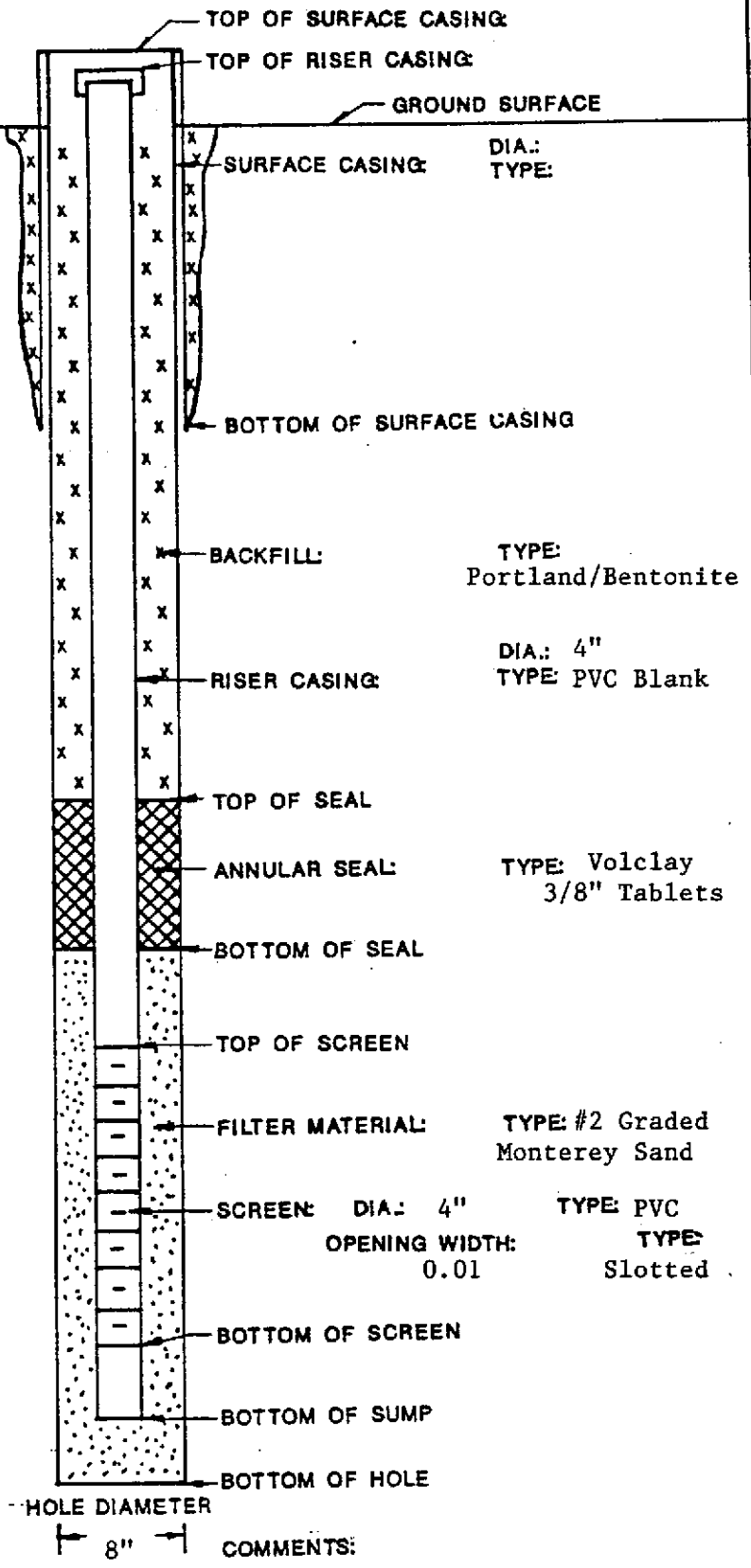
EARTH BORING _____

ROCK BORING _____

SAMPLES _____

GROUND WATER MONITOR WELL INSTALLATION	PROJECT: Arcade	JOB NO. 48001-36	WELL NO. MW6
DRILLING CONTRACTOR: Datum	COORDINATES:		
BEGUN: / FINISHED:	SUPERVISOR: Karl Novak / DRILLER: Jim and Gene	WELL SITE: MW6	WATER LEV. DEPTH/EL.

REFERENCE POINT & ELEVATION:



DEPTH IN Feet	ELEV. IN
0	
22	
25	
30	
49.75	
50	
50	

METHOD DRILLED: Hollow Stem Auger

METHOD DEVELOPED:

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :

PROJECT : Arcade

BORING NO.: MW6

TOTAL DEPTH: 60'

PROJECT NO. : 48001.36

LOGGED BY: Karl Novak

PROJECT MGR. : Karl Novak

EDITED BY:

DRILLING CONTRACTOR : Datum Exploration

DRILL RIG TYPE : B-57

DRILLERS NAME : Jim and Gene

INSPECTOR:

STARTED, TIME :

DATE:

COMPLETED, TIME :

DATE:

SURFACE ELEV. :

DATUM :

BORING DIAMETER :

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.			
HAMMER WT.			BIT
HAMMER FALL			

BORING DEPTH (ft.)			
CASING DEPTH (ft.)			
WATER DEPTH (ft.)			
TIME :			
DATE :			

BACKFILLED, TIME : DATE : BY :

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION
									3" Asphalt
									Dark brown (black) silty, sandy, gravel slightly moist
							5		
									gravel w/brown silty clay matrix
			SS 2 x 3" rings		21/22		10		gravel w/brown silty clay matrix
									gravel w/brown silty clay matrix
							15		
									gravel w/brown silty clay matrix
			SS 1 x 6"				20		brown slightly moist clay with gravel
							25		

REMARKS INCLUDE COLOR, GRADUATION, TYPE OF SOIL, ETC. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, STEAMS, ETC.

GROUND SURFACE TO _____ USED _____ CASING. THEN _____

SAMPLE TYPE

D = DRY C = CORED V = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
VT = 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 O.D. SAMPLER

COHESIONLESS DENSITY

0-4	VERY LOOSE
4-10	LOOSE
10-30	MED. DENSE
30-50	DENSE
50+	VERY DENSE

COHESIVE CONSISTENCY

0-2	VERY SOFT
2-4	SOFT
4-8	MED. STIFF
8-15	STIFF
15-30	VERY STIFF
30+	HARD

SUMMARY :

EARTH BORING _____

ROCK CORING _____

SAMPLES _____

HOLE NO.

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Karl Novak | BORING NO.: MW6

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
							30		more gravels
							35		brown clay w/trace gravels
									moist
							40		gravel w/brown silty sandy clay matrix
			SS 2x 3"	41					ground water at 41'
							45		gravel w/brown silty sandy clay matrix
							50		gravel w/brown silty sandy clay matrix
							55		gravel w/brown silty sandy clay matrix
							60		gravel w/brown silty sandy clay matrix drilled to 60' hole collapsed to 50'
							65		

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

S = 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	1 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

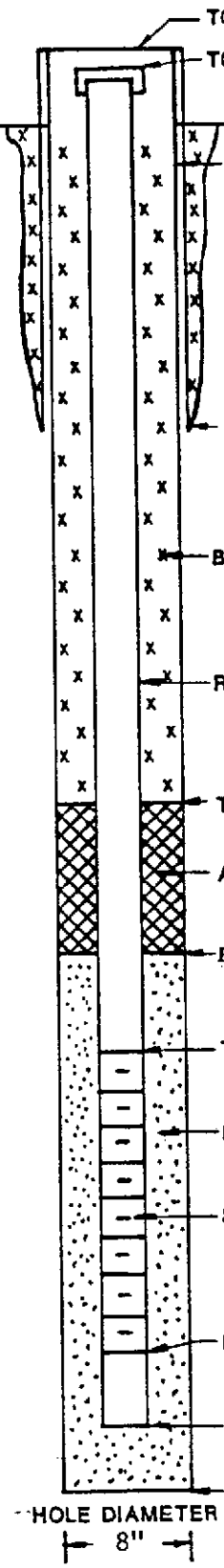
COHESIONLESS DENSITY		COHESIVE CONSISTENCY	
0–4	VERY LOOSE	0–2	VERY SOFT
4–10	LOOSE	2–4	SOFT
10–30	MED. DENSE	4–8	MED. STIFF
30–50	DENSE	8–15	STIFF
50+	VERY DENSE	15–30	VERY STIFF
		30+	HARD

SUMMARY:

EARTH BORING _____
ROCK CORING _____
SAMPLES _____

GROUND WATER MONITOR WELL INSTALLATION	PROJECT: Arcade	JOB NO. 48001.36	WELL NO. MW7
DRILLING CONTRACTOR: Datum	COORDINATES:		
BEGUN: 5:00 FINISHED: 8:00	SUPERVISOR: Mike Wright DRILLER: Steve Moore	WELL SITE: MW7	WATER LEV. DEPTH/EL.

REFERENCE POINT & ELEVATION:



GENERALIZED GEOLOGIC LOG

DIA.:
TYPE:

TYPE: Portland/Bentonite

DIA.: 4"
TYPE: PVC

TYPE: Volclay 3/8" tablets

TYPE: #2 Sand

DIA.: 4" TYPE: PVC
OPENING WIDTH: 0.01" TYPE: Slot

DEPTH IN Feet	ELEV. IN
0	
20	
23	
30	
64.75	
65	
70	

METHOD DRILLED: hollow stem auger

METHOD DEVELOPED:

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :

PROJECT : Arcade

BORING NO.: MW7

TOTAL DEPTH: 70'

PROJECT NO. : 48001.36

LOGGED BY: Dr. Vonder Haar

PROJECT MGR. : Karl Novak

EDITED BY:

DRILLING CONTRACTOR : Datum Exploration

DRILL RIG TYPE : CME-75

DRILLERS NAME : Steve

INSPECTOR:

STARTED, TIME : 9:31AM

DATE: 6/1/90

COMPLETED, TIME :

DATE:

SURFACE ELEV. :

DATUM :

BORING DIAMETER : 8" hollow stem

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.	4"		
HAMMER WT.		140 lbs.	BIT
HAMMER FALL		30"	

BORING DEPTH (ft.)	70'		
CASING DEPTH (ft.)	65'		
WATER DEPTH (ft.)			
TIME :			
DATE :			
BACKFILLED, TIME :	DATE :		BY :

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION
									asphalt
									gravel
									dark brown, loamy soil; no odor, damp
									gravel, possible fill or dry natural
			Hollow stem split spoon for continuous sampling		11/19/23	2.5"	5		gravel w/mixed sand, silt and clay, dry
					14/17/14	2"			brown to tan gravel, sandy gravel moist to damp, not much clay
									sandy gravel to gravelly sand, dry
					18/21/16	1.5"	10		more clayey sand in gravel interval dry to damp
					14/26/22	2.5"			gravel seam, dry to moist
									clayey sandy gravel
					10/26/26				gravel 2.5"(+) diameter tan, grey, dry to moist, clayey, sandy
					26/26/26	2"			clayey, sandy, gravel; moist to dry
							15		more clayey 1" zone

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

B = BAG 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%
AND	35 TO 50%

140 lb WT. X 30" FALL ON O.D. SAMPLER

COHESIONLESS DENSITY

0–4 VERY LOOSE
4–10 LOOSE
10–30 MED. DENSE
30–50 DENSE
50+ VERY DENSE

COHESIVE CONSISTENCY

0–2 VERY SOFT
2–4 SOFT
4–8 MED. STIFF
8–15 STIFF
15–30 VERY STIFF
30+ HARD

SUMMARY :

EARTH FOUND _____

ROCK FOUND _____

SAMPLED _____

HOLE NO. _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Dr. VonderHaar | BORING NO.: MW7

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" OF 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, GRAINS AND ETC.)
					15 15 22	2.5"	15		gravel w/sand and clay, moist to dry
									-good sand zone
									2.5" diameter gravel pieces
									moist clayey sandy gravel
									various mixtures of clayey sandy gravel
					20 25 45	2"			slightly moist zones
									sandy gravel
								19.5	brown, stiff, clay; no odor
			gravel		10 11 7	1.5"	20		
(packed soil sample)			clay interface						
									medium brown damp clay; no odor
									(some gravel in auger 10%
							25		w/predominantly clay)
									clay-same as above, no odor,
									no water
							30		stiff damp clay 31' sampled, no odor
	sample 31'		at		14 6 8				
									medium brown damp clay
							35		stiff silty brown clay, damp, some 1/2"
	6"				5 6 7	25"			rounded pebbles in clay.
									clay
									-gravel; dry to damp
									gravel and sandy gravel, moist
							40		wet, clayey gravel-perhaps first water

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

S = DRY C = CORED W = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE 1 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Dr. VonderHaar | BORING NO.: MW7

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, BEARS AND ETC.)
									Augering; clayey gravel, wet
									dark brownclayey gravel, saturated
			Brass Tube	sampled at 41'3"					
									--smoking clay zone, moist to dry
							45		clayey gravel
									moist — not very wet; not like flowing cement-clay in MW5
							50		clayey, sandy, gravel
									cement gravel
									inner rod spun loose plunging sampler-free fall
				Sample at 61			60		wet/saturated clayey gravel
					29 24 42	1.5" 33			gravel, clayey, wet, no good
									clay layer, no odor
				3"	4 9 14		65		only 3" recovery of wet sandy gravel

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

S = DRY C = CORED W = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE	1 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0–4 VERY LOOSE	0–2 VERY SOFT
4–10 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 _____
SAMPLED _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Dr. VonderHaar | BORING NO.: MW7

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
			Hand packed sample in brass tube wet clayey gravel		24	45	4"-2.5	66	
								67	
								68	good clayey gravel, wet, solid
								69	4pm 5 gallons of tap water added
								70	to help pull rods free
								71	clayey gravel - rod pulling sluff
								72	into auger-5 gal. tap water added
								73	
								74	
								75	

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

D = 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	1 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

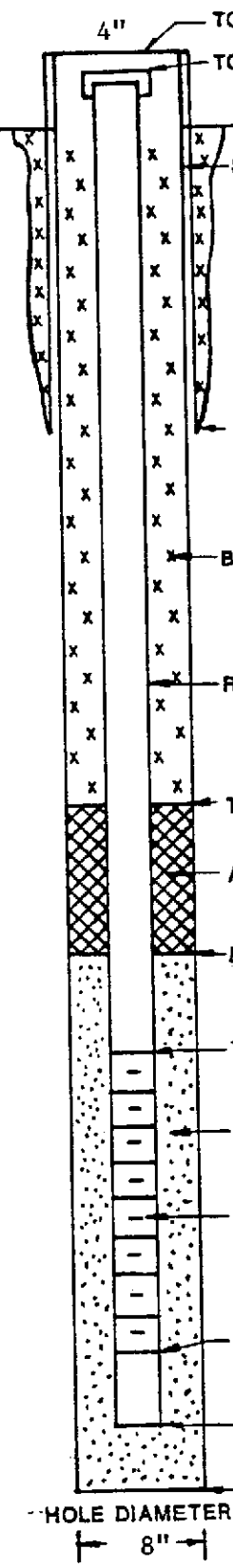
COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0–4 VERY LOOSE	0–2 VERY SOFT
4–10 LOOSE	2–4 SOFT
10–30 MED. DENSE	4–8 MED. STIFF
30–50 DENSE	8–15 STIFF
50+ VERY DENSE	15–30 VERY STIFF
	30+ HARD

SUMMARY:

EARTH GROUND _____
ROCK GROUND _____
SAMPLES _____

GROUND WATER MONITOR WELL INSTALLATION	PROJECT: LIVERMORE ARCADE JOB NO.	WELL NO. MW-8
DRILLING CONTRACTOR: Datum Exploration	COORDINATES: Miller's Outpost	
BEGUN: / FINISHED: SUPERVISOR: S. Vonder Haar / DRILLER: Jim	WELL SITE:	WATER LEV. DEPTH/EL. First Water 41 ft.

