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LeROY L. DeNOOYER
SENIOR ATTORNEY - ENVIRONMENTAL
LAW DEPARTMENT

October 11, 1995

Ms. Susan Hugo
Senior Hazardous Materials Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Re: Groundwater/Soil Investigation Overview
Grove Valve & Regulator Company
Emeryville, California

Dear Ms. Hugo:

Please find two (2) copies of the above captioned report, which addresses the issue and belief outlined in your letter of June 29, 1995. To the best of my knowledge, the report is accurate and that I concur with the conclusions and recommendations made therein. Please contact me if you have any comments or questions.

Thank you for your kind consideration.

Sincerely,

LeRoy L. DeNooyer

LeRoy L. DeNooyer

LLD:dlh

Enclosures

cc: R.A. Langenheim, HQ-41
File: 76122/0740-213-105

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GROUNDWATER/SOIL INVESTIGATION OVERVIEW

Grove Valve & Regulator Co.
Emeryville, California

September 25, 1995

Submitted To:

Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502-6577

Prepared For:

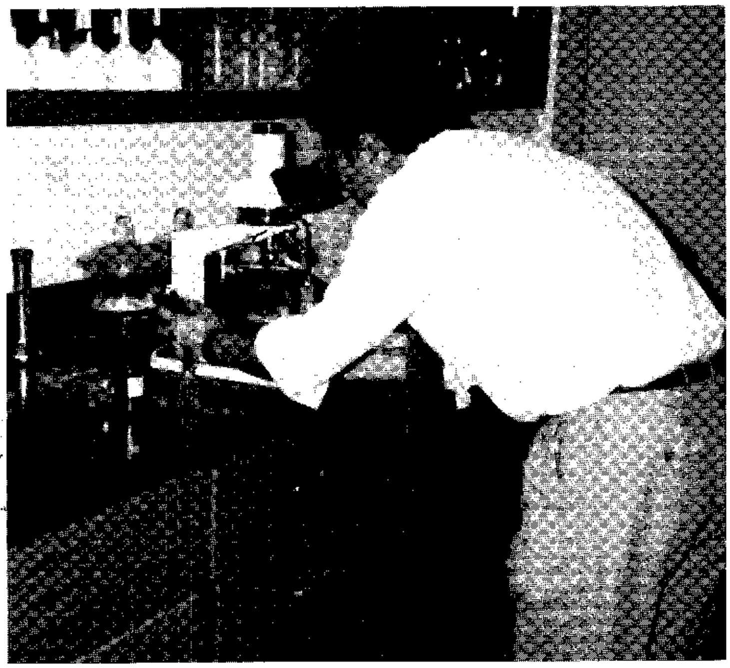
Dresser Industries, Inc.
2001 Ross Avenue
Dallas, Texas 75201

Prepared By:

Environmental Management & Engineering, Inc.
437 Industrial Lane
Birmingham, Alabama 35211

Environmental Management
& Engineering, Inc.

Specialists in Environmental Management



Environmental Management & Engineering (EME) is composed of a group of highly skilled professional environmental scientists, engineers, and businessmen dedicated to providing high quality basic and specialized consulting services. We take great care to insure that this operating philosophy permeates everything we do. Each member of our core group is a leader in his field whose reputation is that of handling tough assignments. These technical experts provide the foundation for a cost effective multi-disciplinary approach capable of handling complex projects in today's difficult business and regulatory climate, from concept to completion.

We maintain thorough, updated information files on sources of environmental, engineering and related business expertise including academic and government scientist and associate consulting firms. If we don't have the complete answer to your problem, we know where to find it and who to contact. In short, EME is designed and committed to being totally responsive to our clients' needs by providing accurate high quality service, in a timely manner, and for a reasonable fee.

EME offers the complete range of environmental services to the client, from preacquisition through site review, construction, plant operation, and final closure. All of these services are assisted by our extensive product and regulatory libraries, computer databases and our multi-disciplined staff to provide the following:

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- Acquisition of Permits & Licenses
- General Regulatory Compliance Assistance
- Environmental Audits/Reviews and Impact Studies
- Risk & Liability Assessments
- Industrial Hygiene, OSHA, Safety & Right-to-Know Programs
- Asbestos Survey, Analysis & Abatement
- Hazardous/Toxic Waste Management
- Evaluations & Closure of Surface Impoundments
- Mitigation/Reclamation Technologies
- Geotechnical & Groundwater Services
- Underground Storage Tank Testing, Removal, & Remediation
- Laboratory Services

September 25, 1995

GROUNDWATER/SOIL INVESTIGATION OVERVIEW -- Grove Valve & Regulator Co. Emeryville, California

Submitted To:

Alameda County Health Care Services
Agency
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502-6577

Prepared For:

Dresser Industries, Inc.
2001 Ross Avenue
Dallas, Texas 75201

Prepared By:

Environmental Management &
Engineering, Inc.
437 Industrial Lane
Birmingham, Alabama 35211
Project No: DRS-95-E942

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437 Industrial Lane Post Office Box 19866 Birmingham, AL 35219 (205) 940-7700
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LIST OF ATTACHMENTS

Attachment	1	Alameda County Health Services Correspondence dated June 29, 1995
Attachment	2	"Environmental Assessment Grove Valve and Regulator Company" Canonie Environmental Services, 1990
Attachment	3	"Preliminary Soil and Groundwater Sampling Report, Grove Valve and Regulator Company", GeoLine Engineering & Safety Services, May 14, 1991
Attachment	4	"Final Report" Level II Environmental Assessment, Grove Valve and Regulator Company, Emeryville, California", Woodward-Clyde Consultants, April 1992
Attachment	5	Woodward-Clyde Consultants Correspondence Regarding Results of Water Level and Literature Survey Dated May 15, 1992
Attachment	6	"Status of Environmental Investigation of Soil and Groundwater at Grove Valve and Regulator Company", Robin K. Spencer, April 1995
Attachment	7	Groundwater Sampling Analytical Results for August and September 1995 Sampling Events
Attachment	8	Map Showing Relative Locations of Grove, RIX Industries and Sybase, Inc. and Monitoring Well Locations (Erler & Kalinowski, Inc.)
Attachment	9	Table Summarizing Quarterly Groundwater Sampling Data from RIX Monitoring Wells (Hageman-Aguiar, Inc.)
Attachment	10	Table Summarizing Groundwater Sampling Data for Sybase Monitoring Wells
Attachment	11	Table Summarizing Groundwater Elevations on Sybase Property (Erler & Kalinowski, Inc.)

GROUNDWATER/SOIL INVESTIGATION OVERVIEW

Grove Valve & Regulator Co. **September 25, 1995**
Emeryville, California

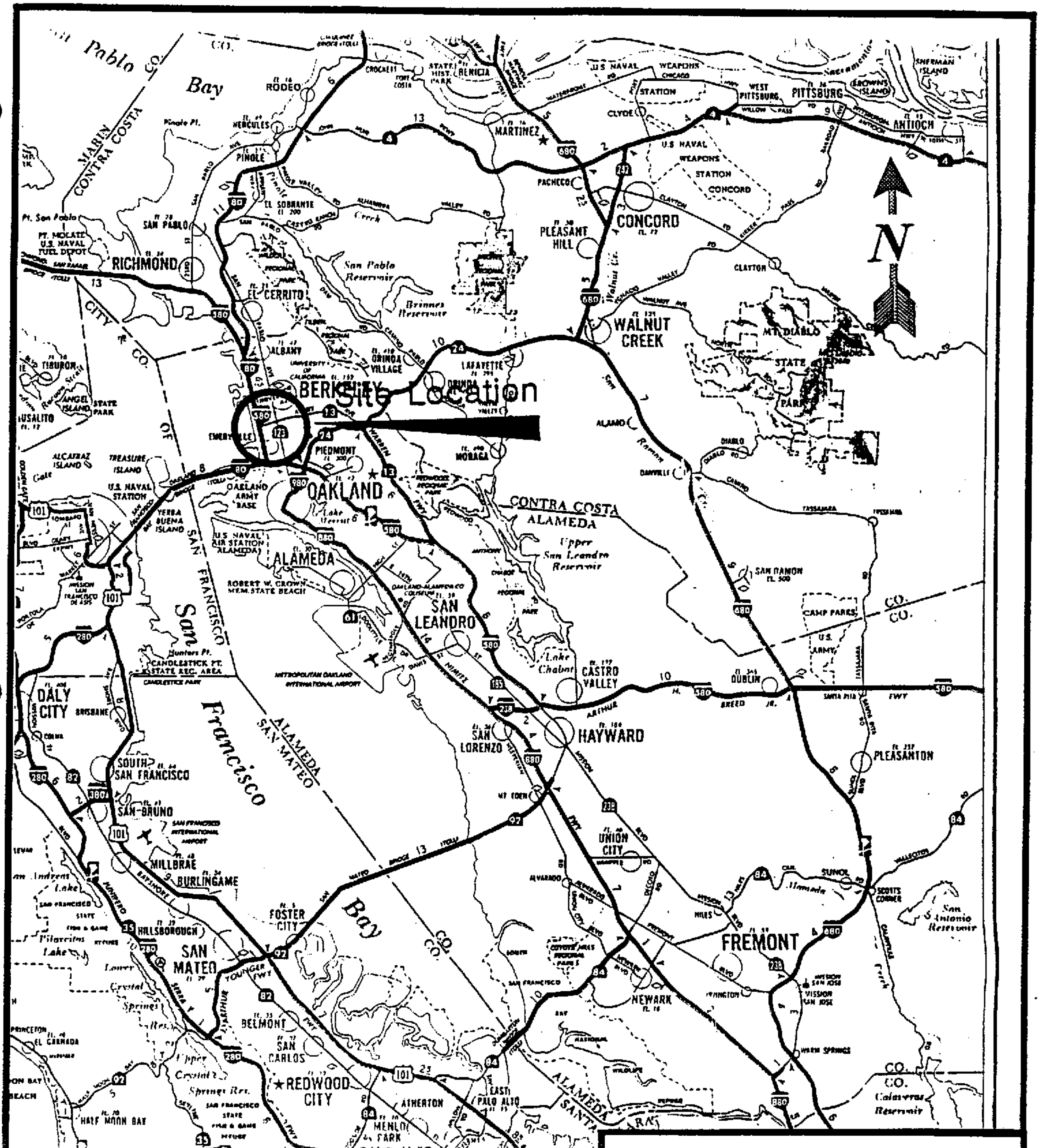
I. General Information

As a result of investigations of the soil and groundwater at the Grove Valve and Regulator Company of Emeryville, California, the Alameda County Health Care Services Agency Department of Environmental Health (ACDEH) has requested a summary of the work to date including an overview as to whether further investigation of the site is warranted and, if so, a proposal for such. Attachment 1 contains a copy of the applicable correspondence from the ACDEH.

A. Site Background Information

The Grove Valve and Regulator Company (Grove) facility is situated on approximately seven acres located at 6529 Hollis Street, Emeryville, California and has been involved in the development, manufacture and sale of valves and pressure regulators for the oil and gas industry. The area in which the facility is located is highly developed with manufacturing, warehouses, commercial offices, etc. The area under roof at the facility totals approximately 295,000 square feet. The main facility (250,000 square feet) is owned by Grove and the regulator/rubber shop and warehouses (45,000 square feet) are leased. The property is bisected by a multi-track railroad right-of-way on the western portion of the property. Figure 1 is a facility site location map.

The original facility structure was built in 1943. Various additions have been constructed during subsequent years. With the construction of the most recent addition (1980-81), the structure effectively covers all of the available property owned by Grove. Availability of historical information regarding the site prior



Environmental Management & Engineering, Inc.

Birmingham, AL — Houston, TX

Description: Figure 1 - Site Location Map
Grove Valve & Regulator Company
Oakland, California

Date: 05/22/95	Project No: DRS-95-E922
Drawn by: Rand McNally	Scale: 1"=26,400'

to 1943 is limited, however, facility personnel report that a stockyard and slaughterhouse were the tenants of the property prior to construction of the Grove facility. It was also reported that a lumber mill and yard were located on the western portion of the Grove property until the mid 1950's.