REFERENCE POINT & ELEVATION:



GENERALIZED GEOLOGIC LOG

DEPTH IN feet	ELEV. IN
0	
20	
22	
35	
55	
55.5	
58	

METHOD DRILLED: Hollow stem auger

METHOD DEVELOPED:

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

PROJECT: Livermore Arcade | PROJECT NO.: | LOGGED BY: S. VonderHaar | BORING NO.: MW8

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" OR 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, SEAMS AND ETC.
							15		Tan dry sandy gravel with clay; rounded gravel 1" to 2"
							20		
2									no odor
									more clay, damp clay in auger, no odor
							25		trace medium sand in brown "clay" or clayey silt
							30		
3									damp brown sandy "clay" (clayey silt")
									more of a clayey silty, very fine sand
									brown (augered) sandy, silty, gravel, "clay"
							35		no odor
									not in water yet
4							40		clay first water in gravelly zone; no odor
									jsut slightly wet/moist sandy gravel clay

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

S = SPLIT SPOON, C = CORE, V = VANE
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE	1 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0–4 VERY LOOSE	0–2 VERY SOFT
4–10 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 BOUND _____

ROCK BOUND _____

SAMPLED _____

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :

PROJECT : Livermore Arcade

BORING NO.: MW-8

TOTAL DEPTH: Bored to 58'

PROJECT NO. :

LOGGED BY: Stephen VonderHaar

PROJECT MGR. : Karl Novak

EDITED BY:

DRILLING CONTRACTOR : Datum Exploraiton, S.F.

DRILL RIG TYPE : CME

DRILLERS NAME : Jim - Frank

INSPECTOR:

STARTED, TIME : 8:46 am

DATE: 23 July 1990

COMPLETED, TIME :

DATE:

SURFACE ELEV. :

DATUM :

BORING DIAMETER : 8"

	CASING	SAMPLER	CORE BAR
TYPE	PVC		
SIZE I.D.	4"		
HAMMER WT.			BIT
HAMMER FALL			

BORING DEPTH (ft.)	58'		
CASING DEPTH (ft.)			
WATER DEPTH (ft.)	first 41		
TIME :	1300		
DATE :			
BACKFILLED, TIME :	DATE :		BY :

Mike Brubaker and Mike Wright

SOIL IDENTIFICATION #2 Clementina sand

REMARKS INCLUDE COLOR, GRADUATION, TYPE OF SOIL, ETC. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, STAINS, ETC.

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	
							0		Asphalt in parking lot, with gravel fill
									~~by Auger; dark brown~~ gravelly clay no odor damp
									more clay
									more clay gravelly
			A				5		dry to damp - clayey, sandy to gravelly for continuous sampling gravel 3" dia.
									more dry clayey sand to silt with gravel
			A				10		tan dry sandy gravel;packed sample; poor recovery
									tan dry silty, clayey, gravel sand; course to fir
									changing bit - clay apparent
							15		

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

S = DRY C = CORED W = 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 O.D. SAMPLER

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 | PROJECT NO.: 48001.36 | LOGGED BY: S. VonderHaar | BORING NO.: MW8

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, ZONES AND ETC.)
							40		brown graveley sandy silty "clay", very clayey, no odor
							45		moderately stiff clay
									as above
							50		
5							55		no odor; as above
									wet graveley sandy clayey sand
									wet "cement gravel"
					total depth		58		Note: the core at 56'6" was much less wet, while the 56' core had a gravel zone, wet very thin graveley zone with water.

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

D = DRY C = CORED W = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE	1 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

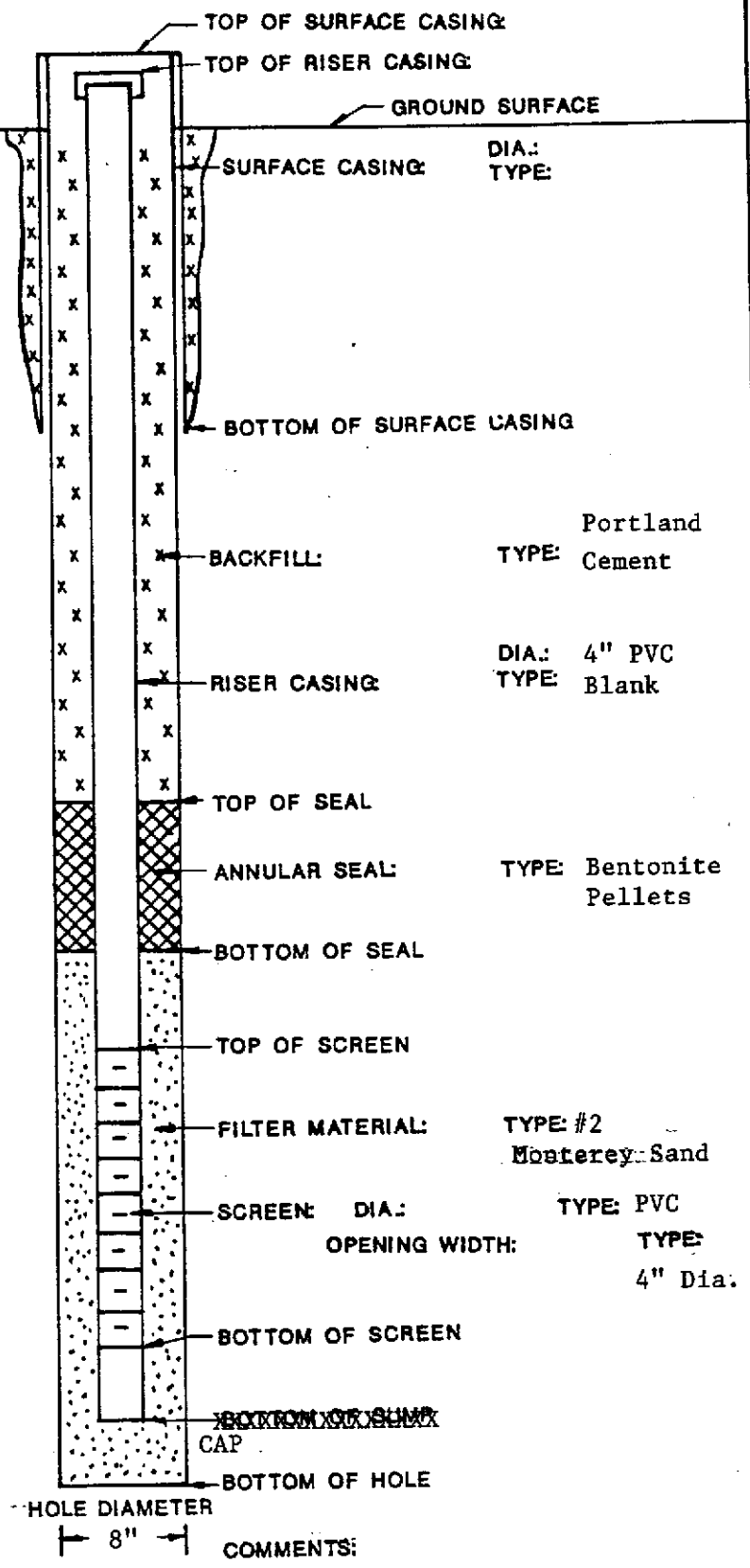
COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0–4 VERY LOOSE	0–2 VERY SOFT
4–10 LOOSE	2–4 SOFT
10–30 MED. DENSE	4–8 MED. STIFF
30–50 DENSE	8–15 STIFF
50+ VERY DENSE	15–30 VERY STIFF
	30+ HARD

SUMMARY:

EARTH BORING _____
ROCK CORING _____
SAMPLES _____

GROUND WATER MONITOR WELL INSTALLATION	PROJECT: Livermore Arcade JOB NO.	WELL NO. MW-9
DRILLING CONTRACTOR: Datum Exploration	COORDINATES: Miller's Outpost	
BEGUN: FINISHED: SUPERVISOR: S. Vonder Haar DRILLER: Jim	WELL SITE:	WATER LEV. DEPTH/EL. First Water 41 ft.

REFERENCE POINT & ELEVATION:



DEPTH IN feet	ELEV. IN
0	
25	
27	
35	
55	
55.5	
58	

METHOD DRILLED: Hollow Stem Auger

METHOD DEVELOPED:

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :

PROJECT : Livermore Arcade

PROJECT NO. :

PROJECT MGR. : Karl Novak

DRILLING CONTRACTOR : Datum Exploration

DRILL RIG TYPE : CME Exploration

DRILLERS NAME : Jim and Frank

STARTED, TIME : 8:50

COMPLETED, TIME :

BORING NO.: MW9

TOTAL DEPTH:

LOGGED BY: S. VonderHaar

EDITED BY:

INSPECTOR:

DATE:

DATE:

SURFACE ELEV. :

DATUM :

BORING DIAMETER : 8"

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.			
HAMMER WT.			BIT
HAMMER FALL			

BORING DEPTH (ft.)									
CASING DEPTH (ft.)									
WATER DEPTH (ft.)									
TIME :									
DATE :									

BACKFILLED, TIME : DATE : BY :

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION (REMARKS INCLUDE COLOR, GRADUATION, TYPE OF SOIL, ETC. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, SEAMS, ETC.)
							0		Sunny, strong breeze
									Asphalt (parking lot) & gravel subgrade
									dark brown gravel with clay, no odor
									~~damp, gravel rounded to 1~~ 1.2" diam.
									gravel; flat; rounded to max. 2 1/2"
									not much sand or fines; could be fill gravel
			A						sampled into plastic bag
							5		
							10		dark brown, no odor, gravel with sand & fines; i.e
									brass tubes show fines, auger shows almost all gravel
			brass tube						gravel by auger
							15		

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

B = BAG C = CORED W = 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 O.D. SAMPLER

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 BOUND _____

ROCK CORING _____

SAMPLES _____

HOLE NO.

Hygienetics Inc.

TEST BORING LOG

PROJECT: Livermore Arcade | PROJECT NO.: | LOGGED BY: S. VonderHaar | BORING NO.: MW9

SOIL IDENTIFICATION 7-24-90

REMARKS INCLUDE COLOR GRADATION TYPE OF SOIL ETC. ROCK-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, SEALS AND ETC.

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION
							15		Clayey, sandy gravel as above, damp (pulled augers; fines smeared onto auger blades; gravel up in hollow ~~stem) matrix is dark brown~~ much more clay & silt
							20		
2			brass tube		8 10 26				dark brownclayey, sandy gravel to gravelly clay, no odor
							25		gravel to 2" dia.
3			brass tube		8 18 24		30		clayey, sandy gravel no PCE type odor
									damp, med. brown sandy clay gravel; no odor
							35		
							40		
					9 26 21				first water, wet but no extensive clayey gravel

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

B = BRT S = CORET V = VANE
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE 1 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

COHESIONLESS DENSITY | COHESIVE CONSISTENCY

0–4 VERY LOOSE
4–10 LOOSE
10–30 MED. DENSE
30–50 DENSE
50+ VERY DENSE

0–1 VERY SOFT
2–4 SOFT
4–8 MED. STIFF
8–15 STIFF
15–30 VERY STIFF
30+ HARD

SUMMARY

EARTH BORING _____
ROCK CORING _____
SAMPLES _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Livermore Arcade | PROJECT NO.: | LOGGED BY: S. VonderHaar | BORING NO.: MW9

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" OR 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, ZONES AND ETC.)
							40		clayey gravel, (with sand & silt) [very few cuttings;]
							45		
							50		Med. brown (with sand & silt) damp to wet clayey gravel 11:16 no PCE or VOC type odor
5			brass tube						[very few cuttings]
							55		clayey gravel
									total depth 58'

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

B = BAG, C = CORED, W = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE	1 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0–4 VERY LOOSE	0–2 VERY SOFT
4–10 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 BORING _____

SAMPLES _____

GROUND WATER MONITOR WELL INSTALLATION

PROJECT: Livermore JOB NO. 48001.36

WELL NO. MW 10

DRILLING CONTRACTOR: Datum Expl.

COORDINATES: behind La Yorina restaurant, by sidewalk

RUN: 1415

SHED:

SUPERVISOR: Mike Cooper

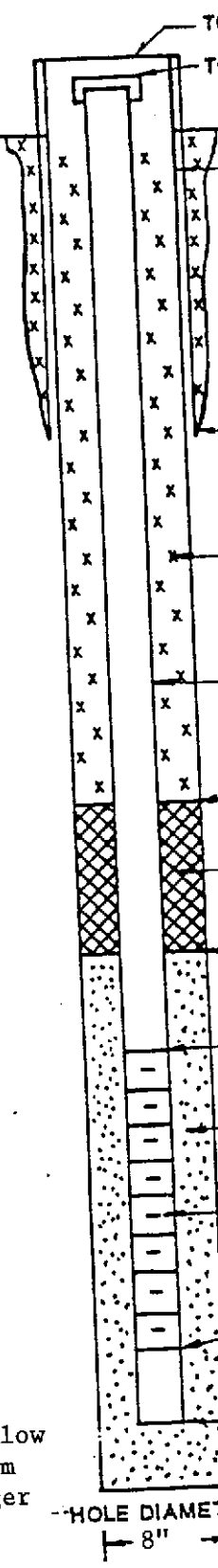
DRILLER: Datum

WELL SITE: Livermore Arcade

WATER LEV. DEPTH/EL. 41' 8.5"

REFERENCE POINT & ELEVATION:

GENERALIZED GEOLOGIC LOG



DEPTH IN	ELEV. IN
20	
23'	
25'	
55'	
55'6"	
65'	

METHOD DRILLED: Hollow Stem Auger

METHOD DEVELOPED:

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING : West, Behind la Torina restaurant.

PROJECT : Livermore Arcade
PROJECT NO. : 48001.36
PROJECT MGR. :
DRILLING CONTRACTOR : Datum Exploration
DRILL RIG TYPE : B 61
DRILLERS NAME : Mike Sloan
STARTED, TIME : 0915
COMPLETED, TIME : 1415

BORING NO.: (MW10)
TOTAL DEPTH: 57.5'
LOGGED BY: Mike Luksic,Wright
EDITED BY:
INSPECTOR:
DATE: 8-24-90
DATE: 8-24-90

SURFACE ELEV. :
DATUM :
BORING DIAMETER : 8"

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.			
HAMMER WT.			BIT
HAMMER FALL			

BORING DEPTH (ft.)				
CASING DEPTH (ft.)				
WATER DEPTH (ft.)				
TIME :				
DATE :				

BACKFILLED, TIME : DATE : BY :

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION
									6" of Asphalt pavement
									Brown sandy clay - 10% pea sized gravel
									obstruction "rocks"
								5	Brown sandy clay- 10% pea sized gravel
1	2'	3/8	Soil		6,12,12			10	Sample Depth
									Brown sandy clay progressing to more clay.
								15	

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE
B = DRY C = CORED W = 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 O.D. SAMPLER

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 Livermore | PROJECT NO.: 48001.48 | LOGGED BY: Mike Luksic | BORING NO.: MW10

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
							18		Brown silty sand/ gravel w/ clay
							20		
							25		Brown silty /sandy clay - no odor
							30		Brown silty / sandy gravel to pea size w/ clay some 2" gravel pieces
							35		Brown silty / sandy gravel , no odor
							38		Brown clay, sandy clay
							40		Light brown / grey sorted silty sand to pea size gravel -- less clay

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

B = DRY C = CORED W = 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Livermore Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Mike Luksic | BORING NO.: MW 10

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
							45		Brown silty clay - wet clay -no odor
							50		Brown silty clay -- wet clay no odor
							55		Brown silty clay - very wet- no odor
							60		Brown wet clay - no odor
							65		Bottom- wet silty clay - no odor- Light brown

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

D = DRY C = CORED W = 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 _____

GROUND WATER MONITOR WELL INSTALLATION

PROJECT: Livermore JOB NO. 48001.36

WELL NO. MW II

DRILLING CONTRACTOR: Datum Expl.