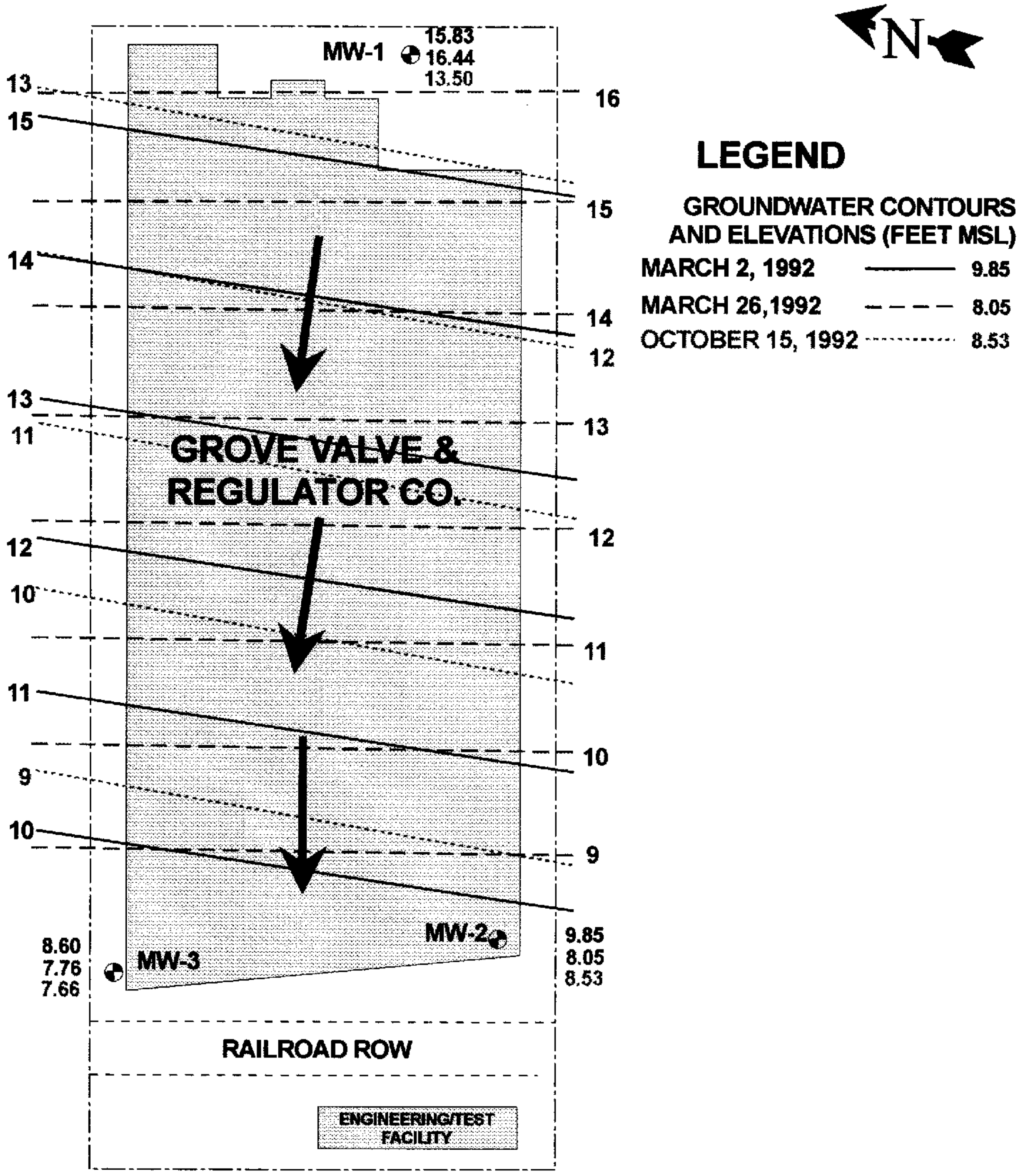
B. Site Geology and Hydrogeology

1. Soils and Geology

The upper geologic unit in the area is mapped by the USGS as Quaternary Alluvium deposits of the Late Pleistocene Age. The alluvium is characterized by poorly sorted interbedded sediments consisting of clay, silt, sand and minor amounts of gravel, all of which are derived from the nearby hills. The soils are underlain by the bedrock of the Fransiscan Assemblage. Soils encountered during the performance of subsurface investigation on the Grove site are consistent with this description. Soils on the site have been found to consist of non-native material from the surface down to between one and five feet. Below the fill, native soil consisting of interbedded sediments ranging from highly plastic clays to sandy gravels have been described. Topography in the vicinity of the facility can be characterized as flat to rolling.

2. Hydrogeology

The facility is located approximately one-half mile east of San Francisco Bay. As would be expected, groundwater in the area is shallow and flows generally westward toward the bay. Groundwater at the site has been measured at depths ranging from approximately four to nine feet below the surface level. Groundwater level measurements obtained on the site have shown a relatively gentle groundwater gradient and resulting flow to the west (Figure 2).



ENVIRONMENTAL MANAGEMENT & ENGINEERING INC.	
Birmingham , AL	Houston, TX
Description: FIGURE 2 GROUNDWATER LEVELS AND GRADIENTS	
Date: 9/29/95	Project No.: DRS-95-E942
Drawn By: MKH	Scale: NTS

II. Overview of Investigations

The following is a summary of previous investigations of the site as well as investigations of neighboring facilities. Copies of the resulting reports are included as attachments as referenced. Supporting documentation (analytical data, chain-of-custody documents, quality control information, etc.) for each investigation is included as attachments in each report. Analytical results are summarized in Tables 1 and 2.

A. Previous Site Investigations

At the request of the Sanpaolo Finance Merchant Bank of Milan, Itlay, Canonie Environmental Services, Inc. (Canonie) of San Mateo, California conducted an environmental assessment of the facility in 1990. The assessment consisted of a walk-through inspection of the site, interviews with personnel and a review of records provided by Grove and obtained from regulatory agencies. The resulting report (Attachment 2) states that "Although there was no evidence in the records that chemical usage has had an adverse environmental impact at the site, the presence or absence of any surface or subsurface contamination cannot be verified without further investigation".

A preliminary soil and groundwater sampling program was conducted on the site by GeoLine Engineering & Safety Services of San Jose, California in April of 1991. Six (6) shallow (maximum of one and one-half feet below the concrete slab) soil borings (Figure 3) were dug and a single sample was collected from each boring. The borings were targeted at specific process areas consisting of the outside solvent storage area, solvent recovery area, two machining areas, washing/rinsing area and painting area. It was noted in the resulting report

TABLE 1
SUMMARY OF SOIL SAMPLING ANALYTICAL RESULTS
(ug/kg)

Grove Valve Regulator Co. Emeryville, CA	SB-1-6" Feb-92	SB-1-6"A Feb-92	SB-1-3' Feb-92	SB-1-5' Feb-92	SB-2-6" Feb-92	SB-2-3' Feb-92	SB-3-6" Feb-92	SB-3-3' Feb-92	SB-3-5' Feb-92	SB-4-6" Feb-92	SB-4-3' Feb-92	SB-4-5' Feb-92	SB-5-6" Feb-92
AROMATIC HYDROCARBONS													
Benzene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
1,2 Dichlorobenzene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
1,3 Dichlorobenzene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
1,4 Dichlorobenzene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Toluene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Xylene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
HALOGENATED ORGANICS													
Bromodichloromethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Bromoform	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Bromomethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Chloroethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
2-Chlorethyl Vinyl Ether	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Chloroform	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Chloromethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
1,1 Dichloroethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
1,2 Dichloroethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
1,1 Dichloroethene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
1,2 Dichloropropane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
1,1,2,2 Tetrachloroethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
1,1,1 Trichloroethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
1,1,2 Trichloroethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	NA	ND	ND	ND	ND	NA	6	ND	40	ND
Trichlorofluoromethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
1,1,2 Trichlorotrifluoroethane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND

ND = Not Detected D = Duplicate
NA = Not Analyzed R = Replicate

TABLE 1
SUMMARY OF SOIL SAMPLING ANALYTICAL RESULTS
(ug/kg)

Grove Valve Regulator Co.	SB-1-6"	SB-1-6"A	SB-1-3'	SB-1-5'	SB-2-6"	SB-2-3'	SB-3-6"	SB-3-3'	SB-3-5'	SB-4-6"	SB-4-3'	SB-4-5'	SB-5-6"
Emeryville, CA	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92
PESTICIDES & PCB'S													
Aldrin	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
alpha-BHC	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
beta-BHC	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
delta-BHC	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
gamma-BHC	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
Chlordane	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
4,4 DDD	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
2,4 DDD	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
4,4 DDE	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
2,4 DDE	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
4,4 DDT	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
2,4 DDT	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
Dieldrin	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
Endosulfan I	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
Endosulfan II	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
Endosulfan Sulfate	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
Endrin	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
Endrin Aldehyde	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
Heptachlor	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
Heptachlor Epoxide	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
Methoxychlor	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
Toxaphene	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
PCB-1016	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
PCB-1221	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
PCB-1232	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
PCB-1242	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
PCB-1248	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
PCB-1254	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
PCB-1260	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND
oil & grease (EPA Method 5520E)	0	30000	100000	ND	ND	ND	250000	60000	ND	330000	60000	2800000	60000
Hydrocarbons (EPA Method 5520F)	ND	20000	20000	ND	ND	ND	230000	30000	ND	230000	50000	2500000	40000

ND = Not Detected   D = Duplicate
NA = Not Analyzed   R = Replicate

TABLE 1
SUMMARY OF SOIL SAMPLING ANALYTICAL RESULTS
(ug/kg)

Grove Valve Regulator Co. Emeryville, CA	SB-5-3' Feb-92	SB--5-5' Feb-92	SB-6-6" Feb-92	SB-6-3' Feb-92	SB-6-5' Feb-92	MW-1-6" Feb-92	MW-1-5' Feb-92	MW-1-15' Feb-92	MW-1-25' Feb-92	MW-2-6" Feb-92	MW-2-10' Feb-92	MW-2-20' Feb-92
AROMATIC HYDROCARBONS												
Benzene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
1,2 Dichlorobenzene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
1,3 Dichlorobenzene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
1,4 Dichlorobenzene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Xylene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
HALOGENATED ORGANICS												
Bromodichloromethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
2-Chlorethyl Vinyl Ether	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
1,1 Dichloroethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
1,2 Dichloroethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
1,1 Dichloroethene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
1,2 Dichloropropane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
1,1,2,2 Tetrachloroethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
1,1,1 Trichloroethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
1,1,2 Trichloroethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
1,1,2 Trichlorotrifluoroethane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND

ND = Not Detected D = Duplicate
NA = Not Analyzed R = Replicate

TABLE 1
SUMMARY OF SOIL SAMPLING ANALYTICAL RESULTS
(ug/kg)

Grove Valve Regulator Co.	SB-5-3'	SB--5-5'	SB-6-6"	SB-6-3'	SB-6-5'	MW-1-6"	MW-1-5'	MW-1-15'	MW-1-25'	MW-2-6"	MW-2-10'	MW-2-20'
Emeryville, CA	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92
PESTICIDES & PCB'S												
Aldrin	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
4,4 DDD	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
2,4 DDD	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
4,4 DDE	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
2,4 DDE	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
4,4 DDT	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
2,4 DDT	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Endrin Aldehyde	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Heptachlor Epoxide	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
oil & grease (EPA Method 5520E)	10000	30000	90000	50000	20000	ND	ND	ND	ND	10000	ND	ND
Hydrocarbons (EPA Method 5520F)	ND	10000	80000	30000	10000	ND	ND	ND	ND	ND	ND	ND

ND = Not Detected D = Duplicate
NA = Not Analyzed R = Replicate

TABLE 1
SUMMARY OF SOIL SAMPLING ANALYTICAL RESULTS
(ug/kg)

Grove Valve Regulator Co. Emeryville, CA	MW-2-25 Feb-92	MW-3-6" Feb-92	MW-3-5' Feb-92	MW-3-15' Feb-92	MW-3-25' Feb-92	MW-3-25'A Feb-92
AROMATIC HYDROCARBONS						
Benzene	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND
1,2 Dichlorobenzene	ND	ND	ND	ND	ND	ND
1,3 Dichlorobenzene	ND	ND	ND	ND	ND	ND
1,4 Dichlorobenzene	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND
Xylene	ND	ND	ND	ND	ND	ND
HALOGENATED ORGANICS						
Bromodichloromethane	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND
2-Chlorethyl Vinyl Ether	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND
1,1 Dichloroethane	ND	ND	ND	ND	ND	ND
1,2 Dichloroethane	ND	ND	ND	ND	ND	ND
1,1 Dichloroethene	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
1,2 Dichloropropane	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND
1,1,2,2 Tetrachloroethane	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
1,1,1 Trichloroethane	ND	ND	ND	ND	ND	ND
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	120	100
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND
1,1,2 Trichlorotrifluoroethane	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND

ND = Not Detected **D = Duplicate**
NA = Not Analyzed **R = Replicate**

TABLE 1
SUMMARY OF SOIL SAMPLING ANALYTICAL RESULTS
(ug/kg)

Grove Valve Regulator Co.	MW-2-25	MW-3-6"	MW-3-5'	MW-3-15'	MW-3-25'	MW-3-25'A
Emeryville, CA	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92	Feb-92
PESTICIDES & PCB'S						
Aldrin	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND
4,4 DDD	ND	ND	ND	ND	ND	ND
2,4 DDD	ND	ND	ND	ND	ND	ND
4,4 DDE	ND	ND	ND	ND	ND	ND
2,4 DDE	ND	ND	ND	ND	ND	ND
4,4 DDT	ND	ND	ND	ND	ND	ND
2,4 DDT	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND
Endrin Aldehyde	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND
Heptachlor Epoxide	ND	ND	ND	ND	ND	ND
Methoxychlor	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND
oil & grease (EPA Method 5520E)	ND	30000	ND	ND	ND	ND
Hydrocarbons (EPA Method 5520F)	ND	20000	ND	ND	ND	ND

ND = Not Detected   D = Duplicate
NA = Not Analyzed   R = Replicate

TABLE 2
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS
(ug/l)

Grove Valve Regulator Co.	WS-1	WS-2	MW-1	MW-1	MW-4(ID)	MW-1	MW-1	MW-1	MW-1	MW-1R	MW-2	MW-2	MW-2
Emeryville, CA	Apr-91	Apr-91	Mar-92	Oct-92	Oct-92	Feb-93	Apr-95	Aug-95	Sep-95	Mar-92	Mar-92	Oct-92	Feb-93
AROMATIC HYDROCARBONS													
Benzene	NA	NA	ND	NA	NA	ND	ND	ND	ND	ND	ND	NA	ND
Chlorobenzene	NA	NA	ND	NA	NA	ND	ND	ND	ND	ND	ND	NA	ND
1,2 Dichlorobenzene	NA	NA	ND	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND
1,3 Dichlorobenzene	NA	NA	ND	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND
1,4 Dichlorobenzene	NA	NA	ND	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND
Ethylbenzene	NA	NA	ND	NA	NA	ND	ND	ND	ND	ND	ND	NA	ND
Toluene	NA	NA	ND	NA	NA	ND	ND	ND	ND	ND	ND	NA	ND
Xylene	NA	NA	ND	NA	NA	ND	ND	ND	ND	ND	ND	NA	ND
HALOGENATED ORGANICS													
Bromodichloromethane	NA	NA	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	ND
Bromoform	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorethyl Vinyl Ether	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	NA	NA	ND	ND	ND	ND	ND	ND	ND	36	ND	ND	ND
Chloromethane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1 Dichloroethane	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	3	2	2
1,2 Dichloroethane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1 Dichloroethene	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5	20	33	24	24	15	20	12	18	ND	2	1	2
trans-1,2-Dichloroethene	ND	3	12	8	8	5	7	ND	7	ND	ND	ND	ND
1,2 Dichloropropane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2 Tetrachloroethane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1 Trichloroethane	120	2	ND	ND	ND	ND	ND	ND	ND	ND	0.6	0.8	ND
1,1,2 Trichloroethane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	160	180	103	99	98	53	79	46	54	ND	4	3	3
Trichlorofluoromethane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2 Trichlorotrifluoroethane	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND = Not Detected   D = Duplicate   WS-1 - Elevator Shaft Sump Sample
NA = Not Analyzed   R = Replicate   WS-2 - X-ray Pit Sump Sample