COORDINATES: Handicap parking space by dry cleaners

BEGUN:

FINISHED:

SUPERVISOR: Rick Cooper

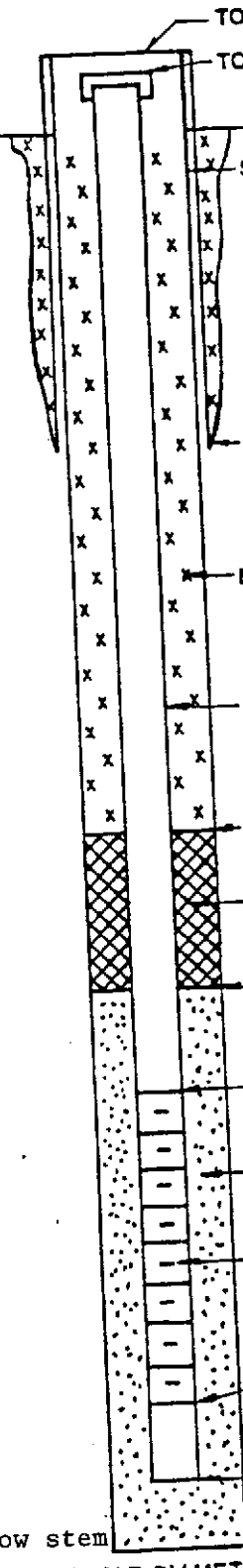
DRILLER:

WELL SITE: Shopping Center

WATER LEV. DEPTH/EL. 38' 6.5"

REFERENCE POINT & ELEVATION:

GENERALIZED GEOLOGIC LOG



DEPTH IN	ELEV. IN
20'	
23'	
25'	
55'	
55.5'	Threaded Plug
57.5'	

METHOD DRILLED: Auger, hollow stem

METHOD DEVELOPED:

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :

South side of dry cleaners-
Wash- Dry, at Miller outpost
shopping center-
In handicapped parking space.

PROJECT : Livermore arcade

BORING NO. : 1 (MW1)

TOTAL DEPTH : 57.5'

PROJECT NO. : 48001.36

LOGGED BY : Mike Luksic

PROJECT MGR. :

EDITED BY :

DRILLING CONTRACTOR : Datum Exploration

DRILL RIG TYPE : B 61 (Rick Cooper)

DRILLERS NAME : Rick/ Mike

INSPECTOR :

STARTED, TIME : 10:00

DATE : 8 / 23 / 90

COMPLETED, TIME : 15:00

DATE : 8 / 23 / 90

SURFACE ELEV. :

DATUM :

BORING DIAMETER : 8"

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.			
HAMMER WT.			BIT
HAMMER FALL			

BORING DEPTH (ft.)								
CASING DEPTH (ft.)								
WATER DEPTH (ft.)								
TIME :								
DATE :								

BACKFILLED, TIME : DATE : BY :

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION (REMARKS INCLUDE COLOR, GRADUATION, TYPE OF SOIL, ETC. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, SEAMS, ETC.)
									4" of Asphalt pavement
									unsorted gravel up to 2" w/silt (fill)
							5		
							10		unsorted gravel - pea size w/clay- silt
							15		unsorted gravel , pea size- w/ clay- silt

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

B = DRY C = CORED W = 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 O.D. SAMPLER

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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: Livermore Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Mike Luksic | BORING NO.: 1 (MWII

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
2	2'	100	soil	3"	30 35 23 28			20	2" gravel -sandy clay brown/ light grey
									Brown sandy clay less gravel
									moist clay
								25	
									Brown sandy clay - moist
								30	
3	2'		soil	3"	3 3 5 9			35	Brown silty clay wet - no odors
									Brown silty clay wet - no gravel -no odors
								40	

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

D = DRY C = CORED W = 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Livermore Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Mike Luksic | BORING NO.: 1 (MW1)

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
							45		light brown sandy clay
									moist consolidated clay
							50		silty sandy clay w/ some pea size gravel
									*** Pulled rods- wet- @ about 40'
							55		Sandy clay (brown)
									add distilled water to the well,
									3 gallons
							57.5		Bottom of the hole -sandy clay w/ pea size grav

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

D = DRY C = CORED W = 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

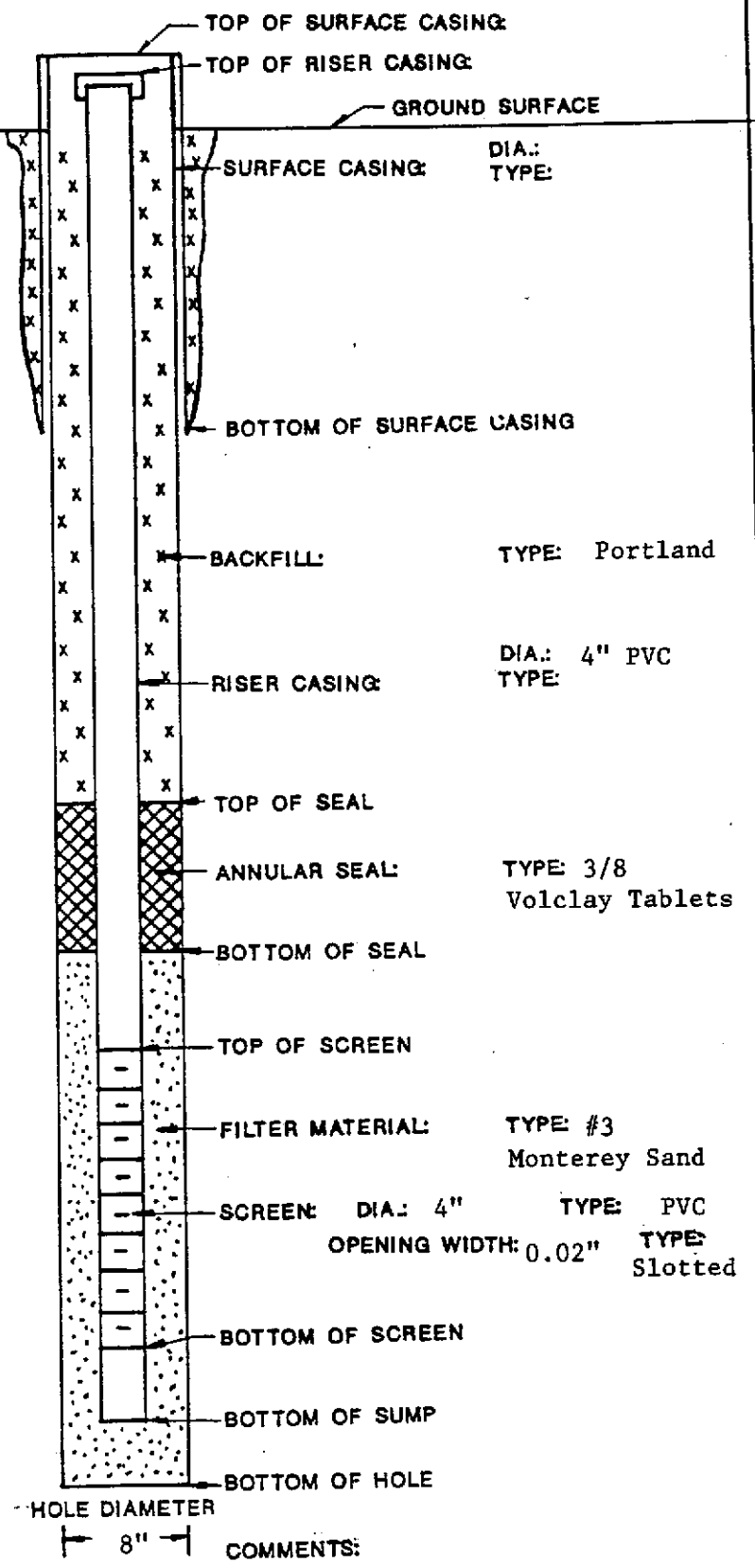
COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 LOOSE	2-4 SOFT
10-30 MED. DENSE	4-8 MED. STIFF
30-50 DENSE	8-15 STIFF
50+ VERY DENSE	15-30 VERY STIFF
	30+ HARD

SUMMARY:

EARTH BORING _____
ROCK CORING _____
SAMPLES _____

GROUND WATER MONITOR WELL INSTALLATION	PROJECT: Arcade	JOB NO. 48001.36	WELL NO. MW12
DRILLING CONTRACTOR: Datum Exploration	COORDINATES: Behind Cleaners (northside) Miller's Outpost		
BEGUN: FINISHED:	SUPERVISOR: MW DRILLER: Rick	WELL SITE:	WATER LEV. DEPTH/EL.

REFERENCE POINT & ELEVATION:



DEPTH IN	ELEV. IN
0'	
20'	
23'	
25'	
60'	
60.5'	

METHOD DRILLED: Hollow stem auger

METHOD DEVELOPED: Pump and Swab

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :

North of Cleaners about 25' on corner

PROJECT : Arcade

BORING NO.: MW12

TOTAL DEPTH:

PROJECT NO. : 48001.36

LOGGED BY: MW

PROJECT MGR. :

EDITED BY:

DRILLING CONTRACTOR :

DRILL RIG TYPE : CME 75

DRILLERS NAME : Rick

INSPECTOR:

STARTED, TIME : 2:00

DATE: 9/4/90

COMPLETED, TIME :

DATE:

SURFACE ELEV. :

DATUM :

BORING DIAMETER : 8"

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.	4"		
HAMMER WT.			BIT
HAMMER FALL			

BORING DEPTH (ft.)			
CASING DEPTH (ft.)			
WATER DEPTH (ft.)			
TIME :			
DATE :			
BACKFILLED, TIME :	DATE :		BY :

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION
							1		4" asphalt
							2		unsoiled gravel with silty sand matrix
							3		
							4		
			A				5		dry pea gravel
									some silty sand
									mostly gravel
									dry no odor
			A				10		pea gravel
									with silty sand
							15		

REMARKS INCLUDE COLOR, GRADUATION, TYPE OF SOIL, ETC. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, STAINS, ETC.

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

D = DRY C = CORED W = 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 O.D. SAMPLER

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0–4 VERY LOOSE	0–2 VERY SOFT
4–10 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 BOUND _____

ROCK BOUND _____

SAMPLES _____

HOLE NO.

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: MW | BORING NO.: MW1

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" OF 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, SEAMS AND ETC.)
							20		pea gravel unsorted
									[0.8 on PID]
							25		pea gravel some silty sand
									some of clays
									(more clay coming out of hole)
							30		gravels & silty clay
									gravels with silty clay
							35		moist
									more clays , moist
									and gravels
							40		gravel and silty sandy
									clays

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

S = DRY C = CORE T = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE	1 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

COHESIONLESS DENSITY		COHESIVE CONSISTENCY	
0-4	VERY LOOSE	0-2	VERY SOFT
4-10	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 _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: MW | BORING NO.: MW12

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
							45		gravels and silty clays - no odor - moist
							50		gravel and silty sandy clay- moist - no odor
							55		checked rods for water (no water in hole) can hear it seeping in hole
							60		wet clay
							65		wet clay

Down at 4:30 sheared key stock on rig, up @ 5:15

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

D = DRY C = CORED W = 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

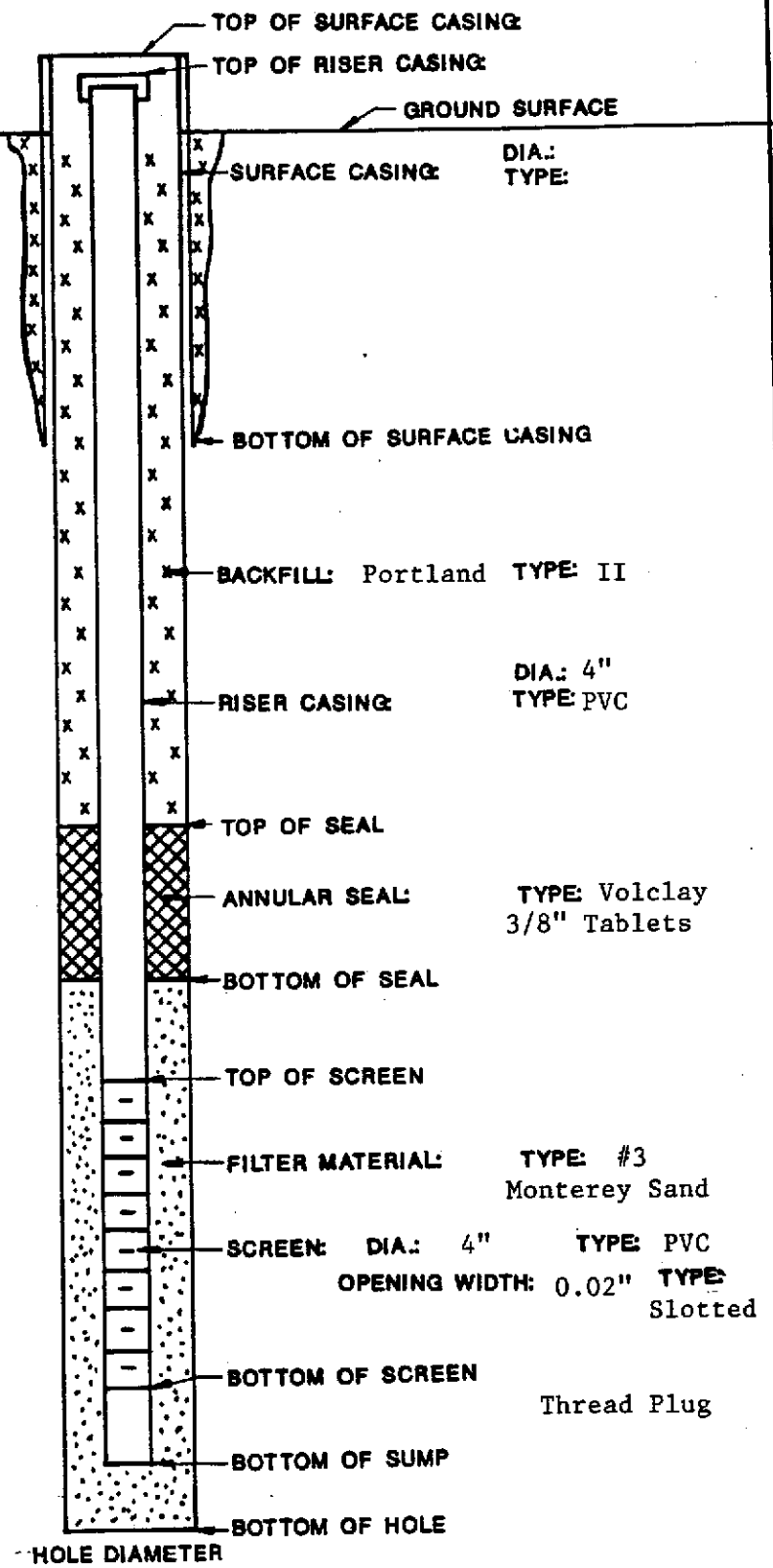
COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 LOOSE	2-4 SOFT
10-30 MED. DENSE	4-8 MED. STIFF
30-50 DENSE	8-15 STIFF
50+ VERY DENSE	15-30 VERY STIFF
	30+ HARD

SUMMARY:

EARTH BOUND _____
ROCK BOUND _____
SAMPLED _____

GROUND WATER MONITOR WELL INSTALLATION	PROJECT: Arcade	JOB NO. 48001.36	WELL NO. MW13
DRILLING CONTRACTOR: Layne	COORDINATES:		
BEGUN: 7am FINISHED:	SUPERVISOR: Michael Wright DRILLER: Mike Sloan	WELL SITE: Ventura, N "S" St.	WATER LEV. DEPTH/EL.