TABLE 2
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS
(ug/l)

Grove Valve Regulator Co.	WS-1	WS-2	MW-1	MW-1	MW-4(ID)	MW-1	MW-1	MW-1	MW-1	MW-1R	MW-2	MW-2	MW-2
Emeryville, CA	Apr-91	Apr-91	Mar-92	Oct-92	Oct-92	Feb-93	Apr-95	Aug-95	Sep-95	Mar-92	Mar-92	Oct-92	Feb-93
PESTICIDES & PCB'S													
Aldrin	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
alpha-BHC	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
beta-BHC	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
delta-BHC	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
gamma-BHC	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Chlordane	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
4,4 DDD	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
2,4 DDD	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
4,4 DDE	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
2,4 DDE	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
4,4 DDT	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
2,4 DDT	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Dieldrin	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Endosulfan I	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Endosulfan II	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Endosulfan Sulfate	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Endrin	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Endrin Aldehyde	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Heptachlor	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Heptachlor Epoxide	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Methoxychlor	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Toxaphene	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
PCB-1016	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
PCB-1221	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
PCB-1232	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
PCB-1242	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
PCB-1248	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
PCB-1254	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
PCB-1260	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
oil & grease (EPA Method 5520C)	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Hydrocarbons (EPA Method 5520F)	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND

ND = Not Detected   D = Duplicate   WS-1 - Elevator Shaft Sump Sample
NA = Not Analyzed   R = Replicate   WS-2 - X-ray Pit Sump Sample

TABLE 2
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS
(ug/l)

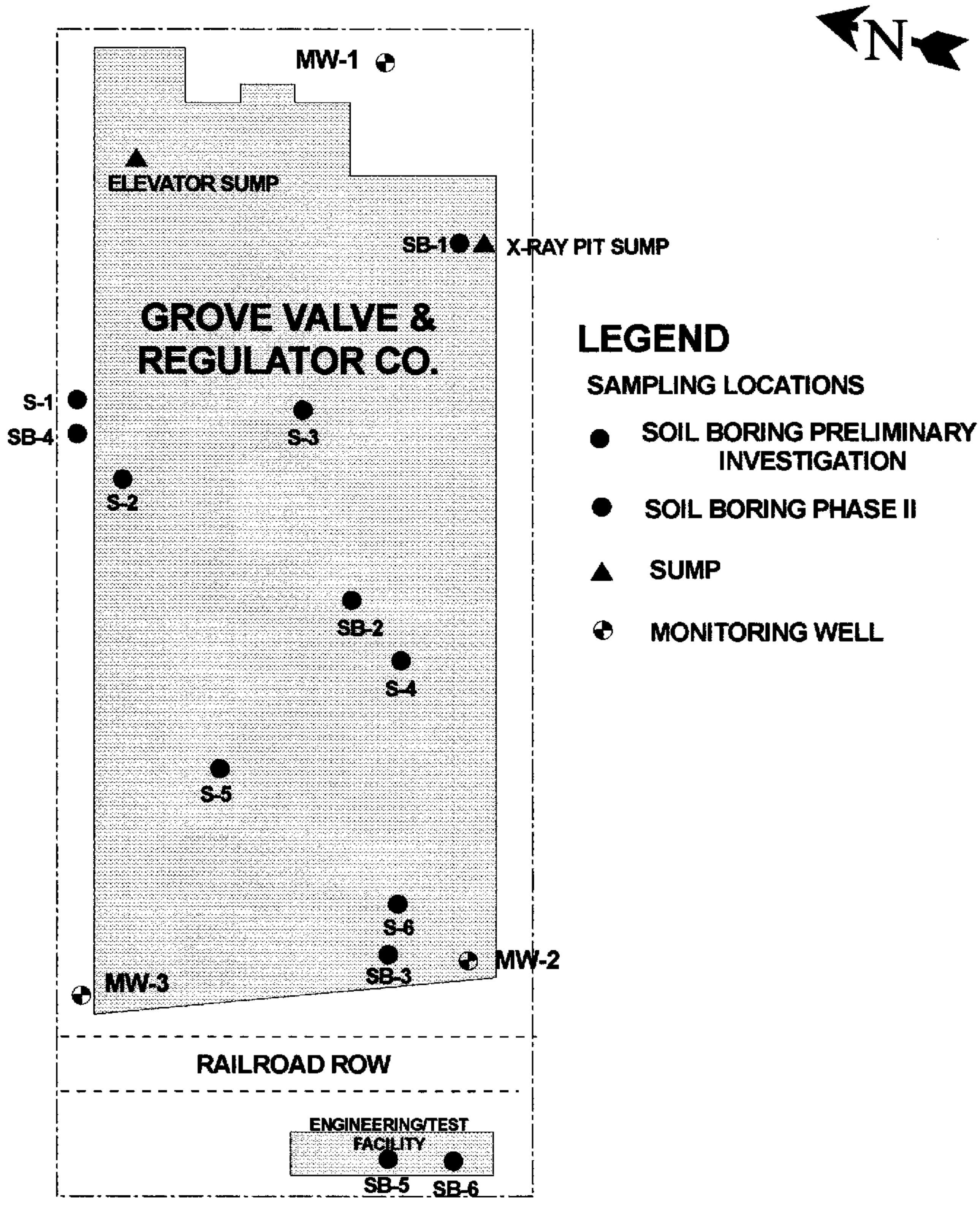
Grove Valve Regulator Co. Emeryville, CA	MW-2 Apr-95	MW-2 Aug-95	MW-2 Sep-95	MW-2D Mar-92	MW-3 Mar-92	MW-3 Oct-92	MW-3 Feb-93	MW-3 Apr-95	MW-3 Aug-95	MW-3 Sep-95	MW-3D Sep-95
AROMATIC HYDROCARBONS											
Benzene	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND
1,2 Dichlorobenzene	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA
1,3 Dichlorobenzene	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA
1,4 Dichlorobenzene	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA
Ethylbenzene	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND
Xylene	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND
HALOGENATED ORGANICS											
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorethyl Vinyl Ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	0.5	ND	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1 Dichloroethane	2	ND	ND	3	0.6	0.7	ND	ND	ND	ND	ND
1,2 Dichloroethane	ND	ND	ND	ND	ND	0.6	ND	ND	ND	ND	ND
1,1 Dichloroethene	ND	ND	ND	ND	2	1	1	1	ND	ND	ND
cis-1,2-Dichloroethene	0.9	ND	ND	2	18	13	13	28	19	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	1	1	ND	ND	ND
1,2 Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2 Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1 Trichloroethane	ND	ND	ND	0.6	0.5	0.7	ND	ND	ND	ND	ND
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5	ND	ND	4	1300	1100	1200	800	1400	1200	1200
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2 Trichlorotrifluoroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	5	2	3	9	ND	ND	ND

ND = Not Detected D = Duplicate WS-1 - Elevator Shaft Sump Sample
NA = Not Analyzed R = Replicate WS-2 - X-ray Pit Sump Sample

TABLE 2
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS
(ug/l)

Grove Valve Regulator Co. Emeryville, CA	MW-2 Apr-95	MW-2 Aug-95	MW-2 Sep-95	MW-2D Mar-92	MW-3 Mar-92	MW-3 Oct-92	MW-3 Feb-93	MW-3 Apr-95	MW-3 Aug-95	MW-3 Sep-95	MW-3D Sep-95
PESTICIDES & PCB'S											
Aldrin	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
alpha-BHC	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
beta-BHC	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
delta-BHC	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
gamma-BHC	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
Chlordane	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
4,4 DDD	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
2,4 DDD	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
4,4 DDE	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
2,4 DDE	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
4,4 DDT	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
2,4 DDT	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
PCB-1016	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
PCB-1221	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
PCB-1232	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
PCB-1242	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
PCB-1248	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
PCB-1254	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
PCB-1260	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
oil & grease (EPA Method 5520C)	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA
Hydrocarbons (EPA Method 5520F)	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA

ND = Not Detected D = Duplicate WS-1 - Elevator Shaft Sump Sample
NA = Not Analyzed R = Replicate WS-2 - X-ray Pit Sump Sample



ENVIRONMENTAL MANAGEMENT & ENGINEERING INC.	
Birmingham , AL	Houston, TX
Description: FIGURE 3 SOIL BORING AND MONITORING WELL LOCATIONS	
Date: 9/29/95	Project No.: DRS-95-E942
Drawn By: MKH	Scale: NTS

(Attachment 3) that a restrictive layer was encountered at all five interior sampling locations. Additionally, water samples were collected from groundwater which had accumulated in sumps in the X-ray and elevator pits. These pits are located near the northeast and southeast corners of the property respectively.

The six (6) soil samples and two (2) groundwater samples were tested for Volatile Organic Compounds (VOC's) and for Polychlorinated Biphenyls (PCB's).

The analytical testing did not detect VOC's in 5 of the 6 soil samples obtained from this assessment. The soil sample from the outside solvent storage area contained a detectable concentration of Trichloroethene (27 μg/kg). Water sample WS-1, obtained from the elevator shaft, contained detectable concentrations of: 1,1-Dichloroethene (50 μg/L), Cis-1,2 Dichloroethene (5 μg/L), 1,1,1-Trichloroethane (120 μg/L), and Trichloroethene (160 μg/L). Water sample WS-2, obtained from X-ray pit sump, contained detectable concentrations of: Trans-1,2-Dichloroethane (3 μg/L), 1,1-Dichloroethene (5 μg/L), Cis-1,2-Dichloroethene (20 μg/L), 1,1,1-Trichloroethane (2 μg/L), and Trichloroethene (180 μg/L).

The analytical testing did not detect PCB compounds in 5 of the 6 soil samples or in the groundwater samples obtained from this assessment. The sample from the machining area contained Aroclor-1254 (a PCB compound) detectable at a concentration of 190 μg/kg.

The preliminary investigation report recommended additional testing of groundwater and of soils below the apparent restrictive layer. Grove contracted with Woodward-Clyde consultants to conduct a Level II Environmental Assessment of the facility. The investigation was completed in April of 1992. Attachment 4 is a copy of the resulting report.

The Level II Environmental Assessment consisted of the installation of six (6) additional borings (averaging approximately 5 feet in depth) and three (3) groundwater monitoring wells. Soil borings were placed in areas of potential contamination based on previous sampling results. Two to three soil samples were collected from each boring. Additional soil samples were collected during installation of the monitoring wells. Groundwater elevations and samples were taken at each of the three monitoring wells.

Soil samples from five of the six soil borings and MW-3 contained detectable levels of oil and grease/hydrocarbons. However, most of these concentrations were relatively low (less than 100 mg/kg) and were from the surface or shallow depths (less than 3 feet). Surface samples (6 inch depth) from borings in the outside solvent storage and test pit areas contained detectable concentrations (330 mg/kg and 250 mg/kg, respectively) of oil and grease. The sample taken at 5 feet in the boring near the outside solvent storage area contained 2800 mg/kg oil and grease. None of the soil samples analyzed had detectable concentrations of organochlorine pesticides or PCB's. The only VOC detected in any of the soil samples was trichloroethene. The six inch and five foot samples from the boring in the outside solvent storage area had 6 μg/kg and 40 μg/kg trichloroethene, respectively. The 25-foot soil sample from MW-3 and its laboratory duplicate had 120 μg/kg and 100 μg/kg, respectively. It should be noted that this soil sample was obtained well below the groundwater level.

The groundwater sample from MW-1 contained detectable concentrations of: Cis-1,2-Dichloroethene (33 μg/L), trans-1,2 Dichloroethene (12 μg/L) and Trichloroethene (103 μg/L). The groundwater sample from MW-2 contained detectable concentrations of: 1,1,1-Dichloroethane (3 μg/L), Cis-1,2-Dichloroethene (2 μg/L), 1,1,1-Trichloroethane (0.6 μg/L) and Trichloroethene (4 μg/L). The groundwater sample from MW-3 contained detectable concentrations of: chloroform (0.5 μg/L), 1,1-Dichloroethane (0.6 μg/L), 1,1-

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Dichloroethene (2 μg/L), Cis-1,2-Dichloroethene (18 μg/L), 1,1,1-Trichloroethene (1300 μg/L) and vinyl chloride (5 μg/L).

The report concludes that soils showed little or no contamination with the exception of the samples from the boring near the outside solvent storage area. The report also notes the likelihood of offsite sources of the groundwater contamination since trichloroethene was detected in the upgradient well. The report recommended that a thorough water level survey and literature survey be conducted. At Grove's direction, Woodward-Clyde performed the water level survey and literature/regulatory search. Correspondence reporting their findings is included as Attachment 5. Water levels were found to have very little fluctuation due to tidal action or short term rainfall. The literary search and interviews with regulatory personnel disclosed numerous users of solvents in the area but no obvious source of the contamination. It is interesting to note that one official with the Regional Water Quality Control Board stated that "Emeryville has contamination, period. Solvents and heavy metals are ubiquitous. 1300 mg/l is not relatively high".