REFERENCE POINT & ELEVATION:



DEPTH IN feet	ELEV. IN
0	
20	
23	
26	
56	
56.5	

METHOD DRILLED:
Hollow Stem Auger

METHOD DEVELOPED:
Pump and Swab

TIME DEVELOPED:

COMMENTS: Well produces approximately 1.5 gal/min.

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :
8' from curb on northside
on Ventura Avenue
east of N "S" Street.

PROJECT : Arcade
BORING NO.: MW13
TOTAL DEPTH:
PROJECT NO. : 48001.36
LOGGED BY: Michael Wright
PROJECT MGR. :
EDITED BY:
DRILLING CONTRACTOR :
DRILL RIG TYPE :
DRILLERS NAME : Mike Sloan
INSPECTOR:
STARTED, TIME : 7:00 am
DATE: 9/21/90
COMPLETED, TIME : 11:00 am
DATE: 9/21/90

SURFACE ELEV. :
DATUM :
BORING DIAMETER : 8"

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.			
HAMMER WT.			BIT
HAMMER FALL			

BORING DEPTH (ft.)								
CASING DEPTH (ft.)								
WATER DEPTH (ft.)								
TIME :								
DATE :								

BACKFILLED, TIME : DATE : BY :

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION (REMARKS INCLUDE COLOR, GRADUATION, TYPE OF SOIL, ETC. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, STAINS, ETC.)
							1		3" asphalt
							2		dark brown silt with gravel
							3		
							4		
			A				5		unsorted gravel with silt with fine sand
							6		
							7		
							8		
							9		unsorted gravel with silt and fine sand
			A				10		
							15		unsorted gravel with silty and fine sand

GROUND SURFACE TO _____ USED _____ CASING, THEN _____

SAMPLE TYPE
B = BAG C = CORED W = 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%

140.1lb WT. X 30" FALL ON O.D. SAMPLER

COHESIONLESS DENSITY

0-4	VERY LOOSE
4-10	LOOSE
10-30	MED. DENSE
30-50	DENSE
50+	VERY DENSE

COHESIVE CONSISTENCY

0-2	VERY SOFT
2-4	SOFT
4-8	MED. STIFF
8-15	STIFF
15-30	VERY STIFF
30+	HARD

SUMMARY :
EARTH FOUND _____
ROCK FOUND _____
SAMPLES _____
HOLE NO.

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Michael Wright | BORING NO.: MW13

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, BEDS AND ETC.)
							16		unsorted subangular gravel
									with silty matrix
							17		
									no odor
							18		
							19		
									moist clay at about 21-22 feet
							20		
									no odor
									moist clay
							25		moist silty clay with some
									unsorted gravel
							30		
									moist silty clay with
									gravel and fine sands
							35		silty clay with
									unsorted pea gravel
							40		moist silty clay with
									little unsorted pea gravel

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

S = DRY C = CORED W = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE	1 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Michael Wright | BORING NO.: MW13

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, ZONES AND ETC.)
							41		
							45		moist silty clay with some unsorted subangular pea gravel
									no odor
							50		unsorted gravel and very moist silty clay - no odor
									fine sandy
									wet
							55		wet gravel with silty sandy clay
									saturated
							60		

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

S = DRY C = CORE V = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
VS = VANE TEST
US = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE 1 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

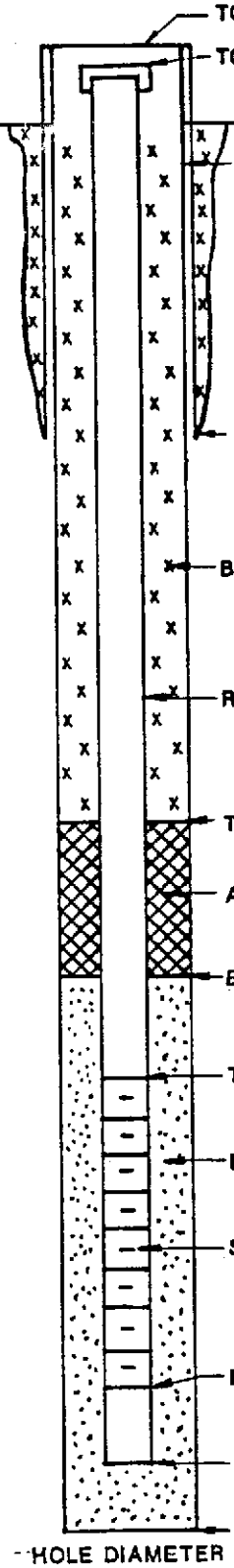
COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0–4 VERY LOOSE	0–2 VERY SOFT
4–10 LOOSE	2–4 SOFT
10–30 MED. DENSE	4–8 MED. STIFF
30–50 DENSE	8–15 STIFF
50+ VERY DENSE	15–30 VERY STIFF
	30+ HARD

SUMMARY

EARTH BORING _____
ROCK CORING _____
SAMPLES _____

GROUND WATER MONITOR WELL INSTALLATION	PROJECT: Arcade	JOB NO. 48001.36	WELL NO. MW14
DRILLING CONTRACTOR: Layne	COORDINATES:		
BEGUN: / FINISHED:	SUPERVISOR: Michael Wright / DRILLER:	WELL SITE: Lambaren (Near Western)	WATER LEV. DEPTH/EL.

REFERENCE POINT & ELEVATION:



DEPTH IN feet	ELEV. IN
0	
NA	
21	
24	
26	
56	
56.5	

METHOD DRILLED:
Hollow Stem Auger

METHOD DEVELOPED:
Pump and Bail

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Michael Wright | BORING NO.: MW14

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (Ft)	GRAPHIC LOG	SOIL IDENTIFICATION Begin 1:00pm 9/21/90 REMARKS INCLUDE COLOR, GRADATION, TYPE OF SOIL ETC. ROCK-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, ZONES AND ETC.
							1		asphalt about 3" dark brown silty fill with gravel
							2		unsorted gravel
							3		with dark silty sandy matrix
							4		
							5		
							10		unsorted gravels clayey silt and fine sand matrix, dry
							15		more clay, moist brown silty clay, moist with little pea gravel
							20		brown silty, moist clay with a little pea gravel silt may be very fine sand
							25		brown silty clay with large size gravel - unsorted
							26		moist - no odor

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE
S = DRY C = CORED W = 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Michael Wright | BORING NO.: MW14

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" OF 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, BEANS AND ETC.)
							27		
							28		unsorted - subangular
							29		more gravels with silty sandy clay
							30		matrix - moist
							35		unsorted gravels
									in silty clay
									moist
							40		unsorted subangular
									gravels with moist brown
									silty sandy clay matrix
									*rate of penetration change
							45		no odor
							50		lots of fine gravel in
									sandy silty clay matrix
									moist - no odor

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

D = DRY C = CORED W = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE	1 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

COHESIONLESS DENSITY | COHESIVE CONSISTENCY

0-4 VERY LOOSE	0-2 VERY SOFT
4-10 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 _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: Michael Wright | BORING NO.: MW14

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
							51		
							52		
							53		
							54		wet
							55		
									saturated zone
									fine sandy
									silty clay
									with gravel
							60		
									total depth 63' @ 2:15pm
							65		

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

S = 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%
AND	35 TO 50%

140 lb. WT. X 30" FALL ON 2" O.D. SAMPLER

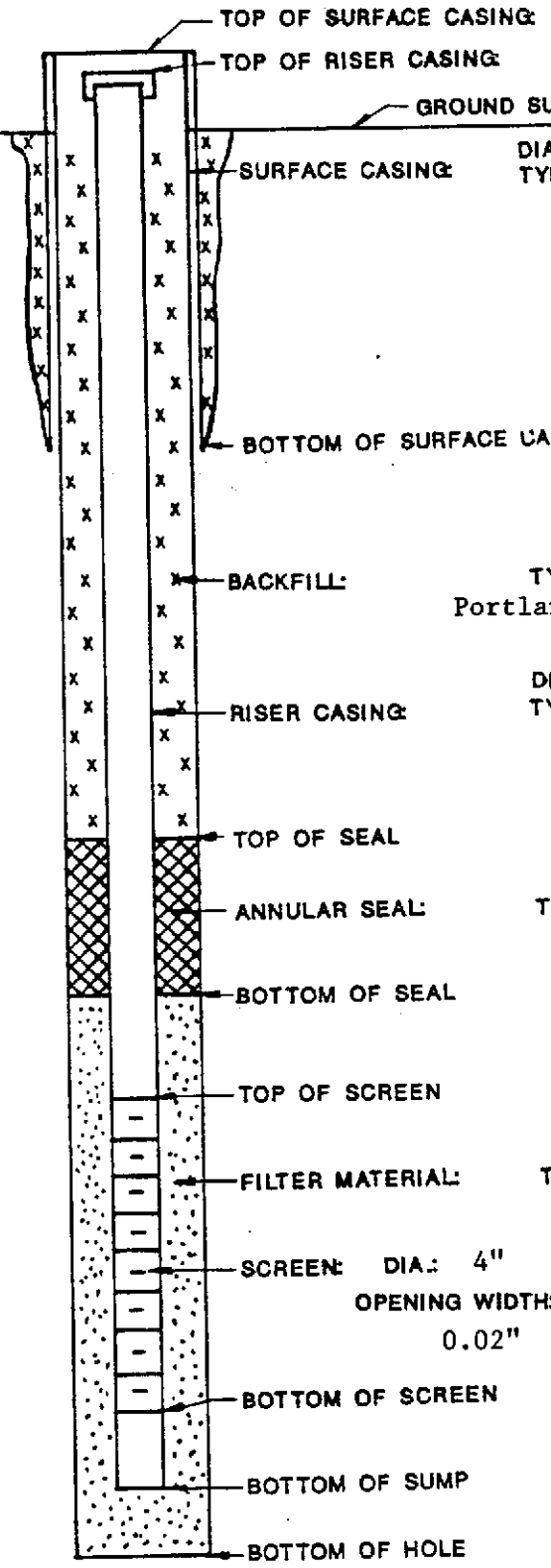
COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0-4 VERY LOOSE	0-2 VERY SOFT
4-10 LOOSE	2-4 SOFT
10-30 MED. DENSE	4-8 MED. STIFF
30-50 DENSE	8-15 STIFF
50+ VERY DENSE	15-30 VERY STIFF
	30+ HARD

SUMMARY:

EARTH BORING _____
ROCK BORING _____
SAMPLES _____

GROUND WATER MONITOR WELL INSTALLATION	PROJECT: Arcade	JOB NO. 48001.36	WELL NO. MW15
DRILLING CONTRACTOR: Layne	COORDINATES:		
BEGUN: 9:45am FINISHED: 1:30p	SUPERVISOR: Michael Wright DRILLER: Mike Sloan	WELL SITE: Ventura/Rincon	WATER LEV. DEPTH/EL.

REFERENCE POINT & ELEVATION:



DEPTH IN feet	ELEV. IN
0	
27	
30	
35	
55	
55.5	
58	

METHOD DRILLED:
Hollow Stem Auger

METHOD DEVELOPED:
Pump and Bail

TIME DEVELOPED:

COMMENTS:

Hygienetics Inc.

TEST BORING LOG

LOCATION OF BORING :

PROJECT : Arcade

BORING NO.: MW15

TOTAL DEPTH:

PROJECT NO. : 48001.36

LOGGED BY: MW

PROJECT MGR. :

EDITED BY:

DRILLING CONTRACTOR : Layne

DRILL RIG TYPE : CME 75

DRILLERS NAME : Mike/Brian

INSPECTOR:

STARTED, TIME : 9:45am

DATE: 10/5/90

COMPLETED, TIME : 1:30pm

DATE: 10/5/90

SURFACE ELEV. :

DATUM :

BORING DIAMETER : 8"

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE I.D.	4"		
HAMMER WT.			BIT
HAMMER FALL			

BORING DEPTH (ft.)									
CASING DEPTH (ft.)	55'								
WATER DEPTH (ft.)									
TIME :									
DATE :									

BACKFILLED, TIME : DATE : BY :

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	TYPE OF SAMPLE	SAMPLE DEPTHS	BLOWS PER 6" ON SAMPLER	CASING BLOWS PER FOOT	DEPTH (ft)	GRAPHIC LOG	SOIL IDENTIFICATION (REMARKS INCLUDE COLOR, GRADUATION, TYPE OF SOIL, ETC. ROCKS-COLOR, TYPE, CONDITION, HARDNESS, DRILLING TIME, SEAMS, ETC.)
							1		asphalt about 3" dark brown fill
									dark brown silt with little gravel
							2		(light brown sandy silt with gravel
							3		subangular gravel, unsorted)
							4		
							5		
									subangular unsorted gravel
									with sandy silt
							10		
							15		clayey sandy silt and gravel

GROUND SURFACE TO _____ USED _____ CASING: THEN _____

SAMPLE TYPE

B = BAG C = CORED W = WASHED
U = 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 O.D. SAMPLER

COHESIONLESS DENSITY

0–4	VERY LOOSE
4–10	LOOSE
10–30	MED. DENSE
30–50	DENSE
50+	VERY DENSE

COHESIVE CONSISTENCY

0–2	VERY SOFT
2–4	SOFT
4–8	MED. STIFF
8–15	STIFF
15–30	VERY STIFF
30+	HARD

SUMMARY :

EARTH BOUND _____

ROCK BOUND _____

SAMPLES _____

HOLE NO.

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001.36 | LOGGED BY: MW | BORING NO.: MW15

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
							16		sandy silty clay, moist
									no gravel, no odor
							20		moist clay, brown
									silty moist clay no gravel
									moisture increase
							25		
									moist clay trace gravel
							30		
									fine sandy silty moist clay
									trace unsorted pea gravel
							35		
									sandy silty
									moist clay with some unsorted
									small pea gravels
							40		

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

S = DRY C = CORE V = WASHED
UP = UNDISTURBED PISTON
TP = TEST PIT
A = AUGER
V = VANE TEST
UT = UNDISTURBED THINWALL
SS = SPLIT SPOON

PROPORTIONS USED

TRACE	1 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0–4 VERY LOOSE	0–2 VERY SOFT
4–10 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 BORING _____
SAMPLES _____

Hygienetics Inc.

TEST BORING LOG

PROJECT: Arcade | PROJECT NO.: 48001-36 | LOGGED BY: MW | BORING NO.: MW15

SAMPLE NO.	SAMPLE PEN	SAMPLE REC.	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, SEAMS AND ETC.)
							41		more gravels in clay
							42		unsorted
							45		drilling rate of penetration increase
									silty clay with some gravel
							50		gravel % increase
									moisture increase
									saturated zone
							55		fine sand silty clay
									and unsorted gravel
									Total Depth 58'
							60		
							65		

GROUND SURFACE TO _____ USED _____ CASING THEN _____

SAMPLE TYPE

S = 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	1 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

COHESIONLESS DENSITY	COHESIVE CONSISTENCY
0–4 VERY LOOSE	0–2 VERY SOFT
4–10 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

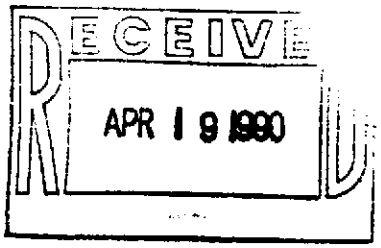
SUMMARY:

EARTH BORING _____
ROCK CORING _____
SAMPLED _____

APPENDIX B

LABORATORY ANALYTICAL RESULTS FOR GROUNDWATER AND SOIL SAMPLES

Analytical Report



LOG NO: E90-03-827

Received: 26 MAR 90
Reported: 28 MAR 90
4/17/90

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

Project: Arcade

REPORT OF ANALYTICAL RESULTS

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	84000	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.

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

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

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	---	---	---	<100	<1
Acetone, ug/L	---	---	---	<1000	<10
Acrolein, ug/L	---	---	---	<1000	<10
Acrylonitrile, ug/L	---	---	---	<1000	<10
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

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

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

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	---

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

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

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

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	<10
Acetone, ug/L	<10
Acrolein, ug/L	<10
Acrylonitrile, ug/L	<1
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

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
Report revised to correct gasoline result on sample MW-1. T. Blake 04.17.90

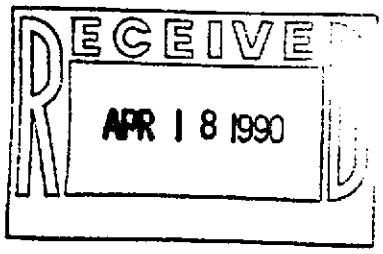
Sim D. Lessley, Ph.D., Laboratory Director

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

Analytical Report



LOG NO: E90-04-206

Received: 10 APR 90
Reported: 13 APR 90

Mr. Karl Novak
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: 48001.33

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
04-206-1	MW3	10 APR 90
04-206-2	MW2	10 APR 90
04-206-3	MW1	10 APR 90

PARAMETER	04-206-1	04-206-2	04-206-3
TPH - Volatile Hydrocarbons			
Date Analyzed	04.11.90	04.11.90	04.12.90
Dilution Factor, Times	1	1	50
C4 to C12 Hydrocarbons, ug/L	<50	60	69000
Fuel Characterization, .	---	GASOLINE	GASOLINE

MW 1, 2, 3 retest

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

Analytical Report

LOG NO: E90-04-206

Received: 10 APR 90
Reported: 13 APR 90

Mr. Karl Novak
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: 48001.33

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
04-206-1	MW3	10 APR 90
04-206-2	MW2	10 APR 90
04-206-3	MW1	10 APR 90

PARAMETER	04-206-1	04-206-2	04-206-3
Vol.Pri.Poll. (EPA-624)			
Date Analyzed	04.11.90	04.11.90	04.11.90
Dilution Factor, Times	1	5	100
1,1,1-Trichloroethane, ug/L	<1	<5	<100
1,1,2,2-Tetrachloroethane, ug/L	<1	<5	<100
1,1,2-Trichloroethane, ug/L	<1	<5	<100
1,1-Dichloroethane, ug/L	<1	<5	<100
1,1-Dichloroethene, ug/L	<1	<5	<100
1,2-Dichloroethane, ug/L	<1	<5	<100
1,2-Dichlorobenzene, ug/L	<1	<5	<100
1,2-Dichloropropane, ug/L	<1	<5	<100
1,3-Dichlorobenzene, ug/L	<1	<5	<100
1,3-Dichloropropene, ug/L	<1	<5	<100
1,4-Dichlorobenzene, ug/L	<1	<5	<100
2-Chloroethylvinylether, ug/L	<1	<5	<100
2-Hexanone, ug/L	<1	<5	<100
4-Methyl-2-Pentanone, ug/L	<10	<50	<1000
Acetone, ug/L	<10	<50	<1000
Acrolein, ug/L	<10	<50	<1000
Acrylonitrile, ug/L	<1	<5	<100
Bromodichloromethane, ug/L	<1	<5	<100
Bromomethane, ug/L	<1	<5	14000
Benzene, ug/L	<1	<5	<100
Bromoform, ug/L	<1	<5	<100
Chlorobenzene, ug/L			

Analytical Report

LOG NO: E90-04-206

Received: 10 APR 90
Reported: 13 APR 90

Mr. Karl Novak
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: 48001.33

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
04-206-1	MW3	10 APR 90
04-206-2	MW2	10 APR 90
04-206-3	MW1	10 APR 90

PARAMETER	04-206-1	04-206-2	04-206-3
Carbon Tetrachloride, ug/L	<1	<5	<100
Chloroethane, ug/L	<1	<5	<100
Chloroform, ug/L	<1	<5	<100
Chloromethane, ug/L	<1	<5	<100
Carbon Disulfide, ug/L	<1	<5	<100
Dibromochloromethane, ug/L	<1	<5	<100
Ethylbenzene, ug/L	<1	<5	3500
Freon 113, ug/L	<1	<5	<100
Methyl ethyl ketone, ug/L	<20	<100	<2000
Methylene chloride, ug/L	<1	<5	<100
Styrene, ug/L	<1	<5	<100
Trichloroethene, ug/L	<1	<5	<100
Trichlorofluoromethane, ug/L	<1	<5	<100
Toluene, ug/L	<1	<5	25000
Tetrachloroethene, ug/L	<1	350	<100
Vinyl acetate, ug/L	<1	<5	<100
Vinyl chloride, ug/L	<1	<5	<100
Total Xylene Isomers, ug/L	<1	<5	20000
cis-1,2-Dichloroethene, ug/L	<1	<5	<100
trans-1,2-Dichloroethene, ug/L	<1	<5	<100
trans-1,3-Dichloropropene, ug/L	<1	<5	<100
Semi-Quantified Results ** C5-C13 Hydrocarbons, ug/L	---	---	20000

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Analytical Report

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Project: 48001.33

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
04-206-1	MW3	10 APR 90
04-206-2	MW2	10 APR 90
04-206-3	MW1	10 APR 90

PARAMETER	04-206-1	04-206-2	04-206-3

** 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

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BCA B C Analytical

Analytical Report

JUN 18

LOG NO: E90-05-802

Received: 25 MAY 90
Reported: 31 MAY 90

Mr. Karl Novak
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2200 Powell Street Suite 1095
Emeryville California 94608

Project: Livermore Arcade

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-802-1	B1-12'	25 MAY 90
05-802-2	B1-16'	25 MAY 90
05-802-3	B1-44'	25 MAY 90
05-802-4	B1-54'	25 MAY 90
05-802-5	B2-4'	25 MAY 90

PARAMETER	05-802-1	05-802-2	05-802-3	05-802-4	05-802-5
Vol.Pri.Poll. (EPA-8240)					
Date Analyzed	05.31.90	05.31.90	05.31.90	05.31.90	05.31.90
Date Extracted	05.29.90	05.29.90	05.29.90	05.29.90	05.29.90
Dilution Factor, Times	1	1	1	1	1
1,1,1-Trichloroethane, mg/kg	<0.2	1.0	0.9	1.9	<0.2
1,1,2,2-Tetrachloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,1,2-Trichloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloropropane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,3-Dichlorobenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,3-Dichloropropene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,4-Dichlorobenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
2-Chloroethylvinylether, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
2-Hexanone, mg/kg	<2	<2	<2	<2	<2
4-Methyl-2-Pentanone, mg/kg	<2	<2	<2	<2	<2
Acetone, mg/kg	<5	<5	<5	<5	<5
Acrolein, mg/kg	<5	<5	<5	<5	<5
Acrylonitrile, mg/kg	<2	<2	<2	<2	<2
Bromodichloromethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Bromomethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

Analytical Report

LOG NO: E90-05-802

Received: 25 MAY 90
Reported: 31 MAY 90

Mr. Karl Novak
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Project: Livermore Arcade

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-802-1	B1-12'	25 MAY 90
05-802-2	B1-16'	25 MAY 90
05-802-3	B1-44'	25 MAY 90
05-802-4	B1-54'	25 MAY 90
05-802-5	B2-4'	25 MAY 90

PARAMETER	05-802-1	05-802-2	05-802-3	05-802-4	05-802-5
Benzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Bromoform, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Carbon Tetrachloride, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Chloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Chloroform, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Chloromethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Carbon Disulfide, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dibromochloromethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Freon 113, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Methyl ethyl ketone, mg/kg	<2	<2	<2	<2	<2
Methylene chloride, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Styrene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorofluoromethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrachloroethene, mg/kg	<0.2	0.3	2.3	0.2	0.5
Vinyl acetate, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Vinyl chloride, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylene Isomers, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
cis-1,2-Dichloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

Analytical Report

LOG NO: E90-05-802

Received: 25 MAY 90
Reported: 31 MAY 90

Mr. Karl Novak
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Project: Livermore Arcade

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-802-1	B1-12'	25 MAY 90
05-802-2	B1-16'	25 MAY 90
05-802-3	B1-44'	25 MAY 90
05-802-4	B1-54'	25 MAY 90
05-802-5	B2-4'	25 MAY 90

PARAMETER	05-802-1	05-802-2	05-802-3	05-802-4	05-802-5
trans-1,3-Dichloropropene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Semi-Quantified Results ** C10 Hydrocarbon, mg/kg	---	---	---	4	---

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

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Analytical Report

LOG NO: E90-05-802

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Reported: 31 MAY 90

Mr. Karl Novak
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Emeryville California 94608

Project: Livermore Arcade

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-802-6	B2-54'	25 MAY 90

PARAMETER	05-802-6
Vol.Pri.Poll. (EPA-8240)	
Date Analyzed	05.31.90
Date Extracted	05.29.90
Dilution Factor, Times	1
1,1,1-Trichloroethane, mg/kg	1.7
1,1,2,2-Tetrachloroethane, mg/kg	<0.2
1,1,2-Trichloroethane, mg/kg	<0.2
1,1-Dichloroethane, mg/kg	<0.2
1,1-Dichloroethene, mg/kg	<0.2
1,2-Dichloroethane, mg/kg	<0.2
1,2-Dichlorobenzene, mg/kg	<0.2
1,2-Dichloropropane, mg/kg	<0.2
1,3-Dichlorobenzene, mg/kg	<0.2
1,3-Dichloropropene, mg/kg	<0.2
1,4-Dichlorobenzene, mg/kg	<0.2
2-Chloroethylvinylether, mg/kg	<0.2
2-Hexanone, mg/kg	<2
4-Methyl-2-Pentanone, mg/kg	<2
Acetone, mg/kg	<5
Acrolein, mg/kg	<5
Acrylonitrile, mg/kg	<2
Bromodichloromethane, mg/kg	<0.2
Bromomethane, mg/kg	<0.2
Benzene, mg/kg	<0.2
Bromoform, mg/kg	<0.2
Chlorobenzene, mg/kg	<0.2
Carbon Tetrachloride, mg/kg	<0.2

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Analytical Report

LOG NO: E90-05-802

Received: 25 MAY 90
Reported: 31 MAY 90

Mr. Karl Novak
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Emeryville California 94608

Project: Livermore Arcade

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-802-6	B2-54'	25 MAY 90

PARAMETER	05-802-6
Chloroethane, mg/kg	<0.2
Chloroform, mg/kg	<0.2
Chloromethane, mg/kg	<0.2
Carbon Disulfide, mg/kg	<0.2
Dibromochloromethane, mg/kg	<0.2
Ethylbenzene, mg/kg	<0.2
Freon 113, mg/kg	<0.2
Methyl ethyl ketone, mg/kg	<2
Methylene chloride, mg/kg	<0.2
Styrene, mg/kg	<0.2
Trichloroethene, mg/kg	<0.2
Trichlorofluoromethane, mg/kg	<0.2
Toluene, mg/kg	<0.2
Tetrachloroethene, mg/kg	0.2
Vinyl acetate, mg/kg	<0.2
Vinyl chloride, mg/kg	<0.2
Total Xylene Isomers, mg/kg	<0.2
cis-1,2-Dichloroethene, mg/kg	<0.2
trans-1,2-Dichloroethene, mg/kg	<0.2
trans-1,3-Dichloropropene, mg/kg	<0.2

Results were transmitted to you by facsimile on 05.31.90. T. Blake

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

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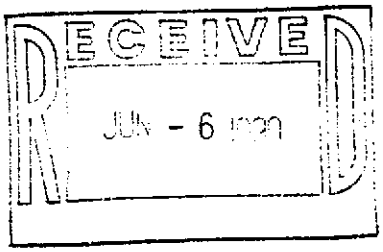
BCA B C Analytical

Analytical Report



LOG NO: E90-05-801

Received: 25 MAY 90
Reported: 31 MAY 90

Mr. Karl Novak
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2200 Powell Street Suite 1095
Emeryville California 94608

Project: Livermore Arcade

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
05-801-1	B1U	25 MAY 90
05-801-2	B2U	25 MAY 90

PARAMETER	05-801-1	05-801-2
Vol.Pri.Poll. (EPA-8240)		
Date Analyzed	05.29.90	05.29.90
Date Extracted	05.29.90	05.29.90
Dilution Factor, Times	50	5
1,1,1-Trichloroethane, ug/L	<50	<5
1,1,2,2-Tetrachloroethane, ug/L	<50	<5
1,1,2-Trichloroethane, ug/L	<50	<5
1,1-Dichloroethane, ug/L	<50	<5
1,1-Dichloroethene, ug/L	<50	<5
1,2-Dichloroethane, ug/L	<50	<5
1,2-Dichlorobenzene, ug/L	<50	<5
1,2-Dichloropropane, ug/L	<50	<5
1,3-Dichlorobenzene, ug/L	<50	<5
1,3-Dichloropropene, ug/L	<50	<5
1,4-Dichlorobenzene, ug/L	<50	<5
2-Chloroethylvinylether, ug/L	<50	<5
2-Hexanone, ug/L	<50	<5
4-Methyl-2-Pentanone, ug/L	<500	<5
Acetone, ug/L	<500	<50
Acrolein, ug/L	<500	<50
Acrylonitrile, ug/L	<50	<5
Bromodichloromethane, ug/L	<50	<5
Bromomethane, ug/L	<50	<5
Benzene, ug/L	<50	<5
Bromoform, ug/L	<50	<5
Chlorobenzene, ug/L		

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BCA B C Analytical

Analytical Report

LOG NO: E90-05-801

Received: 25 MAY 90
Reported: 31 MAY 90

Mr. Karl Novak
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: Livermore Arcade

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
05-801-1	B1U	25 MAY 90
05-801-2	B2U	25 MAY 90

PARAMETER	05-801-1	05-801-2
Carbon Tetrachloride, ug/L	<50	<5
Chloroethane, ug/L	<50	<5
Chloroform, ug/L	<50	<5
Chloromethane, ug/L	<50	<5
Carbon Disulfide, ug/L	<50	<5
Dibromochloromethane, ug/L	<50	<5
Ethylbenzene, ug/L	<50	<5
Freon 113, ug/L	<50	<5
Methyl ethyl ketone, ug/L	<1000	<100
Methylene chloride, ug/L	<50	<5
Styrene, ug/L	<50	<5
Trichloroethene, ug/L	140	<5
Trichlorofluoromethane, ug/L	<50	<5
Toluene, ug/L	<50	<5
Tetrachloroethene, ug/L	5800	820
Vinyl acetate, ug/L	<50	<5
Vinyl chloride, ug/L	<50	<5
Total Xylene Isomers, ug/L	<50	<5
cis-1,2-Dichloroethene, ug/L	79	<5
trans-1,2-Dichloroethene, ug/L	<50	<5
trans-1,3-Dichloropropene, ug/L	<50	<5

Preliminary verbal results were given to you on 05.29.90. T. Blake

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

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BCA B C Analytical

Analytical Report

LOG NO: E90-05-880

Received: 30 MAY 90
Reported: 01 JUN 90

Mr. Karl Novak
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Emeryville California 94608

Project: Livermore Arcade

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
05-880-1	MW 4	30 MAY 90
05-880-2	MW 5	30 MAY 90

PARAMETER	05-880-1	05-880-2
Vol.Pri.Poll. (EPA-624)		
Date Analyzed	06.01.90	06.01.90
Dilution Factor, Times	1	1
1,1,1-Trichloroethane, ug/L	<1	<1
1,1,2,2-Tetrachloroethane, ug/L	<1	<1
1,1,2-Trichloroethane, ug/L	<1	<1
1,1-Dichloroethane, ug/L	<1	<1
1,1-Dichloroethene, ug/L	<1	<1
1,2-Dichloroethane, ug/L	<1	<1
1,2-Dichlorobenzene, ug/L	<1	<1
1,2-Dichloropropane, ug/L	<1	<1
1,3-Dichlorobenzene, ug/L	<1	<1
1,3-Dichloropropene, ug/L	<1	<1
1,4-Dichlorobenzene, ug/L	<1	<1
2-Chloroethylvinylether, ug/L	<1	<1
2-Hexanone, ug/L	<1	<1
4-Methyl-2-Pentanone, ug/L	<10	<10
Acetone, ug/L	<10	<10
Acrolein, ug/L	<10	<10
Acrylonitrile, ug/L	<1	<1
Bromodichloromethane, ug/L	<1	<1
Bromomethane, ug/L	<1	400
Benzene, ug/L	<1	<1
Bromoform, ug/L	<1	<1
Chlorobenzene, ug/L	<1	<1
Carbon Tetrachloride, ug/L		