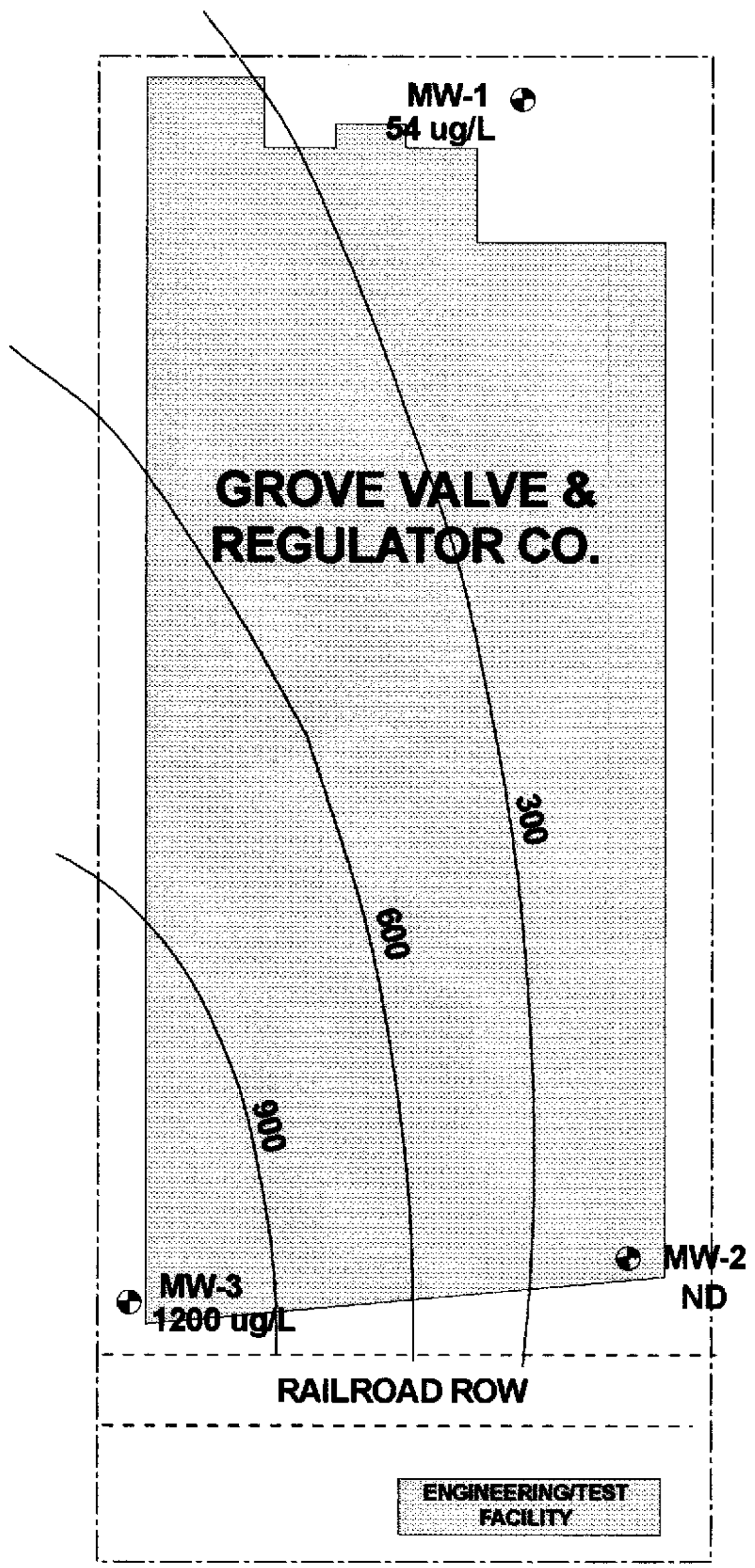
In response to a March 1995 request from the ACDEH, Grove contracted Robin K. Spencer, an independent environmental consultant, to prepare a brief summary of the status of the investigation at the facility. The resulting report is included as Attachment 6. The report includes a summary of the previously discussed investigations as well as the results of subsequent rounds of groundwater sampling conducted by the facility in March 1992, October 1992, February 1993 and April 1995. The results of this additional sampling, which indicate a general decline in the concentrations of the subject VOC's, are summarized in Table 2 in Section IIIA. Please note that the data for October 10, 1992 reports results for MW-4. This sample was a QA/QC duplicate of MW-1. There is no monitoring well MW-4 at the facility.

Two (2) additional rounds of groundwater sampling were conducted in August and September of 1995. The results indicated a continuing decline for all parameters with the exception of TCE in MW-3, which was detected at 1400 $\mu g/L$ and 1200 $\mu g/L$. Copies of the analytical results for these sampling events are included in Attachment 7. The results are summarized in Table 2. Figure 4 is a map delineating contamination contours for TCE levels in the most recent round of sampling.

B. Offsite Investigations

Due to the evidence which suggests that groundwater contamination is an area-wide problem (i.e, presence of contamination in the upgradient well, statement by RWQCB official regarding area groundwater contamination, etc.) further investigation of neighboring properties was warranted. As mentioned previously, a literature search and interviews with regulatory officials had revealed numerous users of solvents in the area. In order to further investigate the properties in the immediate vicinity of the site, Robin K. Spencer visited the ACDEH offices in order to review the relevant files. Files regarding groundwater investigations of RIX Industries, Inc. (6460 Hollis Street) and Sybase, Inc. (64th and 65th Street properties) were reviewed. Attachment 8 contains a copy of a map (prepared by Erler & Kalinowski, Inc.) showing the relative locations of the Grove, RIX Industries (RIX), and Sybase, Inc. (Sybase) properties as well as monitoring well locations and summarized analytical data.

The file regarding RIX disclosed that ten (10) underground storage tanks (UST's) were removed and/or closed in 1994. These tanks were in existence when the property was sold by Sterling Paints around 1950. The tanks were not used by RIX, however, upon closure the tanks were found to contain varying volumes of chlorinated solvents, sec-butyl alcohol, Methyl Ethyl Ketone and diesel. Several tanks were empty and the former contents were undetermined.



N

LEGEND

⊕	MONITORING WELL
54 ug/L	TCE CONCENTRATION (SAMPLED 9/14/95)
ND	NON DETECT

ENVIRONMENTAL MANAGEMENT & ENGINEERING INC.

Birmingham, AL — Houston, TX

Description:	FIGURE 4 TRICHLOROETHENE CONTAMINATION CONTOURS		
Date:	9/29/95	Project No.:	DRS-95-E942
Drawn By:	MKH	Scale:	NTS

Three (3) monitoring wells have been installed in the area of the RIX UST's. Tetrachloroethylene (PCE) has been found in most borings in the range of 160 $\mu g/L$ to 1500 $\mu g/L$; trichloroethylene (TCE) was found in 1 boring at 37 $\mu g/L$. TCE was reported in the groundwater of MW-3 with a concentration of 300 $\mu g/L$ in 7/92 to 63 $\mu g/L$ in 6/95. As with the Grove facility, the groundwater gradient has been documented in a westerly direction. Attachment 9 contains copies of tables prepared by Hageman-Aguiar, Inc. which summarize quarterly groundwater sampling data for the RIX monitoring wells.

The file regarding the Sybase property describes results from many groundwater sampling events from the numerous monitoring wells installed on the site. Chlorinated solvents have been found in detectable concentrations in the majority of the wells. The highest concentration of TCE (170 $\mu g/L$) was found in the monitoring well across Hollis Street from the RIX facility. Attachment 10 contains copies of tables prepared by Erler & Kalinowski, Inc. which summarize the groundwater sampling data for the Sybase monitoring wells.

III. Discussion and Recommendations

A. Soil Sampling Results

Two rounds of soil sampling have been conducted at the site as described previously. Soil boring locations for both rounds are presented in Figure 3. Sampling results are summarized in Table 1. Of the twelve soil boring and three (3) wells installed and sampled, only four locations yielded samples which were found to have contaminants present in significant concentrations. The following is a discussion of the soil sampling results.

In the initial round of soil sampling in 1991, the sample from boring S-4 (machining area, sampled immediately beneath the floor slab) was found to contain PCB's at a concentration of 190 $\mu g/kg$. The source of the PCB's is unknown, however, the boring was located in the general area of a facility transformer which may have contained PCB oil in the past (historic data is unavailable). RWQCB and Department of Health Services regulatory threshold values indicate a maximum allowable concentration of PCB in soil at 50,000 $\mu g/kg$ total (TTLC) concentration and 5,000 $\mu g/kg$ leachable (STLC) concentration. The PCB concentration of 190 $\mu g/kg$ in sample S-4 was far below these limits. The sample was very shallow and was taken from soils which were located above a restrictive layer. Additionally, no other soil or water samples, from this and the subsequent sampling event, were found to contain PCB's in detectable concentrations. For these reasons, no further action is recommended in regard to this area.

Soil sample S-1 (outside solvent storage area, sample depth approximately one and a half feet) was found to contain TCE at a concentration of 27 $\mu g/kg$. Soil samples SB-4A (6 inch depth) and SB-4C (5 foot depth) taken from the same area during the second round of sampling yielded TCE at concentrations of 6 $\mu g/kg$ and 40 $\mu g/kg$ respectively. The facility has no known history of use of TCE. Grove used 1,1,1-trichloroethane (TCA) in the former degreasing operations, therefore no on-site source of the low levels of TCE contamination is apparent. However, the groundwater in the entire area in which the facility is located is known to contain detectable concentrations of TCE. Additionally, depth to groundwater has been measured as shallow as 1.65 feet at the adjacent Sybase property (Attachment 11). These facts suggest that the low concentration of TCE in this area could be an artifact of the groundwater contamination. This is certainly the case for soil samples MW-3 and MW-3A which were collected at a depth of 25 feet, which is well below the groundwater level, and were found to contain concentrations of 120 $\mu g/kg$ and 100 $\mu g/kg$ TCE respectively. Groundwater contamination is discussed in Section IIIB.

For the second round of soil sampling, oil and grease was included as an analytical parameter. Soil samples SB-4A (6 inch depth) and SB-4C (5 feet depth) from soil borings SB-4 (outside near original boring S-1) yielded oil and grease concentrations of 330 mg/kg and 2800 mg/kg, respectively. As with the solvent which was detected in this boring, no on-site source of the relatively low concentrations of oil and grease is apparent. Facility compressors and oil storage areas (drums and small aboveground tanks) are located in the general area, however, no significant surface staining was apparent in these areas. Due to the proximity of the soil boring to 66th Street, petroleum hydrocarbons from vehicular spills, possible use of contaminated fill in the area, etc. are possible contributors to oil and grease contamination in the area.

No other soil samples which were collected from depths greater than 6 inches were found to contain oil and grease at concentrations greater than 50 mg/kg. Two samples collected at a depth of 6 inches were found to contain oil and grease at 330 mg/kg and 250 mg/kg. Oil and grease has not been detected in any water sample from the site even though monitoring well MW-3 is located downgradient from boring SB-4. A localized oil and grease concentration of 2800 mg/kg (sample SB-4C) is not inordinately high for an industrial area and groundwater monitoring has not revealed any evidence to suggest that groundwater is being impacted. Therefore, no further action is proposed for this area.

B. Groundwater Sampling Results

As mentioned previously, chlorinated solvent contamination of groundwater in the general area has been described as "ubiquitous" by a representative of the RWQCB. This statement is supported by the data accumulated thus far in the investigation of the Grove site. Area-wide contamination by off-site source(s) is evidenced for the following reasons.

Grove has no known history as a user of TCE. TCE and its breakdown products are the only contaminants which have been detected in the groundwater at concentrations which even approach California and EPA regulatory standards. Table 2 is a summary of groundwater sampling results. Grove utilized TCA in its degreasing operations, which were discontinued in 1993. TCA has not been detected in the groundwater at the site since October of 1992. The maximum concentration of TCA detected prior to that date was 120 μg/L in the elevator sump sample, which is well below the EPA and California regulatory limit of 200 μg/L. The concentrations of all parameters have been in a general decline throughout the investigation with the exception of the most recent sampling results (August and September 1995) for MW-3. This variation is consistent with the nature of a migrating slug of groundwater contamination.

The principal contaminants have been detected in the upgradient as well as the downgradient wells. Additionally, these contaminants were detected in the groundwater samples from the elevator and X-ray pit sumps, which are also located in upgradient positions. Figure 2 illustrates groundwater levels and gradients as measured on March 2, March 26 and October 15 of 1992 and the locations of the monitoring wells.

No soil samples taken from within the building, which was the primary area of TCA handling, use, and recovery, contained detectable concentrations of any VOC's. Given that a large portion of the building is also underlain by a restrictive layer and that there is no known history of storage of solvent in underground tanks, there is no documented evidence of a release of solvent which would have been likely to impact groundwater on the site.

Records from investigations carried out at the neighboring RIX and Sybase properties, which are cross gradient from the Grove site, indicate that groundwater at these sites is also contaminated with VOC's.

Due to the fact that chlorinated solvent contamination appears to be an area-wide problem and that no apparent potential sources of contamination have been identified at the facility, Grove proposes quarterly monitoring of groundwater elevations and quarterly sampling/analysis for TPH as oil and grease, and halogenated volatile organics (EPA Method 8010). Aromatic volatile hydrocarbons have not been detected in previous sampling events and is not proposed as a parameter for quarterly sampling. This quarterly monitoring would begin with the 4th quarter of 1995 and would continue until a sufficient quarterly monitoring data base exists to permit reevaluation of the environmental status of the site.