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Emeryville, CA 94608

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BCA B C Analytical

Analytical Report

LOG NO: E90-05-880

Received: 30 MAY 90
Reported: 01 JUN 90

Mr. Karl Novak
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: Livermore Arcade

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
05-880-1	MW 4	30 MAY 90
05-880-2	MW 5	30 MAY 90

PARAMETER	05-880-1	05-880-2
Chloroethane, ug/L	<1	<1
Chloroform, ug/L	<1	<1
Chloromethane, ug/L	<1	<1
Carbon Disulfide, ug/L	<1	<1
Dibromochloromethane, ug/L	<1	<1
Ethylbenzene, ug/L	<1	31
Freon 113, ug/L	<1	<1
Methyl ethyl ketone, ug/L	<20	<20
Methylene chloride, ug/L	<1	<1
Styrene, ug/L	<1	<1
Trichloroethene, ug/L	<1	<1
Trichlorofluoromethane, ug/L	<1	<1
Toluene, ug/L	<1	22
Tetrachloroethene, ug/L	<1	2
Vinyl acetate, ug/L	<1	<1
Vinyl chloride, ug/L	<1	<1
Total Xylene Isomers, ug/L	<1	45
cis-1,2-Dichloroethene, ug/L	<1	<1
trans-1,2-Dichloroethene, ug/L	<1	<1
trans-1,3-Dichloropropene, ug/L	<1	<1
Semi-Quantified Results **		
C5-C15 Hydrocarbons, ug/L	---	500

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

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Emeryville, CA 94608

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BCA B C Analytical

Analytical Report

LOG NO: E90-05-880

Received: 30 MAY 90
Reported: 01 JUN 90

Mr. Karl Novak
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Project: Livermore Arcade

REPORT OF ANALYTICAL RESULTS

Results were transmitted to you by facsimile on 06.01.90. T. Blake

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

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B C Analytical

Analytical Report

LOG NO: E90-05-842

Received: 29 MAY 90
Reported: 04 JUN 90

Mr. Karl Novak
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2200 Powell Street Suite 1095
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Project: 48001-37

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-842-1	MW-4-21'	29 MAY 90
05-842-2	MW-5-26'	29 MAY 90

PARAMETER	05-842-1	05-842-2
Vol.Pri.Poll. (EPA-8240)		
Date Analyzed	06.02.90	06.02.90
Date Extracted	05.30.90	05.30.90
Dilution Factor, Times	1	1
1,1,1-Trichloroethane, mg/kg	<0.2	3.5
1,1,2,2-Tetrachloroethane, mg/kg	<0.2	<0.2
1,1,2-Trichloroethane, mg/kg	<0.2	<0.2
1,1-Dichloroethane, mg/kg	<0.2	<0.2
1,1-Dichloroethene, mg/kg	<0.2	<0.2
1,2-Dichloroethane, mg/kg	<0.2	<0.2
1,2-Dichlorobenzene, mg/kg	<0.2	<0.2
1,2-Dichloropropane, mg/kg	<0.2	<0.2
1,3-Dichlorobenzene, mg/kg	<0.2	<0.2
1,3-Dichloropropene, mg/kg	<0.2	<0.2
1,4-Dichlorobenzene, mg/kg	<0.2	<0.2
2-Chloroethylvinylether, mg/kg	<2	<2
2-Hexanone, mg/kg	<2	<2
4-Methyl-2-Pentanone, mg/kg	<5	<5
Acetone, mg/kg	<5	<5
Acrolein, mg/kg	<2	<2
Acrylonitrile, mg/kg	<0.2	<0.2
Bromodichloromethane, mg/kg	<0.2	<0.2
Bromomethane, mg/kg	<0.2	<0.2
Benzene, mg/kg	<0.2	<0.2
Bromoform, mg/kg	<0.2	<0.2
Chlorobenzene, mg/kg		

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BCA B C Analytical

Analytical Report

LOG NO: E90-05-842

Received: 29 MAY 90
Reported: 04 JUN 90

Mr. Karl Novak
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: 48001-37

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-842-1	MW-4-21'	29 MAY 90
05-842-2	MW-5-26'	29 MAY 90

PARAMETER	05-842-1	05-842-2
Carbon Tetrachloride, mg/kg	<0.2	<0.2
Chloroethane, mg/kg	<0.2	<0.2
Chloroform, mg/kg	<0.2	<0.2
Chloromethane, mg/kg	<0.2	<0.2
Carbon Disulfide, mg/kg	<0.2	<0.2
Dibromochloromethane, mg/kg	<0.2	<0.2
Ethylbenzene, mg/kg	<0.2	<0.2
Freon 113, mg/kg	<0.2	<0.2
Methyl ethyl ketone, mg/kg	<2	<2
Methylene chloride, mg/kg	<0.2	<0.2
Styrene, mg/kg	<0.2	<0.2
Trichloroethene, mg/kg	<0.2	<0.2
Trichlorofluoromethane, mg/kg	<0.2	<0.2
Toluene, mg/kg	<0.2	<0.2
Tetrachloroethene, mg/kg	<0.2	<0.2
Vinyl acetate, mg/kg	<0.2	<0.2
Vinyl chloride, mg/kg	<0.2	<0.2
Total Xylene Isomers, mg/kg	<0.2	<0.2
cis-1,2-Dichloroethene, mg/kg	<0.2	<0.2
trans-1,2-Dichloroethene, mg/kg	<0.2	<0.2
trans-1,3-Dichloropropene, mg/kg	<0.2	<0.2

Results were transmitted to you by facsimile on 06.04.90. T. Blake

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

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BCA B C Analytical

Analytical Report

LOG NO: E90-05-908

Received: 31 MAY 90
Reported: 06 JUN 90

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Project: Livermore

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-908-1	MW6-20 Ring	31 MAY 90

PARAMETER	05-908-1
Vol.Pri.Poll. (EPA-8240)	
Date Analyzed	06.05.90
Date Extracted	06.04.90
Dilution Factor, Times	1
1,1,1-Trichloroethane, mg/kg	<0.2
1,1,2,2-Tetrachloroethane, mg/kg	<0.2
1,1,2-Trichloroethane, mg/kg	<0.2
1,1-Dichloroethane, mg/kg	<0.2
1,1-Dichloroethene, mg/kg	<0.2
1,2-Dichloroethane, mg/kg	<0.2
1,2-Dichlorobenzene, mg/kg	<0.2
1,2-Dichloropropane, mg/kg	<0.2
1,3-Dichlorobenzene, mg/kg	<0.2
1,3-Dichloropropene, mg/kg	<0.2
1,4-Dichlorobenzene, mg/kg	<0.2
2-Chloroethylvinylether, mg/kg	<0.2
2-Hexanone, mg/kg	<2
4-Methyl-2-Pentanone, mg/kg	<2
Acetone, mg/kg	<5
Acrolein, mg/kg	<5
Acrylonitrile, mg/kg	<2
Bromodichloromethane, mg/kg	<0.2
Bromomethane, mg/kg	<0.2
Benzene, mg/kg	<0.2
Bromoform, mg/kg	<0.2
Chlorobenzene, mg/kg	<0.2
Carbon Tetrachloride, mg/kg	<0.2

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BCA *B C Analytical*

Analytical Report

LOG NO: E90-05-908

Received: 31 MAY 90
Reported: 06 JUN 90

Mr. Karl Novak
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Emeryville California 94608

Project: Livermore

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-908-1	MW6-20 Ring	31 MAY 90

PARAMETER	05-908-1
Chloroethane, mg/kg	<0.2
Chloroform, mg/kg	<0.2
Chloromethane, mg/kg	<0.2
Carbon Disulfide, mg/kg	<0.2
Dibromochloromethane, mg/kg	<0.2
Ethylbenzene, mg/kg	<0.2
Freon 113, mg/kg	<0.2
Methyl ethyl ketone, mg/kg	<2
Methylene chloride, mg/kg	<0.2
Styrene, mg/kg	<0.2
Trichloroethene, mg/kg	<0.2
Trichlorofluoromethane, mg/kg	<0.2
Toluene, mg/kg	<0.2
Tetrachloroethene, mg/kg	<0.2
Vinyl acetate, mg/kg	<0.2
Vinyl chloride, mg/kg	<0.2
Total Xylene Isomers, mg/kg	<0.2
cis-1,2-Dichloroethene, mg/kg	<0.2
trans-1,2-Dichloroethene, mg/kg	<0.2
trans-1,3-Dichloropropene, mg/kg	<0.2

Results were transmitted to Karl Novak on 06.06.90. T. Blake

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

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BCA B C Analytical

Analytical Report

LOG NO: E90-06-048

Received: 04 JUN 90
Reported: 18 JUN 90

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Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
06-048-1	19.5'/MW-7/Brass Ring	01 JUN 90
06-048-2	31'/MW-7/Brass Ring	01 JUN 90
06-048-3	41.3'/MW-7/Brass Ring	01 JUN 90
06-048-4	61'/MW-7/Brass Ring	01 JUN 90
06-048-5	66.5'/MW-7/Brass Ring	01 JUN 90

PARAMETER	06-048-1	06-048-2	06-048-3	06-048-4	06-048-5
Vol.Pri.Poll. (EPA-8240)					
Date Analyzed	06.06.90	06.06.90	06.06.90	06.06.90	06.06.90
Date Extracted	06.05.90	06.05.90	06.05.90	06.05.90	06.05.90
Dilution Factor, Times	1	1	1	1	1
1,1,1-Trichloroethane, mg/kg	0.5	<0.2	<0.2	0.3	<0.2
1,1,2,2-Tetrachloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,1,2-Trichloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloropropane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,3-Dichlorobenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,3-Dichloropropene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,4-Dichlorobenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
2-Chloroethylvinylether, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
2-Hexanone, mg/kg	<2	<2	<2	<2	<2
4-Methyl-2-Pentanone, mg/kg	<2	<2	<2	<2	<2
Acetone, mg/kg	<5	<5	<5	<5	<5
Acrolein, mg/kg	<5	<5	<5	<5	<5
Acrylonitrile, mg/kg	<2	<2	<2	<2	<2
Bromodichloromethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Bromomethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

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Analytical Report

LOG NO: E90-06-048

Received: 04 JUN 90
Reported: 18 JUN 90

Mr. Michael Wright
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Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
06-048-1	19.5'/MW-7/Brass Ring	01 JUN 90
06-048-2	31'/MW-7/Brass Ring	01 JUN 90
06-048-3	41.3'/MW-7/Brass Ring	01 JUN 90
06-048-4	61'/MW-7/Brass Ring	01 JUN 90
06-048-5	66.5'/MW-7/Brass Ring	01 JUN 90

PARAMETER	06-048-1	06-048-2	06-048-3	06-048-4	06-048-5
Benzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Bromoform, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Carbon Tetrachloride, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Chloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Chloroform, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Chloromethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Carbon Disulfide, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dibromochloromethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Freon 113, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Methyl ethyl ketone, mg/kg	<2	<2	<2	<2	<2
Methylene chloride, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Styrene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorofluoromethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrachloroethene, mg/kg	<0.2	0.3	0.4	<0.2	<0.2
Vinyl acetate, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Vinyl chloride, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylene Isomers, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
cis-1,2-Dichloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

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Analytical Report

LOG NO: E90-06-048

Received: 04 JUN 90
Reported: 18 JUN 90

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Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
06-048-1	19.5'/MW-7/Brass Ring	01 JUN 90
06-048-2	31'/MW-7/Brass Ring	01 JUN 90
06-048-3	41.3'/MW-7/Brass Ring	01 JUN 90
06-048-4	61'/MW-7/Brass Ring	01 JUN 90
06-048-5	66.5'/MW-7/Brass Ring	01 JUN 90

PARAMETER	06-048-1	06-048-2	06-048-3	06-048-4	06-048-5
trans-1,3-Dichloropropene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Semi-Quantified Results **					
C6-C13 Hydrocarbon, mg/kg	---	---	---	60	---

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

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BCA B C Analytical

Analytical Report

LOG NO: E90-06-048

Received: 04 JUN 90
Reported: 18 JUN 90

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Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
06-048-6	MW-6	04 JUN 90
06-048-7	MW-7	04 JUN 90

PARAMETER	06-048-6	06-048-7
TPH - Volatile Hydrocarbons		
Date Analyzed	06.05.90	06.06.90
Dilution Factor, Times	1	10
C4 to C12 Hydrocarbons, ug/L	<50	12000
Other TPH - Volatile Hydrocarbons	---	---

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BCA *B C Analytical*

Analytical Report

LOG NO: E90-06-048

Received: 04 JUN 90
Reported: 18 JUN 90

Mr. Michael Wright
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Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
06-048-6	MW-6	04 JUN 90
06-048-7	MW-7	04 JUN 90

PARAMETER	06-048-6	06-048-7
Vol.Pri.Poll. (EPA-624)		
Date Analyzed	06.06.90	06.06.90
Dilution Factor, Times	1	06.06.90
1,1,1-Trichloroethane, ug/L	<1	<10
1,1,2,2-Tetrachloroethane, ug/L	<1	<10
1,1,2-Trichloroethane, ug/L	<1	<10
1,1-Dichloroethane, ug/L	<1	<10
1,1-Dichloroethene, ug/L	<1	<10
1,2-Dichloroethane, ug/L	<1	<10
1,2-Dichlorobenzene, ug/L	<1	<10
1,2-Dichloropropane, ug/L	<1	<10
1,3-Dichlorobenzene, ug/L	<1	<10
1,3-Dichloropropene, ug/L	<1	<10
1,4-Dichlorobenzene, ug/L	<1	<10
2-Chloroethylvinylether, ug/L	<1	<10
2-Hexanone, ug/L	<1	<10
4-Methyl-2-Pentanone, ug/L	<1	<10
Acetone, ug/L	<10	<100
Acrolein, ug/L	<10	<100
Acrylonitrile, ug/L	<10	<100
Bromodichloromethane, ug/L	<1	<10
Bromomethane, ug/L	<1	<10
Benzene, ug/L	<1	63
Bromoform, ug/L	<1	<10
Chlorobenzene, ug/L	<1	<10
Carbon Tetrachloride, ug/L	<1	<10

Analytical Report

LOG NO: E90-06-048

Received: 04 JUN 90
Reported: 18 JUN 90

Mr. Michael Wright
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Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
06-048-6	MW-6	04 JUN 90
06-048-7	MW-7	04 JUN 90

PARAMETER	06-048-6	06-048-7
Chloroethane, ug/L	<1	<10
Chloroform, ug/L	<1	<10
Chloromethane, ug/L	<1	<10
Carbon Disulfide, ug/L	<1	<10
Dibromochloromethane, ug/L	<1	<10
Ethylbenzene, ug/L	<1	<10
Freon 113, ug/L	<1	<10
Methyl ethyl ketone, ug/L	<20	<200
Methylene chloride, ug/L	<1	<10
Styrene, ug/L	<1	<10
Trichloroethene, ug/L	<1	26
Trichlorofluoromethane, ug/L	<1	<10
Toluene, ug/L	<1	11
Tetrachloroethene, ug/L	35	900
Vinyl acetate, ug/L	<1	<10
Vinyl chloride, ug/L	<1	<10
Total Xylene Isomers, ug/L	<1	840
cis-1,2-Dichloroethene, ug/L	<1	140
trans-1,2-Dichloroethene, ug/L	<1	<10
trans-1,3-Dichloropropene, ug/L	<1	<10
Semi-Quantified Results **		
C5-C9 Hydrocarbons, ug/L	---	30