IV. Summary and Conclusions

As a result of investigations of the soil and groundwater at the Grove Valve and Regulator Company of Emeryville, California, the Alameda County Health Care Services Agency Department of Environmental Health (ACDEH) requested a summary of the work to date including an overview as to whether further investigation of the site is warranted and, if so, a proposal for such.

In summary, the investigations conducted at the Grove Valve and Regulator Company have not identified any apparent on-site source for the Trichloroethene (and breakdown product) contamination which has been detected in the area groundwater. The presence of TCE in the upgradient monitoring well and in monitoring wells at nearby facilities and the fact that Grove has no known history of use of TCE suggests that the groundwater contamination consists of a migrating slug of contaminants from off-site source(s). Grove proposes quarterly monitoring of groundwater elevations and contaminant levels in the three (3) monitoring wells in order to amass a sufficient data base on which to draw further conclusions.

Soil sampling conducted during both the Preliminary and Phase II investigations did not reveal significant soil contamination on the site. All substances which were detected were present in relatively low concentrations at shallow sampling depths and appeared to be very localized. No evidence of a significant release of any substance was indicated by these sampling results, therefore Grove proposes no further action regarding soil investigations.

V. <u>Qualifications of Lead Professionals</u>

Founder and President of EME, Gene Gonsoulin has over twenty-five years of Environmental and Natural Resource Management education and work experience and has provided services to numerous major industry projects, industry trade organizations, and state and federal governmental agencies. He has honed a broad array of specialized skills that provides sound environmental and natural resource management consulting and professional guidance for EME's technical staff. Included in his work experience are many years of direct employment/involvement in the oil and gas, drilling, production and natural gas transmission industry for domestic and international operations as well as continuing consulting work for a number of companies.

Kevin Holloran has ten (10) years experience in the environmental field in both the regulatory and consulting aspects of the industry. He has extensive experience in the performance of environmental site assessments including both regulatory research and site work in the United States, Canada, Scotland, England and Belgium.

Robin Spencer has 15 years experience in the environmental engineering field. She is a Certified Hazardous Materials Manager and a Registered Environmental Assessor in the State of California.

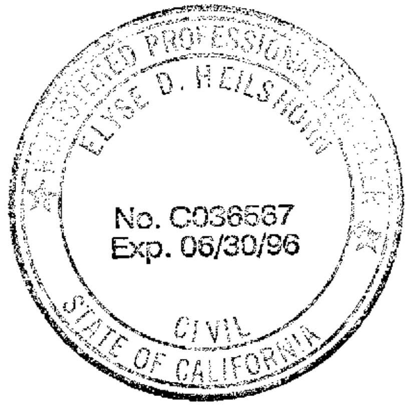
Elyse Heilshorn is a consulting environmental engineer and a registered civil engineer in the State of California, a Certified Hazardous Materials Manager, and a Registered Environmental Assessor. She has 18 years experience in the environmental field as an engineer and a chemist.

Gene Gonsoulin, Ph.D, President
Environmental Management &
Engineering, Inc.

Kevin Holloran, Environmental Specialist
Environmental Management &
Engineering, Inc.

Robin K. Spencer, CHMM, R.E.A.

Elyse D. Heilshorn
Registered Civil Engineer No. C036567



(Seal)

ATTACHMENT 1 -- Alameda County Health Services Correspondence dated June 29, 1995

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

FAXED

JUL 7 - 1995

cc: Bill Tallent

RAFAT A. SHAHID, DIRECTOR

June 29, 1995

Grove Valve and Regulator Company Executive Office

DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program
1131 Harbor Bay Parkway
Alameda, CA 94502-6577
(510) 567-6700

Mr. Kenneth Banks
Grove Valve and Regulator Company
6529 Hollis Street
Emeryville, California 94608

RE: Soil and Groundwater Contamination at Grove Valve and Regulator Company - 6529 Hollis Street, Emeryville, CA 94608

Dear Mr. Banks:

The Alameda County Department of Environmental Health, Environmental Protection Division has recently reviewed the Work Plan - Status of Environmental Investigation of Soil and Groundwater (April 1995) prepared by Robin Spencer for the referenced site.

The following are issues that must be addressed regarding the soil and groundwater investigation at the subject site:

1) The extent of the soil and groundwater contamination remains undefined. The latest sampling event (April 1995) revealed that the three on site monitoring wells detected trichloroethene (TCE) up to 800 ppb in MW-3 which appeared to be the downgradient well. Vinyl chloride (9 ppb) and dichloroethene (28 ppb) were also detected in MW-3. A work plan must be submitted to determine the vertical and lateral extent of the soil and groundwater contamination.

2) The source of the soil and groundwater contamination at the site must be identified. Review of our files for the subject site had indicated that chlorinated solvents (1,1,1 trichloroethane) had been used at the site.

3) Monitoring well MW-4 showed 98 ppb trichloroethene during the 10/15/92 sampling event. Please provide any other existing groundwater data for this well including copies of the boring log and monitoring well construction diagram. Additionally, the location of the well (MW-4) must be identified in the site map.

4) All the wells must be sampled every quarter and analyzed for the following target compounds: TPH as oil and grease, aromatic volatile hydrocarbons (8020) and halogenated volatile organics (8010).

5) Groundwater elevation must be measured and incorporated in the quarterly monitoring program to verify groundwater flow direction at the subject site.

Response to all the issues mentioned above including the work plan submittal must be provided to this office **no later than August 21, 1995.**

Until cleanup is complete, you will need to submit quarterly reports to this office and the following items must be incorporated in your future reports or workplans:

- a cover letter from the responsible party stating the accuracy of the report and whether he/she concurs with the conclusions and recommendations in the report or workplan

- site map delineating contamination contours for soil and groundwater based on recent data should be included and the status of the investigation and cleanup must be identified

- proposed continuing or next phase of investigation / cleanup activities must be included to inform this department of the responsible party's intention

- any changes in the groundwater flow direction and gradient based on the measured data since the last sampling event must be explained

- historical records of groundwater level in each well must be tabulated to indicate the fluctuation in water levels

- tabulate analytical results from all previous sampling events; provide laboratory reports (including quality control/quality assurance) and chain of custody documentation

All reports and proposals must be submitted under seal of a California Registered Geologist or Registered Civil Engineer with a statement of qualifications for each lead professionals involved with the project.

Please contact me at (510) 567-6780 if you have any questions concerning this letter.

Sincerely,

Susan L. Hugo

Susan L. Hugo
Senior Hazardous Materials Specialist

cc: Rafat A. Shahid, Director, Environmental Health
Jun Makishima, Acting Chief, Environmental Protection Division / file
Gil Jensen, Alameda County District Attorney's Office
Sum Arigala, San Francisco Bay RWQCB
Robin Spencer, 6 Via San Inigo, Orinda, CA 94563

ATTACHMENT 2 -- "Environmental Assessment
Grove Valve and Regulator
Company" Canonie
Environmental Services, 1990

Report

Environmental Assessment Grove Valve and Regulator Company

Canonie Environmental

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ENVIRONMENTAL ASSESSMENT REPORT
GROVE VALVE AND REGULATOR COMPANY
EMERYVILLE, CALIFORNIA

EXECUTIVE SUMMARY

An initial environmental assessment was performed at the Grove Valve and Regulator Company (Grove) site by Canonie Environmental Services Corp. (Canonie) for the Sanpaolo Finance Merchant Bank of Milan, Italy. The assessment included a walkthrough inspection of the premises, interviews with Grove staff, review of records provided by Grove, and a review of information from environmental regulatory agencies.

It was verified that the permits on file with local environmental agencies were in order. Regulatory records and publications made no mention of major environmental contamination at any neighboring facilities. Where major environmental contamination has been reported in the vicinity, the distance and direction of these sites from the Grove site suggest that they have not impacted the Grove site.

The walkthrough inspection and records provided by Grove revealed that toxic and hazardous materials were handled and hazardous wastes were generated on the premises. The age of the manufacturing facility, the presence of hydrocarbons and chlorinated solvents, and the former presence of polychlorinated biphenols on the site all suggest that there is a level of risk that some degree of environmental contamination may have occurred. Although there was no evidence in the records that chemical usage has had an adverse environmental impact at the site, the presence or absence of any surface or subsurface contamination cannot be verified without further investigation. Canonie recommends that a program of soil and surface wipe sampling be performed in order to better define the level of risk.

ENVIRONMENTAL ASSESSMENT REPORT
GROVE VALVE AND REGULATOR COMPANY
EMERYVILLE, CALIFORNIA

1.0 INTRODUCTION

This report has been prepared by Canonie Environmental Services Corp. (Canonie) to summarize the results of the environmental assessment conducted at the Grove Valve and Regulator Company (Grove) premises in Emeryville, California. The work was performed at the request of Mr. Morgan Guenther, legal counsel for the Sanpaolo Finance Merchant Bank of Milan, Italy.

The purpose of this initial environmental assessment was to address only the potential for soil and ground water contamination at the site as it has been affected by past and present chemical waste generated on the site. Canonie was requested to conduct this initial assessment without sampling the site. Another firm was requested to conduct an assessment of occupation health and safety factors. This report details the results of Canonie's on-site inspection and of the subsequent documents review.

An environmental assessment is used as a risk evaluation technique. Environmental assessments are typically performed in a phased manner. The initial phase addresses whether or not a likelihood of contamination exists and identifies potential contaminants. The work includes a document review and a site inspection. This initial phase is usually termed a Level 1 assessment.

When warranted, further work including site sampling is conducted as the next phase. This work is usually termed a Level 2 assessment. If the sampling indicates that significant contamination is present, the next phase of work would be a site investigation to characterize the nature and extent of contamination.

The work performed by Canonie consisted of a walkthrough inspection, a review of documents provided by Grove, and a review of the records of state and local agencies. The site inspection was conducted by Canonie staff members accompanied by various Grove staff members. The site was visited on April 2, 1990 and again on April 6, 1990. Subsequently, state and local regulatory agencies were contacted to acquire information on contaminated sites in the vicinity of Grove and to verify Grove's compliance with permit requirements.

In general, the use of chemicals in any industrial process can potentially result in contamination to air, soil, or water. Liability for air pollution can generally be minimized by compliance with ordinances and permit conditions. Soil and ground water contamination, however, typically require that the responsible party investigate the problem and remove and dispose of any regulated contaminants. The measures required to address major soil and/or ground water contamination can potentially be complicated and expensive. Soil and ground water contamination, being underground, may go undetected for long periods until, for some reason, an investigation and sampling program is undertaken. Unfortunately, by the time an investigation is undertaken, the problem can be widespread.

Canonie's investigation has concentrated on the waste streams having the potential to impact soil and ground water. For air pollution, we have restricted our efforts to verifying that Grove has obtained and maintained the currently necessary air discharge permits.

2.0 SITE DESCRIPTION

Grove is located at 6529 Hollis Street in Emeryville, California (Figure 1). The site consists of three separate buildings (Figure 2): the offices and main plant of approximately 220,000 square feet (Figure 3), a combined warehouse and rubber plant of approximately 45,000 square feet (Figure 4), and a test facility of approximately 5,000 square feet. There are also several fenced-in areas located adjacent to the buildings. The main plant is located at 6529 Hollis Street and occupies the entire block between 65th and 66th Streets. There is a multitrack railroad line at the back of the main plant. The warehouse and rubber plant are located across 66th Street from the main plant. The test facility is located on Bay Street between 65th Street and 66th Street. The railroad tracks run between the test facility and the main building.

Grove has conducted operations on the site since 1935. Before that, the site was reportedly occupied by an abattoir or slaughterhouse.

The neighborhood surrounding the site is well developed and is occupied by warehouses, medium industrial facilities, and commercial establishments. The site is on relatively flat land between the San Francisco Bay, approximately one-half mile (800 meters) to the west, and the Berkeley Hills, approximately 2.5 miles (4 kilometers) to the east.

Soils in the Emeryville area generally consist of 5 to 6 feet (2 to 3 meters) of fill, 30 to 70 feet (10 to 22 meters) of Bay Mud, 20 to 30 feet (6 to 10 meters) of Merritt Sand, and up to approximately 100 feet (30 meters) of Old Bay Clays. The soils are underlain by the bedrock of the Franciscan Assemblage.

It was reported that ground water in the area is as shallow as 5 feet (1.5 meters) below the surface. Observation wells located on Bay Street, several hundred feet from the site, indicated that the direction of ground water flow in the upper aquifer is toward the southwest.

3.0 SITE OPERATIONS

This section describes the site operations that, in Canonie's opinion, have the highest probabilities of introducing contaminants into the environment. We have concentrated our efforts on identifying potential sources of subsurface contamination, because these are the types of problems that are the most difficult to deal with. Appendix A contains copies of the Material Safety Data Sheets for the chemicals discussed in this section.

Grove is a valve and regulator manufacturer involved in metal machining, valve and casting cleaning, paint spraying, the assembly of regulators, rubber o-ring fabrication, product testing, and the handling of chemicals and oils necessary for their operations.

3.1 Metal Machining

Metal machining operations are performed in the main plant (Figure 3). The principal chemical identified by the State of California's Proposition 65 as being used in metal machining is mineral oil, which is a component of some cutting fluids. There are three general types of cutting fluids: straight mineral oil-based cutting fluids, soluble oils or oil emulsions, and various synthetic compositions. The Grove staff reported that they are presently using water-soluble cutting fluid. Cutting fluids now in use (Melosol™) are diluted with water in ratio of 1:10.

Cutting fluids are used to cool and lubricate the point of contact between the cutting tool and the metal work piece, as well as to flush away the chips removed by the machining process. Cutting fluids are applied automatically by the cutting tool. After application, the metal cuttings are separated from the cutting fluid and the fluid is reused by the machine. When the fluid becomes unsuitable for reuse it is cleaned and recycled on-site. The application of the cutting fluid to hot, rotating, or reciprocating parts can generate an oil mist. Due to the fact that oil emissions are a relatively heavy mist which is likely to settle a short distance from the work station, there is a very low air emission potential from cutting fluid; but the mists are a major source of an oily residue on the interior floor surfaces of the main plant.