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

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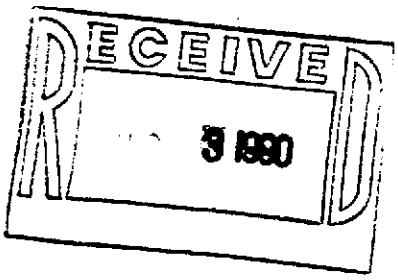
BCA B C Analytical

Analytical Report



LOG NO: E90-07-628

Received: 26 JUL 90
Reported: 31 JUL 90

Mr. Karl Novak
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Emeryville California 94608

Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
07-628-1	B3-16.5	26 JUL 90
07-628-2	B3-12.5	26 JUL 90
07-628-3	B4-6.5	26 JUL 90
07-628-4	B4-11.5	26 JUL 90
07-628-5	B4-17.5	26 JUL 90

PARAMETER	07-628-1	07-628-2	07-628-3	07-628-4	07-628-5
Vol.Pri.Poll. (EPA-8240)					
Date Analyzed	07.27.90	07.27.90	07.28.90	07.28.90	07.28.90
Date Extracted	07.26.90	07.26.90	07.26.90	07.26.90	07.26.90
Dilution Factor, Times	1	1	1	1	1
1,1,1-Trichloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,1,2,2-Tetrachloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,1,2-Trichloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloropropane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,3-Dichlorobenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,3-Dichloropropene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
1,4-Dichlorobenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
2-Chloroethylvinylether, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
2-Hexanone, mg/kg	<2	<2	<2	<2	<2
4-Methyl-2-Pentanone, mg/kg	<2	<2	<2	<2	<2
Acetone, mg/kg	<5	<5	<5	<5	<5
Acrolein, mg/kg	<5	<5	<5	<5	<5
Acrylonitrile, mg/kg	<2	<2	<2	<2	<2
Bromodichloromethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Bromomethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

Analytical Report

LOG NO: E90-07-628

Received: 26 JUL 90
Reported: 31 JUL 90

Mr. Karl Novak
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Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
07-628-1	B3-16.5	26 JUL 90
07-628-2	B3-12.5	26 JUL 90
07-628-3	B4-6.5	26 JUL 90
07-628-4	B4-11.5	26 JUL 90
07-628-5	B4-17.5	26 JUL 90

PARAMETER	07-628-1	07-628-2	07-628-3	07-628-4	07-628-5
Benzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Bromoform, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Carbon Tetrachloride, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Chloroethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Chloroform, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Chloromethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Carbon Disulfide, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dibromochloromethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Freon 113, mg/kg	<2	<2	<2	<2	<2
Methyl ethyl ketone, mg/kg	<1	<1	<1	<1	<1
Methylene chloride, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Styrene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorofluoromethane, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene, mg/kg	0.5	0.3	<0.2	0.5	0.3
Tetrachloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Vinyl acetate, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Vinyl chloride, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Total Xylene Isomers, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
cis-1,2-Dichloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

Analytical Report

LOG NO: E90-07-628

Received: 26 JUL 90
Reported: 31 JUL 90

Mr. Karl Novak
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
07-628-1	B3-16.5	26 JUL 90
07-628-2	B3-12.5	26 JUL 90
07-628-3	B4-6.5	26 JUL 90
07-628-4	B4-11.5	26 JUL 90
07-628-5	B4-17.5	26 JUL 90

PARAMETER	07-628-1	07-628-2	07-628-3	07-628-4	07-628-5
trans-1,3-Dichloropropene, mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Other Vol.Pri.Poll. (EPA-8240)	---	---	---	---	---

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

Analytical Report

LOG NO: E90-07-628

Received: 26 JUL 90
Reported: 31 JUL 90

Mr. Karl Novak
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
07-628-6	MW-9	26 JUL 90
07-628-7	MW-8	26 JUL 90

PARAMETER	07-628-6	07-628-7
1.Pri.Poll. (EPA-8240)		
Date Analyzed	07.30.90	07.27.90
Date Extracted	07.30.90	07.27.90
Dilution Factor, Times	1	1
1,1,1-Trichloroethane, ug/L	<1	<1
1,1,2,2-Tetrachloroethane, ug/L	<1	<1
1,1,2-Trichloroethane, ug/L	<1	<1
1,1-Dichloroethane, ug/L	<1	<1
1,1-Dichloroethene, ug/L	<1	<1
1,2-Dichloroethane, ug/L	<1	<1
1,2-Dichlorobenzene, ug/L	<1	<1
1,2-Dichloropropane, ug/L	<1	<1
1,3-Dichlorobenzene, ug/L	<1	<1
1,3-Dichloropropene, ug/L	<1	<1
1,4-Dichlorobenzene, ug/L	<1	<1
2-Chloroethylvinylether, ug/L	<1	<1
2-Hexanone, ug/L	<1	<1
4-Methyl-2-Pentanone, ug/L	<10	<10
Acetone, ug/L	<10	<10
Acrolein, ug/L	<10	<10
Acrylonitrile, ug/L	10	2
Bromodichloromethane, ug/L	<1	<1
Bromomethane, ug/L	<1	<1
Benzene, ug/L	2	<1
Bromoform, ug/L	<1	<1
Chlorobenzene, ug/L		

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BCA B C Analytical

Analytical Report

LOG NO: E90-07-628

Received: 26 JUL 90
Reported: 31 JUL 90

Mr. Karl Novak
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
07-628-6	MW-9	26 JUL 90
07-628-7	MW-8	26 JUL 90

PARAMETER	07-628-6	07-628-7
Carbon Tetrachloride, ug/L	<1	<1
Chloroethane, ug/L	<1	<1
Chloroform, ug/L	20	2
Chloromethane, ug/L	<1	<1
Carbon Disulfide, ug/L	<1	<1
Dibromochloromethane, ug/L	7	<1
Ethylbenzene, ug/L	3	<1
Freon 113, ug/L	<1	<1
Methyl ethyl ketone, ug/L	<20	<20
Methylene chloride, ug/L	<5	<5
Styrene, ug/L	<1	<1
Trichloroethene, ug/L	<1	17
Trichlorofluoromethane, ug/L	<1	<1
Toluene, ug/L	<1	<1
Tetrachloroethene, ug/L	<1	580
Vinyl acetate, ug/L	<1	<1
Vinyl chloride, ug/L	<1	<1
Total Xylene Isomers, ug/L	<1	<1
cis-1,2-Dichloroethene, ug/L	<1	6
trans-1,2-Dichloroethene, ug/L	<1	<1
trans-1,3-Dichloropropene, ug/L	<1	<1
Other Vol.Pri.Poll. (EPA-8240)	---	---

Results were transmitted by facsimile to Mike Wright on 07.30.90 and on 07.31.90
T. Blake 07.31.90

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

1255 Powell Street
Emeryville, CA 94608
415/428-2300
Fax: 415/547-3643

BCA B C Analytical

Analytical Report

LOG NO: E90-08-592

Received: 27 AUG 90
Reported: 28 AUG 90

Mr. Mike Luksic
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: 48001.36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
08-592-1	MW-11 A & B	25 AUG 90
08-592-2	MW-10 A & B	25 AUG 90

PARAMETER	08-592-1	08-592-2
Purgeable Priority Pollutants		
Date Analyzed	08.27.90	08.27.90
Date Extracted	08.27.90	08.27.90
Dilution Factor, Times	5	1
1,1,1-Trichloroethane, ug/L	<5	<1
1,1,2,2-Tetrachloroethane, ug/L	<5	<1
1,1,2-Trichloroethane, ug/L	<5	<1
1,1-Dichloroethane, ug/L	<5	<1
1,1-Dichloroethene, ug/L	<5	<1
1,2-Dichloroethane, ug/L	<5	<1
1,2-Dichlorobenzene, ug/L	<5	<1
1,2-Dichloropropane, ug/L	<5	<1
1,3-Dichlorobenzene, ug/L	<5	<1
1,4-Dichlorobenzene, ug/L	<5	<1
2-Chloroethylvinylether, ug/L	<5	<1
2-Hexanone, ug/L	<5	<1
4-Methyl-2-Pentanone, ug/L	<5	<1
Acetone, ug/L	<50	<10
Acrolein, ug/L	<50	<10
Acrylonitrile, ug/L	<50	<10
Bromodichloromethane, ug/L	<5	<1
Bromomethane, ug/L	<5	<1
Benzene, ug/L	<5	<1
Bromoform, ug/L	<5	<1
Chlorobenzene, ug/L	<5	<1
Carbon Tetrachloride, ug/L	<5	<1

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Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

Analytical Report

LOG NO: E90-08-592

Received: 27 AUG 90
Reported: 28 AUG 90

Mr. Mike Luksic
Hygienetics
2200 Powell Street Suite 1095
Emeryville California 94608

Project: 48001.36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
08-592-1	MW-11 A & B	25 AUG 90
08-592-2	MW-10 A & B	25 AUG 90

PARAMETER	08-592-1	08-592-2
Chloroethane, ug/L	<5	<1
Chloroform, ug/L	<5	<1
Chloromethane, ug/L	<5	<1
Carbon Disulfide, ug/L	<5	<1
Dibromochloromethane, ug/L	<5	<1
Ethylbenzene, ug/L	<5	<1
Freon 113, ug/L	<5	<1
Methyl ethyl ketone, ug/L	<100	<20
Methylene chloride, ug/L	<20	<5
Styrene, ug/L	<5	<1
Trichloroethene, ug/L	<5	<1
Trichlorofluoromethane, ug/L	<5	<1
Toluene, ug/L	<5	<1
Tetrachloroethene, ug/L	100	35
Vinyl acetate, ug/L	<5	<1
Vinyl chloride, ug/L	<5	<1
Total Xylene Isomers, ug/L	<5	<1
cis-1,2-Dichloroethene, ug/L	<5	<1
cis-1,3-Dichloropropene, ug/L	<5	<1
trans-1,2-Dichloroethene, ug/L	<5	<1
trans-1,3-Dichloropropene, ug/L	<5	<1

Results were transmitted to Mike Luksic by facsimile on 08.28.90. T. Blake

Hedy J. Ficklin for
Sim D. Lessley, Ph.D., Laboratory Director

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

PRELIMINARY

LOG NO: E90-09-101

Received: 06 SEP 90
Reported: 07 SEP 90

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

Project: 48001.36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
09-101-1	Well #12	06 SEP 90

PARAMETER	09-101-1
Purgeable Priority Pollutants	
Date Analyzed	09.06.90
Date Extracted	09.06.90
Dilution Factor, Times	0.5
1,1,1-Trichloroethane, ug/L	<0.5
1,1,2,2-Tetrachloroethane, ug/L	<0.5
1,1,2-Trichloroethane, ug/L	<0.5
1,1-Dichloroethane, ug/L	<0.5
1,1-Dichloroethene, ug/L	<0.5
1,2-Dichloroethane, ug/L	<0.5
1,2-Dichlorobenzene, ug/L	<0.5
1,2-Dichloropropane, ug/L	<0.5
1,3-Dichlorobenzene, ug/L	<0.5
1,4-Dichlorobenzene, ug/L	<0.5
2-Chloroethylvinylether, ug/L	<0.5
2-Hexanone, ug/L	<0.5
4-Methyl-2-Pentanone, ug/L	<0.5
Acetone, ug/L	<5
Acrolein, ug/L	<5
Acrylonitrile, ug/L	<5
Bromodichloromethane, ug/L	<0.5
Bromomethane, ug/L	<0.5
Benzene, ug/L	<0.5
Bromoform, ug/L	<0.5
Chlorobenzene, ug/L	<0.5
Carbon Tetrachloride, ug/L	<0.5
Chloroethane, ug/L	<0.5

PRELIMINARY

LOG NO: E90-09-101

Received: 06 SEP 90
Reported: 07 SEP 90

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

Project: 48001.36

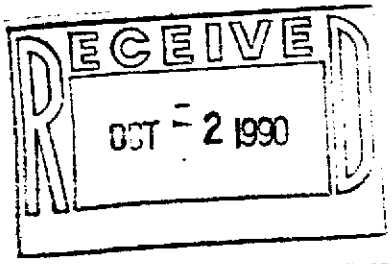
REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
09-101-1	Well #12	06 SEP 90

PARAMETER	09-101-1
Chloroform, ug/L	1.0
Chloromethane, ug/L	<0.5
Carbon Disulfide, ug/L	<0.5
Dibromochloromethane, ug/L	<0.5
Ethylbenzene, ug/L	<0.5
Freon 113, ug/L	<0.5
Methyl ethyl ketone, ug/L	<10
Methylene chloride, ug/L	<2
Styrene, ug/L	<0.5
Trichloroethene, ug/L	1.1
Trichlorofluoromethane, ug/L	<0.5
Toluene, ug/L	1.4
Tetrachloroethene, ug/L	170
Vinyl acetate, ug/L	<0.5
Vinyl chloride, ug/L	<0.5
Total Xylene Isomers, ug/L	<0.5
cis-1,2-Dichloroethene, ug/L	<0.5
cis-1,3-Dichloropropene, ug/L	<0.5
trans-1,2-Dichloroethene, ug/L	<0.5
trans-1,3-Dichloropropene, ug/L	<0.5

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

Analytical Report



LOG NO: E90-09-477

Received: 24 SEP 90
Reported: 25 SEP 90

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

Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
09-477-1	MW13 Ventura	24 SEP 90
09-477-2	MW14 Lambaron	24 SEP 90

PARAMETER	09-477-1	09-477-2
Purgeable Priority Pollutants		
Date Analyzed	09.25.90	09.25.90
Date Extracted	09.25.90	09.25.90
Dilution Factor, Times	1	1
1,1,1-Trichloroethane, ug/L	<1	<1
1,1,2,2-Tetrachloroethane, ug/L	<1	<1
1,1,2-Trichloroethane, ug/L	<1	<1
1,1-Dichloroethane, ug/L	<1	<1
1,1-Dichloroethene, ug/L	<1	<1
1,2-Dichloroethane, ug/L	<1	<1
1,2-Dichlorobenzene, ug/L	<1	<1
1,2-Dichloropropane, ug/L	<1	<1
1,3-Dichlorobenzene, ug/L	<1	<1
1,4-Dichlorobenzene, ug/L	<1	<1
2-Chloroethylvinylether, ug/L	<1	<1
2-Hexanone, ug/L	<1	<1
4-Methyl-2-Pentanone, ug/L	<1	<1
Acetone, ug/L	<10	<10
Acrolein, ug/L	<10	<10
Acrylonitrile, ug/L	<10	<10
Bromodichloromethane, ug/L	<1	<1
Bromomethane, ug/L	<1	<1
Benzene, ug/L	<1	<1
Bromoform, ug/L	<1	<1
Chlorobenzene, ug/L	<1	<1
Carbon Tetrachloride, ug/L	<1	<1

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Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

Analytical Report

LOG NO: E90-09-477

Received: 24 SEP 90
Reported: 25 SEP 90

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

Project: 48001-36

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
09-477-1	MW13 Ventura	24 SEP 90
09-477-2	MW14 Lambaron	24 SEP 90

PARAMETER	09-477-1	09-477-2
Chloroethane, ug/L	<1	<1
Chloroform, ug/L	<1	<1
Chloromethane, ug/L	<1	<1
Carbon Disulfide, ug/L	<1	<1
Dibromochloromethane, ug/L	<1	<1
Ethylbenzene, ug/L	<1	<1
Freon 113, ug/L	<1	<1
Methyl ethyl ketone, ug/L	<20	<20
Methylene chloride, ug/L	<5	<5
Styrene, ug/L	<1	<1
Trichloroethene, ug/L	<1	1
Trichlorofluoromethane, ug/L	<1	<1
Toluene, ug/L	<1	<1
Tetrachloroethene, ug/L	23	5
Vinyl acetate, ug/L	<1	<1
Vinyl chloride, ug/L	<1	<1
Total Xylene Isomers, ug/L	<1	<1
cis-1,2-Dichloroethene, ug/L	<1	5
cis-1,3-Dichloropropene, ug/L	<1	<1
trans-1,2-Dichloroethene, ug/L	<1	<1
trans-1,3-Dichloropropene, ug/L	<1	<1

This report includes results reported verbally and by facsimile to M. Wright on September 25, 1990. B. Bowman.