Hydraulic oil (Tellus™) and lubricating oils and grease are also used in the main plant. Some of this oil leaks into the cutting fluid collection pans. This is later separated and goes to an oil recycler.

Presently, minor oil spills, such as those that occur during machinery repair, are absorbed with vermiculite or similar material. The used absorbent is then disposed in the trash. Landfill disposal is regulated by the California Regional Water Quality Control Board (RWQCB). The RWQCB guidelines presently require that materials containing greater than 100 parts per million (ppm) of total petroleum hydrocarbons (TPH) must be disposed of in a Class 1 or a Class 2 landfill. Because it is likely that the level of TPH in the used absorbent exceeds 100 ppm, the practice of disposing contaminated absorbent as ordinary trash should be discontinued until the TPH concentrations are tested and confirmed to be below 100 ppm.

3.2 Spray Painting

Paint spraying is performed in the west end of the main plant at three spray booths. Each of the spray booths is permitted by the Bay Area Air Quality Management District (BAAQMD). In spraying operations, paint is pumped from a supply tank to a spray gun which directs the coating onto the object being painted. The spray booth is vented by a fan. Air emissions from paint spray booths consist of particulate matter and organic solvent vapors (overspray). Particulate matter consists of coating particles that do not adhere to the object being painted. The overspray passes through a film of water that washes out the particulate matter and absorbs some of the organic compounds. The waste generated in this process is placed into containers and is disposed of by a certified waste hauler.

3.3 Valve and Casting Cleaning

Rough castings arriving at the plant from overseas manufacturers are typically coated with a petroleum-based rust inhibitor commonly called "cosmoline" (trade name LPS 3). Using a closed-loop washing system, this rust inhibitor is washed from the parts before further machining. The washing solution consists of a caustic compound (ZEP™) mixed with water. This solution drains back into a holding tank for reuse. When the solution is no longer suitable for reuse, the water is evaporated and the remaining sludge is stored on-site until it is transported to a recycling facility.

The closed-loop washing system has been in operation approximately six months and was installed for washing parts coated with rust inhibitor. This coating is reportedly used only on parts shipped from abroad. Grove reported that they have only recently begun using parts which required this cleaning method.

After a part has been washed, it is rinsed with fresh water using a high-pressure wand. The rinse water drains through a floor grate located under the rinse station and into a settling tank. From there it is discharged into the local sanitary sewer system.

The rinsing stations also serve double duty for washing. Washing to remove residue and process fluids other than the rust inhibitor is done with fresh water containing a cold-water, biodegradable detergent (Duo Power™). This solution drains through a floor grate located under the station and into a settling tank and is discharged into the sanitary sewer. There are three washing/rinsing stations that drain into the sewer; all are located on the west side of the main plant.

Before 1982, the washing system consisted of a hose, drainage into a sump, and discharge to the sanitary sewer. Present regulations limit the concentration of oil and grease in wastewater discharge to 100 milligrams per liter (mg/l). No floor drains were observed in the main plant. It appeared that the parts washing/rinsing operation was the only process stream that is discharged into the sewer from the main plant.

3.4 Clean Room

High-specification items are assembled in the clean room (Figure 3). These are cleaned in a vapor degreaser using reagent-grade 1,1,1-trichloroethane (TCA). The spent TCA from this operation is reused for the regulator assembly operation in Building D.

3.5 Regulator Assembly

Regulators are assembled in the east half of Building D (Figure 4). This operation uses the solvent TCA to clean the parts and assemblies. Cleaning is done in a vapor degreaser that is permitted by the BAAQMD. Spent TCA is returned to the supplier. Several 55-gallon drums of TCA were stored in the area (Figure 4) and one dozen empty drums were also observed.

3.6 Rubber Fabrication

Rubber fabrication is done in the west half of Building D (Figure 4). This work consists predominantly of fashioning O-rings from sheet stock. Small quantities of various additives are stored on-site. Grove staff reported that the magnitude and variety of these compounds was recently reduced from what was on hand in the past and that these surplus materials were disposed of according to regulations.

We noted that the ducting on the drying oven located in this area (Figure 4) was insulated with a friable material that appeared to be similar to asbestos. During our inspection, the Grove staff could not verify whether or not the material contained asbestos, because it had evidently not been tested. We recommend that this substance be further inspected and if the absence of asbestos cannot be determined, that a verification sample be analyzed.

3.7 Warehouse

Drums and containers of various liquids are stored in the warehouse located in Buildings E and F (Figure 4). Only of few containers were observed and these were kept on shelves or pallets.

3.8 Engineering Test Facility

The engineering test facility (Figure 2) is used to test products. It contains a holding tank for water used to pressure test valves. The water contains an anticorrosive additive (Omni-Chem SCS-77™). Pressure testing is also done at the west end of the main plant. A portable cart labeled as containing solvent was observed during inspection. It is assumed that the solvent is used for cleaning and that it is applied manually.

4.0 REVIEW OF REGULATORY AGENCY RECORDS

Canonie conducted a records review of several regulatory agencies in order to investigate whether or not any reportedly contaminated sites were located in close proximity to Grove. The information obtained from these sources is summarized in this section.

Our review of agency records indicated that, with one minor exception (a fuel leak), all of the reported sites are apparently located hydrologically either downgradient or cross-gradient from the Grove site. Therefore, any soil or ground water contamination originating at these reported sites is unlikely to have an environmental impact on the Grove site. The location of these listed sites in relation to the Grove site is shown on Figure 1.

4.1 Comprehensive Environmental Response, Compensation, and Liability Information System List 8

The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List 8 was reviewed. The following sites in Emeryville were listed:

1. American Bitumals and Asphalt, 1520 Powell Street;

2. Capital Refrigeration Company, Foot of 64th Street;

3. Emeryville Market Place, between 64th Street, Powell Street, U.S Interstate 80, and the Southern Pacific Railroad tracks;

4. Industrial Hard Chrome, 5701 Hollis Street;

5. Mike Roberts Color Productions, 6707 Bay Street;

6. Pacific Gas and Electric Company (PG&E), 4525 Hollis Street;

7. Phizer Inc., 4650 Shellmound Avenue;

8. PIE Nationwide Truck Facility, 5500 Eastshore Highway;

9. Westinghouse Electrical Corporation, 5899 Peladeau Street.

4.2 California Regional Water Quality Control Board's List of Chemical Release Sites

The April 6, 1990 California Regional Water Quality Control Board (RWQCB) list of properties reported as having evidence of chemical release contains the following sites in Emeryville:

1. Chevron Plant and Terminal, 1520 Powell Street;

2. Chevron Emeryville Terminal, Corner of Landregan and Powell;

3. Del Monte Plant No. 3, 1250 Park Avenue;

4. Electro-Coatings, 1421 Park Avenue;

5. Emeryville Market Place, between 64th Street, Powell Street, U.S Interstate 80, and the Southern Pacific Railroad tracks;

6. Garrett Freight Lines, 64th Street and La Coste;

7. Michael and Pelton, 5743 Landregan Street;

8. PG&E Materials Distribution Center, 4525 Hollis Street;

9. PIE Nationwide Truck Facility, 5500 Eastshore Highway.

10. Westinghouse Electrical Corp., 5899 Peladeau Street.

This list excludes fuel leaks, Resource Conservation and Recovery Act, Toxic Pits Cleanup Act, and landfill sites.

4.3 California Regional Water Quality Control Board's List of Fuel Leaks

The RWQCB list of reported fuel leaks dated March 30, 1990 contained the following sites near the Grove location:

1. Henry Horn and Sons, 1301 65th Street;

2. Peterson Manufacturing, 1600 63rd Street.

The Henry Horn and Sons site apparently is located hydrologically upgradient of the Grove site. Further data for this site was unavailable at the RWQCB.

4.4 Abandoned Site Program Information System

The California Department of Health Services' (DHS's) Abandoned Site Program Information System (ASPIS) contained a Facility Profile Report on the following sites in Emeryville:

1. American Bitumals and Asphalt, 1520 Powell Street:

   o Storage tank leaks were reported;

   o A state inspection is required at high priority;

2. Chromex, 1400 Park Street:

   o Metal piles were to be removed;

   o A state inspection is required at low priority;

3. Electro-Coatings, 1421 Park Street:

   o Ground water contamination from plating wastes, particularly chromic acid was found;

   o This is a federal Superfund site in which the RWQCB is involved;

4. ITT Grinnel Property, 1621 Hollis Street:

   o This site contains polychlorinated biphenyl (PCB) contamination that is associated with the Westinghouse site;

   o A state inspection is required at medium priority;

5. Westinghouse Electric Corporation, 1421 Park Street:

   o There is PCB contamination at this site;

   o This is a 1989 California Bond Expenditure site;

   o A state inspection is required at high priority;

We have not included sites that reportedly require no further action.

4.5 Hazardous Wastes and Substances Sites List

Canonie reviewed the Hazardous Waste and Substances Sites List prepared by the Office of Planning and Research of the California Governor's Office. This list shows several sites in the vicinity of the Grove site as having had underground storage tank leaks:

1. Bay Center Project, 65th and Christie Streets;

2. Emeryville Bayfront/U.S. Postal, 1650 65th Street;

3. HFH Limited, 6400 Hollis Street.

None of these sites appears to be located hydrologically upgradient of the Grove site. Other sites contained on this list either were farther from the Grove location or were duplicated in the lists discussed earlier.

5.0 AGENCY CONTACTS

Canonie contacted the staff of several regulatory agencies to obtain information and to verify that Grove was in compliance with their regulations and permit requirements.

5.1 Bay Area Air Quality Management District

The inspector from the BAAQMD reported that, at their first inspection, Grove was cited for an infraction due to coatings emissions. This was attributed to an incorrect interpretation of the regulations. No fine was assessed and the condition was corrected.

At present, all BAAQMD permits are in order, but if future requirements become more stringent; Grove may need to substitute materials, to install additional abatement devices, or to have certain processes performed off-site in order to remain in compliance. It is possible to petition to operate out of compliance with regular limits if it can be demonstrated that other alternatives are not available or feasible. In the past, such a petition was granted to apply a coating for use in extreme temperatures.

A summary of Grove's volatile organic compounds emissions, as prepared by the BAAQMD, is attached in Appendix B.

5.2 East Bay Municipal Utilities District

Staff contacted at the East Bay Municipal Utilities District (EBMUD) confirmed that Grove had fulfilled the requirements of a zero discharge notice wherein the discharger certifies that the facility meets pretreatment standards. Presently, the pretreatment standards of EBMUD Ordinance No. 311 do not allow discharges to exceed 100 mg/l of oil and grease. Other limits on discharges contained in this ordinance are shown in Appendix B. EBMUD's source control ordinances have only been in effect since 1973.

EBMUD has inspected the Grove operation, but wastewater samples have not been taken from the site. Monitoring is done only when a facility has a permit. Grove's discharge status is presently determined according to their business classification code, and a permit is not now required.

5.3 Alameda County Health Care Services

Canonie contacted Alameda County Health Care Services (Alameda County) to obtain information on any contaminated sites or monitoring wells in the Grove area that they may be regulating. Alameda County staff informed Canonie that their involvement in site remediations is typically limited to fuel leaks.

The person contacted was aware of two ongoing fuel cleanups and one former cleanup. The ongoing cleanups, near 1650 65th Street, were located across the street from each other. This is west of the intersection of 65th and Bay Streets. A monitoring well is located on each site. The ground water is approximately five feet deep and is being tested for hydrocarbons. Information from these sites would not in itself be relevant to the conditions at the Grove site due to the fuel leak. One other monitoring well is located approximately 0.1 mile southeast of Grove at 1350 Ocean Street. This well, at the site of a fuel leak, was tested in the past for diesel fuel, but product was never detected in the samples.

6.0 POTENTIAL CONTAMINANTS

Although Grove reported that they have used many types of chemicals in the past, it is our opinion that, for soil and ground water contamination, the greatest potential exposure to future liability is from the three substances discussed in this section: PCBs, hydrocarbons, and solvents.

Grove reported that there are not now, nor were there ever, any underground storage tanks at the site. No floor drains were observed in the manufacturing areas. Both of these factors are noteworthy because the absence of these facilities eliminates two major potential sources of underground contamination.

Due to the lack of a sewer discharge ordinance before 1973, disposal of chemicals through plumbing fixtures into the sewer system would not have been prohibited. For the materials that were reviewed, there was no evidence to indicate that chemicals were disposed of in the sewer system.

6.1 Polychlorinated Biphenyls

Before the 1979 ban on their use, PCBs were, according to sources at the U.S. Environmental Protection Agency (EPA), a common additive to hydraulic oils, lubricating greases, cutting oils, and electrical equipment. The use of PCBs was especially common where equipment was subject to high-temperature operating conditions such as might be conducted by Grove.

The Uniform Hazardous Waste Manifests that Grove made available for review document the removal and disposal of PCB-containing electrical transformers and capacitors from the premises. The available records also showed that a small quantity of PCB-contaminated solvent was manifested from the site in 1983. Canonie was unable to ascertain either the source of the PCBs or whether this was an isolated incident. Source possibilities are from oils contained inside processing or electrical equipment. The date of the incident makes it unlikely that it was from a processing operation. The 1983 date coincides with the period when Grove reportedly was selling some of their older equipment. Because the PCBs were in solvent, it appears that this may have been the result of a cleaning operation.

Four shallow soil samples were previously collected by others from Grove's former warehouse and storage lot located west of Bay Street. This property was sold in 1987 and is presently occupied by Public Storage. Two samples were taken in the storage lot and two were taken from below the concrete floor slab in the warehouse. The samples were analyzed for oil and grease, metals, pesticides, and PCBs.

PCBs were detected at a level of 1.9 milligrams per kilogram (mg/kg) in only one of the four samples taken from below the concrete floor. (PCBs were not detected in the other three samples). This is a low level of PCBs, but had the soil investigation been reviewed by a regulatory agency such as the state or county department of health, it is possible that the agency would have requested further investigation to characterize the extent and level of any possible soil contamination. Sale of the property does not necessarily relieve Grove of future liability should site contamination become an issue.

PCBs themselves are relatively immobile in soil and therefore are unlikely to threaten ground water. PCBs are soluble in solvents and other chemicals. If the PCBs are absorbed into such compounds, their mobility is enhanced; and the PCBs thus can present a potential threat to ground water. It has been reported that one of the compounds in which PCBs are soluble is antifreeze. Antifreeze contains anticorrosive additives similar to those used by Grove when pressure testing valves. It is possible that PCBs could be soluble in such a liquid, but this has not been verified.

Grove staff are unaware of any past PCB usage in their equipment or processing. Records that could document either the use or nonuse of products containing PCBs in the production processes were not available.

Records do document that PCBs were present on the site in electrical equipment and in waste solvent and that they were detected in one soil sample taken from Grove's former property. Therefore the potential for PCB contamination in the plant or in the underlying soil does exist. Whether or not a significant level of PCB contamination actually exists can only be determined by a program of sample analyses.

6.2 Hydrocarbons

Oil usage is prevalent throughout the entire area of the main plant but especially so in the metal working areas. Over 50 years of operation has resulted in widespread dispersal of oils on the floor areas. Free oil is typically removed with oil absorbent material, but a residue remains. This residue can migrate into and through concrete, a porous material, especially given the length of time over which the condition has existed. Free oil can also migrate through cracks and holes in the floor.

An open hole was observed in the machining area. It appeared that this hole has been left open for some time. The exposed concrete face was stained but there was no apparent oil drainage into this hole. It is likely that other holes have been present in the past as a result of removal or installation of equipment.

Some oils are stored in drums in a secure area outside of the main building. There are also several compressors on the side of the building. The surface under this area is presently paved with either concrete or asphalt. It is unknown whether all past storage areas were sealed or were unpaved.

Oil and grease were detected in the soil samples taken from the Public Storage site. Analyses showed levels of 1,500 mg/kg, 1,600 mg/kg, and 2,600 mg/kg in three samples and a level of nondetectable in one sample.

Generally, the RWQCB is the agency most concerned with hydrocarbon contamination because of its potential to contaminate ground water. The RWQCB generally considers all ground water to be a potential source of drinking water. The typical level of cleanup for heavier hydrocarbons in the case of an underground tank leak, for example, is 100 mg/kg.

If a major spill occurred, or if off-site contamination were discovered in the area adjacent to the Grove site, any resultant soil or ground water investigation could include conditions bordering the Grove site or possibly conditions of the soil underlying the Grove site.

6.3 Solvents

It was observed that the most common solvent currently used was 1,1,1-trichloroethane (TCA). The only present pathway into the soil is by migration through the floor surface. Unknown past handling and storage practices could have resulted in other potential pathways. Grove reported that the volume of spent TCA is presently less than 10,000 pounds per year (900 gallons or 3,400 liters).

The RWQCB is concerned with solvents because of their high mobility and their potential threat to ground water. The absence or presence or the levels of solvents in the underlying soil cannot be verified without sampling. Historically, manufacturing facilities which, like Grove, use solvents for an extended period of time, will have some site contamination.

7.0 CONCLUSIONS AND RECOMMENDATIONS

On the basis of our site inspection and the documents provided by Grove, it is Canonie's opinion that the potential for soil and ground water contamination does exist. This situation is principally due to the fact that chemicals (including oils) have been used at the site for over 50 years. However, the presence or absence of contamination was not verified. Our investigation revealed only that chemical use was common and that contaminant pathways exist. It is likely that the volume, type, and location of chemical usage and of the location and effectiveness of chemical pathways have varied throughout the history of Grove's operations.

From their degree of toxicity, their threat to ground water, and their expense to remediate; the chemicals of greatest concern are PCBs, hydrocarbons, and solvents. The probability of contamination exists and further site investigations are warranted to assess actual site conditions.

Because of the persistent nature of PCBs, we recommend that, at a minimum, the interior of the main shop be tested for residual PCBs. It is also advisable to install several soil borings inside the main plant to collect soil and water samples. The samples should be analyzed for PCBs, hydrocarbons, and solvents in order to investigate the presence or absence of contamination.

We recommend that Grove verify whether or not the friable material insulating the ducting on the drying oven in the rubber fabrication area in Building D is asbestos. Verification sampling may be needed to determine this.

We recommend that the disposal of oil-contaminated absorbent as ordinary trash be discontinued.

Respectfully submitted,

Alan L. Muellerleile
Project Engineer

James W. Babcock, Ph.D.
Project Supervisor

ALM/JWB/dt

ATTACHMENT 3 -- "Preliminary Soil and Groundwater Sampling Report, Grove Valve and Regulator Company", GeoLine Engineering & Safety Services, May 14, 1991

Geo Line
Engineering

May 14, 1991

Mr. Steve Knutson
Grove Valve and Regulator Company
6529 Hollis Street
Oakland, California 94608

Subject: Preliminary Soil and Ground Water Sampling Report
Grove Valve and Regulator Company
6529 Hollis Street
Oakland, California

Gentlemen:

As requested and authorized, Geo Line Engineering & Safety Services has performed preliminary environmental sampling of the soil at one location adjacent to the solvent storage area and at five locations in the main plant area of the subject site. Two ground water samples were collected from existing sumps located at the subject site.

The accompanying report presents the findings of the preliminary soil and ground water sampling activities performed at the subject site and presents the results of the analytical testing performed on soil and ground water samples obtained during the investigation along with conclusions and recommendations based on those findings.

The analytical testing detected PCB compounds in one of the soil samples obtained from the machining area in the main plant area of the building but did not detect PCB compounds in the remainder of the soil samples or in the water samples obtained from the project site.

The analytical testing also detected Volatile Organic Compounds in the soil sample obtained from the solvent storage area and in both of the water samples obtained from the project site. The soil samples obtained within the main plant area of the building did not contain detectable concentrations of Volatile Organic Compounds.

It is recommended that a Phase II Environmental Site Assessment be performed to include advancing soil borings within and around the building and installation of ground water monitoring wells at the project site. The Phase II assessment should also include a review of State and Local regulatory agency records regarding known contamination sources in the immediate vicinity of the project site.

A Divison of Base Line
Engineering, Inc.
1940 The Alameda
San Jose, California 95126-1428
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It is further recommended that the ground water discharge from the elevator and X-ray pit sumps be discontinued due to the presence of Volatile Organic Compounds in concentrations in excess of State of California maximum ground water concentration limits.

It has been a pleasure to be of service to you on this project. Geo Line Engineering & Safety Services would be please to continue to provide service to you for the recommended Phase II Environmental Site Assessment activities and remedial action, if performed. Should you have comments regarding the contents of this report, or would like to discuss future work, please contact us.

Respectfully submitted,

GEO LINE ENGINEERING & SAFETY SERVICES

Wayne M. Rollins

Wayne Rollins
Manager

David C. Glick, CEG 1338
Certified Engineering Geologist

PRELIMINARY SOIL AND GROUND WATER SAMPLING
GROVE VALVE AND REGULATOR
6529 HOLLIS STREET
OAKLAND, CALIFORNIA

INTRODUCTION

This report presents the results of the limited soil and ground water sampling activities performed by Geo Line Engineering & Safety Services personnel for the Grove Valve and Regulator Company (Grove Valve) facility located at 6529 Hollis Street in the City of Oakland, Alameda County, California.

The purpose of the field activities was to obtain soil samples from the existing solvent storage area and from beneath the existing concrete floor slab (and wood tiles) within the main plant area of the building at locations identified by Grove Valve personnel. Soil samples were obtained at the outside storage area, solvent recovery area, machining area, washing/rinsing area, and painting area. Ground water samples were obtained from the existing elevator shaft and X-ray pit sump.

Based on information provide by Grove Valve personnel (Mr. Steve Knutson), an underground gasoline tank existed in the southern portion of the site (adjacent to 65th Street) and was removed in the mid-1970's. It is further understood that water which enters into the elevator shaft and X-ray pit sump is removed by pumping and is discharged directly into the sanitary sewer.

This report presents the findings of the limited subsurface soil sampling performed at the subject site and the results of the analytical testing performed on the soil and ground water samples along with conclusions and recommendations based on those findings.

SCOPE OF WORK

The purpose of the field sampling activities and analytical testing was to characterize the soil conditions which exist beneath the solvent storage area and beneath the existing floor slab in the main plant area of the building, and to assess the local ground water conditions at the project site. To accomplish this purpose, Geo Line Engineering & Safety Services personnel visited the project site to obtain soil and ground water samples as described below:

(1) Collect six soil samples obtained from shallow soil borings advanced at locations selected by Grove Valve;

(2) Collect two ground water samples obtained from the existing elevator shaft and X-ray pit sumps;

(3) Perform analytical testing of the soil and ground water samples; and

(4) Prepare this report summarizing the findings of the investigation and laboratory testing.

Specific tasks of the investigation were derived based on information provided by Grove Valve personnel during a preliminary site reconnaissance performed on March 27, 1991. Specifics of the individual investigative phases are described in the following sections of this report.

FIELD INVESTIGATION

Six sample locations (see Figure 1) were identified by Grove Valve personnel for obtaining soil samples throughout the main plant area of the facility. The concrete floor slab and wood tiles at the sample locations were core drilled by Grove Valve personnel to facilitate obtaining the soil samples. The soil and ground water samples were collected on April 22, 1991. Sample S-1 was obtained outside of the building and within the existing solvent storage area. Sample S-2 was obtained adjacent to the existing solvent recovery area. Samples S-3 and S-4 were obtained from the machining area. Sample S-5 was obtained from the current washing/rinsing area and sample S-6 was obtained from the existing painting area.

Shallow soil borings were advanced through the core hole at each sample location to a maximum depth of 1-1/2 foot below the top of the floor slab using a three-inch, nominal diameter, hand auger. The cuttings removed from the borings were stored adjacent to the bore holes for use as backfill material upon completion of the soil sampling. The drilling equipment was thoroughly cleaned in a phosphate-free detergent bath and rinsed before drilling began on each boring to prevent the introduction of off-site contamination and to prevent cross contamination between the borings.

The soil samples were obtained from the bottom of each soil boring through the use of stainless steel drive sampler. Six-inch long stainless steel liners were placed within the sampler to retain the soil sample. The sampler was advanced into the undisturbed soil by a sliding hammer affixed to the sampler to achieve a full liner and to assure that voids did not exist at the ends of the sample. The liners containing the soil samples were removed from the sampler and were immediately sealed using aluminum foil and plastic caps. The samples were labeled including: the date, time, sample location, and project number and were placed on ice immediately for transport to the laboratory under chain-of-custody documentation.

The sampling equipment was thoroughly cleaned in a phosphate-free detergent bath and rinsed before each sample event to prevent the introduction of off-site contamination and to prevent cross contamination between the samples.

The sampler hit refusal at sample locations S-2, S-3, S-4, S-5, and S-6 on what appeared to be buried concrete. Samples S-2, S-4, and S-5 required the sampler to be advanced through the core hole at two to three different angles (in addition to the initial vertical sample) to achieve a full liner of soil. Representatives from Grove Valve present during the sampling activities indicated that there was a high probability that a buried floor slab existed beneath the existing floor slab. Additional details regarding this buried floor slab, or previous construction history, was not made available at the time of the field investigation.

The borings were backfilled with the cuttings derived from the borings. Resurfacing the floor slab at each sample location was to be performed by Grove Valve. The wash and rinse water used to clean the auger and sampler was retained by Grove Valve for disposal as "oily waste water".

Ground water samples were obtained from two existing sumps (see Figure 1) within the facility. One sample was obtained from the existing elevator shaft (Sample WS-1) while the second sample (Sample WS-2) was obtained from the X-ray pit sump. The water samples were collected in sterilized glass vials (acidified with HCl to stabilize the sample) with Teflon lined screw caps and sterilized glass bottles (non acidified) with Teflon lined screw caps. The water samples were obtained by submersing the sample vials and bottles directly into the water. The vials and bottles were capped and checked to assure that air bubbles were not present in the sample. Samples which contained air bubbles were opened, refilled, and recapped to assure the absence of air bubbles in the sample. The samples were labeled including: the date, time, sample location, project number, and indication of any preservatives added to the sample and were placed on ice immediately for transport to the laboratory under chain-of-custody documentation.

ANALYTICAL TESTING

The soil and ground water samples were submitted to and tested by Anametrix, Inc., a State of California, Department of Health Services certified testing laboratory located in San Jose, California. The analytical testing was scheduled and performed in accordance with the State of California, Regional Water Quality Control Board (RWQCB) and EPA Guidelines. The Chain-of-Custody record for the sample storage, transport, and testing schedule is included in Appendix A.

The six soil samples were tested for Volatile Organic Compounds by EPA Method 8240 and for Polychlorinated Biphenyls (PCB's) through EPA Method 8080 (modified for PCB scan only). The two ground water samples were tested for Volatile Organic Compounds by EPA Method 624 and for PCB's through EPA Method 8080 (modified for PCB scan only). The results of the analytical testing are provided in Appendix A.