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

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

Analytical Report

LOG NO: E90-09-598

Received: 28 SEP 90
Reported: 01 OCT 90

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

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
09-598-1	MW13	28 SEP 90

PARAMETER	09-598-1
Purgeable Priority Pollutants	
Date Analyzed	09.28.90
Date Extracted	09.28.90
Dilution Factor, Times	1
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-Dichlorobenzene, ug/L	<1
1,2-Dichloropropane, ug/L	<1
1,3-Dichlorobenzene, ug/L	<1
1,4-Dichlorobenzene, ug/L	<1
2-Chloroethylvinylether, ug/L	<1
2-Hexanone, ug/L	<1
4-Methyl-2-Pentanone, 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

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

Analytical Report

LOG NO: E90-09-598

Received: 28 SEP 90
Reported: 01 OCT 90

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

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
09-598-1	MW13	28 SEP 90

PARAMETER	09-598-1
Chloroform, ug/L	<1
Chloromethane, ug/L	<1
Carbon Disulfide, ug/L	<1
Dibromochloromethane, ug/L	<1
Ethylbenzene, ug/L	<1
Freon 113, ug/L	<1
Methyl ethyl ketone, ug/L	<20
Methylene chloride, ug/L	<5
Styrene, ug/L	<1
Trichloroethene, ug/L	<1
Trichlorofluoromethane, ug/L	<1
Toluene, ug/L	<1
Tetrachloroethene, ug/L	36
Vinyl acetate, ug/L	<1
Vinyl chloride, ug/L	<1
Total Xylene Isomers, ug/L	<1
cis-1,2-Dichloroethene, ug/L	<1
cis-1,3-Dichloropropene, ug/L	<1
trans-1,2-Dichloroethene, ug/L	<1
trans-1,3-Dichloropropene, ug/L	<1

Results were transmitted by facsimile to Mike Wright on 10.01.90. T. Blake

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

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

LOG NO: E90-10-242

Received: 10 OCT 90
Reported: 11 OCT 90

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

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-242-1	MW-15	10 OCT 90

PARAMETER	10-242-1
Purgeable Priority Pollutants	
Date Analyzed	10.10.90
Date Extracted	10.10.90
Dilution Factor, Times	1
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-Dichlorobenzene, ug/L	<1
1,2-Dichloropropane, ug/L	<1
1,3-Dichlorobenzene, ug/L	<1
1,4-Dichlorobenzene, ug/L	<1
2-Chloroethylvinylether, ug/L	<1
2-Hexanone, ug/L	<1
4-Methyl-2-Pentanone, 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

LOG NO: E90-10-242

Received: 10 OCT 90
Reported: 11 OCT 90

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

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-242-1	MW-15	10 OCT 90

PARAMETER	10-242-1
Chloroform, ug/L	<1
[illegible]oromethane, ug/L	<1
[illegible]bon Disulfide, ug/L	<1
Dibromochloromethane, ug/L	<1
Ethylbenzene, ug/L	<1
Freon 113, ug/L	<1
Methyl ethyl ketone, ug/L	<20
Methylene chloride, ug/L	<5
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
cis-1,3-Dichloropropene, ug/L	<1
trans-1,2-Dichloroethene, ug/L	<1
trans-1,3-Dichloropropene, ug/L	<1

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

CHAIN OF CUSTODY RECORD

BCA Log Number 3827

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 / Sample description	Number of containers	TPH	624	Hazardous sample Special handling required	Remarks
MI(A)	3/23	2:00pm	GW H_2O		1	X			Headspace
MI(B)	3/23	2:00pm	GW H_2O		1		X		Headspace
M2(A)	3/24	3:00pm	GW H_2O		1	X			
M2(B)	3/24	3:00pm	GW H_2O		1		X		
MB(A)	3/23	3:00pm	GW H_2O		1	X			Headspace
MB(B)	3/23	3:00pm	GW H_2O		1		X		
									48hr. Turn Around

	Signature	Print Name	Company	Date	Time
Relinquished by	Michael Wright	Michael Wright	Hygienetics	3/26/90	10:36am
Received by	[signature]	[signature]	BCA	3/26/90	10:36
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

CHAIN OF CUSTODY RECORD

Client name: H[redacted]ietics Inc.

Project or PO#: 48001.33

BCA Log Number: [redacted]

Address: 2260 Powell St Suite 880

Phone #: 547-3886

City, State, Zip: Emeryville CA 94608

Report attention: Karl Novak

Sampled by: M. Binbaker

Analyses required: 1,2-DCA; 624; Hazardous sample Special handling required

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sample description	Number of containers	Remarks
01A	4.10.90	700	GW	GROUND WATER	1	
01B	4.10.90	700	GW	"	1	MW3
01C	4.10.90	700	GW	"	1	
01D	4.10.90	700	GW	"	1	
02A	4.10.90	700	GW	"	1	
02B	4.10.90	700	GW	"	1	MW2
02C	4.10.90	700	GW	"	1	
02D	4.10.90	700	GW	"	1	
03A	4.10.90	700	GW	"	1	
03B	4.10.90	700	GW	"	1	MW1
03C	4.10.90	700	GW	"	1	
03D	4.10.90	700	GW	"	1	

48 hr. called Tony 4/10/90 @ 1:50 pm

	Signature	Print Name	Company	Date	Time
Relinquished by	Michael Y. Binbaker	Michael Y. Binbaker	Hygientics	4/10	12:00
Received by	D Lowe	D Lowe	BCA	4/10/90	1200
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 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

CHAIN OF CUSTODY RECORD

BCA Log Number 90[illegible]-801

Client name: HYGIENETICS		Project or PO#: Livermore Arcade	
Address: 7200 Powell St. Suite 8N		Phone #:	
City, State, Zip: EMERYVILLE CA		Report attention: KARL NOVAK	

Sampled by: KARL NOVAK

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sample description	Number of containers	8240 - Rush - 24 hr	[illegible]	8240 - 48 hour	[illegible]				Hazardous sample Special handling required	Remarks
B1W	5/7/90		AQ	GROUNDWATER - UNBAILED hole	2	✓								Vials Received w. Headspace in each
B2W	5/7/90		AQ	GROUNDWATER - UNBAILED hole	2	✓								
B1-12'			SO	Soil	1			✓						RUSH
B1-16'			SO	Soil	1			✓						
B1-41'			SO	"	1			✓						9005802
~~[illegible]~~			~~SO~~	~~"~~	~~[illegible]~~									
B1-54'			SO	"	1			✓						
B2-4'			SO	"	1			✓						
B2-54(45')			SO	"	1			✓						

	Signature	Print Name	Company	Date	Time
Relinquished by	x Karl Novak	KARL NOVAK	HYGIENETICS	5/25/90	18:00
Received by	Larry E. Penfold	Larry E. Penfold	BC Analytical	5/25/90	18:00
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 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

CHAIN OF CUSTODY RECORD

BCA Log Number 642

Client name: Hygienetics Inc.	Project or PO#: 48001-37
Address: 2200 Powell St.	Phone #: 547 3886
City, State, Zip: Emeryville	Report attention: Karl Novak / Michael Wright

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by / Sample description	Number of containers	Analyses required: 8240	Hazardous sample Special handling required	Remarks
MW9-21'	5/29	"	So	Soil in brass tube	1	X		48 hour turnaround
MW5-26'	5/29		So	Soil " " "	1	X		48 hour turnaround

	Signature	Print Name	Company	Date	Time
Relinquished by	Michael Wright	Michael Wright	Hygienetics	5/29	7:15pm
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory		KAMI FIORES	BCA	5/29	7:15pm

B C 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

CHAIN OF CUSTODY RECORD

BCA Log Number 9005980

Client name: HYGIENETICS	Project or PO#: Livermore Airport
Address: 4 Admiral Dr. #432	Phone #: 547-3086
City, State, Zip: Emeryville	Report attention: Karl Novak

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by / Sample description	Number of containers	Analyses required: 8240	Analyses required: 624	Hazardous sample / Special handling required	Remarks
MW4	5/30		AQ	V.O. + Vial 40 ml	2	✓			48 hour turnaround
MW5	5/30		AQ	" "	2	✓			48 hour turnaround

	Signature	Print Name	Company	Date	Time
Relinquished by	Karl Novak	KARL NOVAK	Hygienetics	5/30	1:55 pm
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory		Monika Scott	BCA	5-30-90	4:55 pm

B C 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

2200 Powell Suite 380.

CHAIN OF CUSTODY RECORD

BCA Log Number _____

Client name HYGIENETICS	Project or PO# Livermore
Address ~~4 Addison St. #475~~	Phone # 547-3886
City, State, Zip Emeryville CA	Report attention Karl Novak

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by / Sample description	Number of containers	8240	Hazardous sample Special handling required	Remarks
TB-N 6-20	5/31		SO	RING	1	✓		48 hour Turnaround

	Signature	Print Name	Company	Date	Time
Relinquished by	Karl Novak	KARL NOVAK	HYGIENETICS	5/31	
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory	Tony Blake	Tony Blake	BCA	5/31	4:35 pm

B C 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

CHAIN OF CUSTODY RECORD

BCA Log Number 90[illegible]48

Client name Hygienetics		Project or PO# 48001-36	
Address 2200 Powell Suite 880		Phone # 547 3886	
City, State, Zip Emeryville CA 94608	Report attention Michael Wright / Karl Novak		

Analyses required

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by / Sample description	Number of containers	8240	624						Hazardous sample / Special handling required	Remarks
1	6/1		SO	19.5'/MW-7/Brass Ring	1	X								<48 hr.
1	6/1		SO	31'/MW-7/Brass Ring	1	X								↓
1	6/1		SO	41'3"/MW-7/Brass Ring	1	X								↓
1	6/1		SO	61'/MW-7/Brass Ring	1	X								↓
1	6/1		SO	66.5'/MW-7/Brass Ring	1	X								↓
4	6/4		AQ	40ml/MW-7	4		X							↓
4	6/4		AQ	40ml/MW-7	4		X							↓

	Signature	Print Name	Company	Date	Time
Relinquished by	Michael Wright	Michael Wright	Hygienetics	6/4/90	6:15pm
Received by					
Relinquished by					
Received by					
Rel[illegible]					
[illegible]	[signature]	KATHI FLORES	BCA	6/4	6:1[illegible]

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—S[illegible]
GW—Groundwater SO—Soil OT—Other P[illegible]

[illegible]yville, CA 94608 (415) 428-2300
[illegible]dale, CA 91201 (818) 247-5737
[illegible]eim, CA 92805 (714) 978-0113

CHAIN OF CUSTODY RECORD

BCA Log Number 90 628

Client name: Hygienetics	Project or PO#: 48001-36
Address: 2200 Powell Suite 880	Phone #: 415 547 3886
City, State, Zip: Emeryville CA 94608	Report attention: Michael Wright/Karl Novak

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by / Sample description	Number of containers	Analyses required: VOA 8240	8240						Remarks
1	7/26	12:00pm	GW	40ml MW 8	1		✓						48 hr
2	7/26	"	GW	40ml MW 8	1		✓						turn around!
3	7/26	"	GW	40ml MW 9	1		✓						"
4	7/26	"	GW	40ml MW 9	1		✓						"
5	7/24	"	SO	Brass Tube B3-16.5'	1			✓					"
6	7/24	"	SO	Brass Tube B3-12.5'	1			✓					"
7	7/24	"	SO	Brass Tube B4-6.5'	1			✓					"
8	7/24	"	SO	Brass Tube B4-11.5'	1			✓					"
9	7/24	"	SO	Brass Tube B4-17.5'	1			✓					"

	Signature	Print Name	Company	Date	Time
Relinquished by	Michael Wright	Michael Wright	Hygienetics	7/26/90	2:20pm
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory	Monika Scott	Monika Scott	BCA	7-26-90	2:20pm

B C 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

CHAIN OF CUSTODY RECORD

BCA Log Number 900[illegible]592

Client name: Hygienetics Inc.
Project or PO#: 48001.36
Address: 2200 Powell ST. suite 880
Phone #: 547 3886
City, State, Zip: Emeryville, CA 94608
Report attention: Mike Lukšic / Mike Wright

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by / Sample description	Number of containers	Method 8240	Hazardous sample Special handling required	Remarks
MW11A	8-25-90	17:00	Ground Water	} -1	2	✓		24-48 hr rush turnaround
MW11B	"	18:00						
MW10A	8/25/90	16:00	GW	} -2	2	✓		
MW10B	"	16:30						

	Signature	Print Name	Company	Date	Time
Relinquished by	Mike Lukšic	Mike Lukšic	Hygienetic Inc.	8-27-90	0810
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory	Tony Blake	Tony Blake	BCA	8-27-90	8:10

B C 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

CHAIN OF CUSTODY RECORD

BCA Log Number 9009101

Client name: Hygieretics, Inc.	Project or PO#: 48001.36
Address: 2200 Powell St. suite 880	Phone #: 547-3886
City, State, Zip: Emeryville, CA 94608	Report attention: Mike Wright / Lukic

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by / Sample description	Number of containers	Analyses required: 8240	Hazardous sample / Special handling required	Remarks
MW12 A	9-6-90	10:30	GW	Well #12 40 ml bottles	2	V		
MW12 B		11:00						

	Signature	Print Name	Company	Date	Time
Relinquished by	Mike Lukic	Mike Lukic	Hygieretics	9-6-90	11:30
Received by		D Lowe	BCA	9/6/90	11:30
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 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

CHAIN OF CUSTODY RECORD

BCA Log Number _____

Client name: Hygienetics Inc	Project or PO#: 48001-36
Address: 2200 Powell St Suite 880	Phone #: 415 547 3886
City, State, Zip: Emeryville CA 94608	Report attention: Michael Wright

Analyses required: 8240

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by / Sample description	Number of containers	Hazardous sample / Special handling required	Remarks
13a	9/24	1:30	GW	40 ml } MW13	1	X	24 hr
13b	9/24	1:31	GW	40 ml } Ventura	1	X	
							turn
14a	9/24	2:20	GW	40 ml } MW14	1	X	Around
14b	9/24	2:21	GW	40 ml } Lambaron	1	X	

	Signature	Print Name	Company	Date	Time
Relinquished by	Michael Wright	Michael Wright	Hygienetics	9/24/90	3:46pm
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory	Tony Blake	Tony Blake	BCM	9/24/90	4:00pm

B C 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

CHAIN OF CUSTODY RECORD

MW15

BCA Log Number 9[illegible]2/2

Client name: HYGIENETICS	Project or PO#:
Address: 2200 POWELL Street	Phone #: 547-3886
City, State, Zip: EMERYVILLE CA	Report attention: MIKE WRIGHT

Sampled by: MIKE BROBAKER

Analyses required: 8240; Hazardous sample Special handling required

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sample description	Number of containers	8240	Hazardous sample Special handling required	Remarks
01	10/10	10:30		Water Sample	3	X		
02	"							
03	"							

	Signature	Print Name	Company	Date	Time
Relinquished by	Michael Y. Brobaker	Michael Y. Brobaker	Hygienetics Inc	10/10/90	12:00
Received by	R Shafft	Phoin Thongkham	BCA	10/10/90	1200
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 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

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 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 of 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 groundwater 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 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 groundwater at the Site.

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