The analytical testing did not detect Volatile Organic Compounds in soil samples S-2, S-3, S-4, S-5 or S-6 obtained from this assessment. Soil sample S-1 contained detectable concentrations of Trichloroethene (27 parts per billion). Water sample WS-1, obtained from the elevator shaft, contained detectable concentrations of: 1,1-Dichloroethene (50 parts per billion), Cis-1,2-Dichloroethene (5 parts per billion), 1,1,1-Trichloroethane (120 parts per billion), and Trichloroethene (160 parts per billion). Water sample WS-2, obtained from the X-ray pit sump, contained detectable concentrations of: Trans-1,2-Dichloroethene (3 parts per billion), 1,1-Dichloroethane (5 parts per billion), Cis-1,2-Dichloroethene (20 parts per billion), 1,1,1-Trichloroethane (2 parts per billion), and Trichloroethene (180 parts per billion).

The analytical testing did not detect PCB compounds in soil samples S-1, S-2, S-3, S-5, or S-6 or in the ground water samples (WS-1 and WS-2) obtained from this assessment. Soil sample S-4 contained Aroclor-1254 (a PCB containing compound) detectable at a concentration of 190 parts per billion.

CONCLUSIONS

Six soil samples were obtained from the project sites (five from within the main plant area and one in the solvent storage area) and were submitted for testing for Volatile Organic Compounds and for Polychlorinated Biphenyls (PCB's). The soil sample locations were selected by Grove Valve personnel and the floor slab was cored at these locations by Grove Valve personnel to facilitate sample collection. Two ground water samples were also obtained from the project site and were submitted for testing for Volatile Organic Compounds and for PCB's. The water samples were obtained from the elevator shaft and the X-ray pit sump.

The analytical testing did not detect Volatile Organic Compounds in soil samples S-2, S-3, S-4, S-5 or S-6 obtained from this assessment. Soil sample S-1 contained detectable concentrations of Trichloroethene. Water sample WS-1, obtained from the elevator shaft, contained detectable concentrations of: 1,1-Dichloroethene, Cis-1,2-Dichloroethene, 1,1,1-Trichloroethane, and Trichloroethene. Water sample WS-2, obtained from the X-ray pit sump, contained detectable concentrations of: Trans-1,2-Dichloroethene, 1,1-Dichloroethane, Cis-1,2-Dichloroethene, 1,1,1-Trichloroethane, and Trichloroethene.

Chlorinated organic compounds such as Trichloroethene, 1,1-Dichloroethene, Cis-1,2-Dichloroethene, Trans-1,2-Dichloroethene, 1,1,1-Trichloroethane, and 1,1-Dichloroethane, which were detected in the two ground water samples are constituents commonly used in organic solvents and industrial degreaser for cleaning and finishing metals (also constituents found in older dry cleaning industries). These compounds are currently regulated by the Department of Health Services and Regional Water Quality Control Board.

The State of California Regional Water Quality Control Board and Department of Health Services regulatory threshold values indicate a maximum allowable concentration of PCB in soil at 50,000 parts per billion with a soluble threshold limit (that concentration which could leach from the soil) at 5,000 parts per billion. Threshold concentration values for Volatile Organic Compounds have been established for 1,1,1-Trichloroethane at 200,000 parts per million in the soil. A maximum threshold value for Trichloroethene in soil, detected in soil sample S-4, has not been established to date.

State of California Primary Drinking Water Standards, established by the Regional Water Quality Control Board and the Department of Health Services, indicate maximum allowable limit (MCL) concentrations of Volatile Organic Compounds which may be in drinking water, ground water, or water discharged to State waters. Table 1 indicates the maximum threshold concentrations and the concentrations of the organic compounds detected in the two ground water samples.

TABLE 1

ORGANIC COMPOUND	MCL	CONCENTRATION DETECTED WS1	CONCENTRATION DETECTED WS2
1,1-Dichloroethene	6	50	ND
Trans-1,2-Dichloroethene	100	ND	3
1,1-Dichloroethane	0.5	ND	5
Cis-1,2-Dichloroethene	70	5	20
1,1,1-Trichloroethane	200	120	2
Trichloroethene	5	160	180

Note:

* MCL and Detection Concentrations in Parts Per Billion
* MCL Concentrations from California Department of Health Services MCL List dated February 5, 1990
* ND indicates non-detected

The concentrations of 1,1-Dichloroethene, 1,1-Dichloroethane, and Trichloroethene detected in the water samples exceed the MCL concentrations.

Polychlorinated Biphenyls (PCB's) were formerly used throughout the United States in the industry since the 1930's and were contained in hydraulic fluids, lubricating oils, and cutting oils. Use of PCB products was banned by the U. S. Environmental Protection Agency in 1977. PCB containing products include the Aroclors, which are identified by number combinations of biphenyls, triphenyls, and chlorine (i.e., Aroclor-1242, Aroclor-1254, Aroclor-1260, etc.). Aroclor-1254 was detected in soil sample S-4 at a concentration of 190 parts per billion. The analytical testing did not detect PCB compounds in soil samples S-1, S-2, S-3, S-5, or S-6 or in the ground water samples (WS-1 and WS-2) obtained from the project site.

The source(s) and extent of the organic compounds and PCB's in the underlying soil and ground water has not been determined. Since there appears to be a buried floor slab beneath the existing floor slab, which would prevent migration of organic compounds and PCB compounds, the PCB compound detected in soil sample S-4 appears to be from a local source (internal to the building) released since the former floor slab was buried. The source of the Trichloroethene detected in soil sample S-1 would appear to be a local surface or near surface release (within the solvent storage area).

RECOMMENDATIONS

It is recommended that additional investigations be performed at the project site to determine the soil conditions underlying the apparently buried floor slab (located beneath the existing floor slab) in the main plant area. This could be accomplished by removing sections of the existing floor slab and coring holes in the underlying floor slab. Soil borings should be extended through these proposed core holes to further characterize the subsurface conditions and to collect additional soil and ground water samples for analytical testing. It is recommended that the soil and ground water samples be tested for Total Petroleum Hydrocarbons as diesel and gasoline, oil and grease, volatile organic compounds, chlorinated solvents, and PCB's.

Verification of the existence, or absence, of volatile organics compounds, hydrocarbon products, or PCB's in the soil and/or ground water beneath the project site as a result of on-site releases or migration of off-site contamination could be achieved through a detailed site investigation. It is further recommended that 4 exploratory borings be advanced around the perimeter of the project site to further characterize the subsurface conditions. The borings should extend to a depth of 25 feet or 10 feet into ground water, which ever is encountered first. Upon completion of the drilling the borings should be converted to ground water monitoring wells. Soil samples should be obtained at 5-foot intervals for analytical testing from each of the four borings and ground water samples should be obtained from the resulting monitoring wells for analytical testing. It is recommended that the soil and ground water samples be tested for Total Petroleum Hydrocarbons as diesel and gasoline, oil and grease, volatile organic compounds, chlorinated solvents, and PCB's.

It is recommended that Grove Valve perform a Phase II Environmental Site Assessment of the project site to further assess the findings of the preliminary analytical testing. The scope of work for the Phase II assessment should include: a review of historical and on-going operational practices and construction history of the site, and a review of State and Local regulatory documents regarding known contamination sources, possible environmental concerns, violations, or punitive actions against property owners/facility operators in the vicinity (within 2,000 feet) of the project site. Published listings of toxic and hazardous material releases prepared by the State of California Regional Water Quality Control Board and Department of Health Services should be reviewed to ascertain the location of known toxic sites with respect to the project site. The regulatory agencies which could be contacted in conjunction with this proposed assessment include: the Alameda County Department of Health; the City of Oakland Fire Department Hazardous Materials Division; the State of California Regional Water Quality Control Board, San Francisco Bay District; the State of California Department of Health Services; and the U.S. Environmental Protection Agency.

It is understood that the ground water in the elevator shaft and X-ray pit are pumped directly into the sanitary sewer. Since the ground water has been determined to contain Volatile Organic Compounds, and the concentrations of 1,1-Dichloroethene, 1,1-Dichloroethane, and Trichloroethene detected in the water samples exceed the MCL concentrations, it is recommended that the discharge of this water be discontinued until further assessments have been made and the current discharge permits obtained from the local regulating boards have been reviewed for compliance.

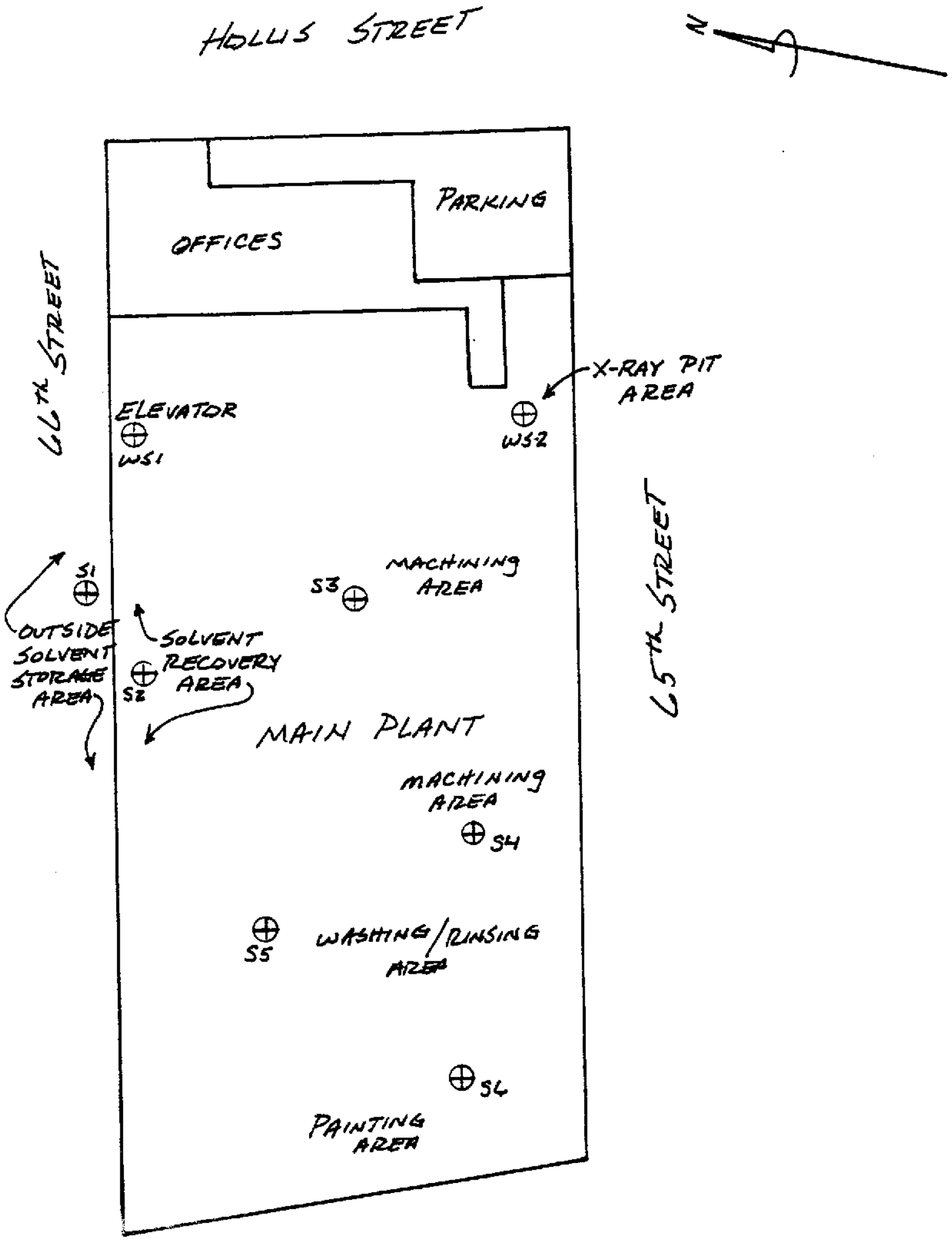
LIMITATIONS

This report has been prepared for the exclusive use of Grove Valve and Regulator Company and its representatives. No reliance on the written portion of this report shall be made by anyone other than the client for whom it was prepared.

This report has been prepared in accordance with presently accepted methodologies and professional practice of the field of Engineering Geology and Environmental Engineering. Professional judgments presented herein are based partly on information obtained from representatives of Grove Valve and Regulator Company, partly on evaluations of the technical information gathered, and partly on general experience in the fields of geology and environmental engineering. No warranty or guarantee, either express or implied, is made regarding the findings, professional advise, conclusions or recommendations included in this report.

This report provides neither certification nor guarantee that the property is free of hazardous substance contamination. Based on the information obtained, Volatile Organic Compounds and PCB containing compounds have been detected in the soil and ground water at the project site.

The findings of this report are valid as of the present. Site conditions may change with the passage of time, natural processes or human intervention on the property or adjacent properties which can changed conditions and can invalidate the findings and conclusions presented in this report.



GROVE VALVE AND REGULATOR		
DATE 5-14-91	SCALE NTS	DRAWN BY DCG
SITE PLAN		
	Figure 1	

APPENDIX A

CHAIN-OF-CUSTODY FORM
AND
ANALYTICAL TEST DATA

CLIENT CHAIN-OF-CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
AC3E4	GEOLINE ENGR. GROVE VALVE

Send Report Attention of:	Report Due	Verbal Due
DAVID C. GLICK WAYNE ROLLINS	/ /	/ /

Sample Number	Date	Time	Comp	Grab	Station Location	Number of Cntnrs	Type of Containers	8240	8080 - PCB's	Condition of Samples	Initial
WS1 A,B,C	4-22-91	1430		✓	ELEVATOR SUMP	3	40 mil	✓		OK	DH
WS1D	↓	1430		✓	ELEVATOR SUMP	1	LTR		✓	↓	↓
S1		1440		✓	Sample Point 1	1	STAINLESS STEEL TUBE	✓	✓		
S2		1452		✓	Sample Point 2	1	↓	✓	✓		
S3		1550		✓	Sample Point 3	1		✓	✓		
S4		1620		✓	Sample Point 4	1		✓	✓		
S5		1640		✓	Sample Point 5	1		✓	✓		
S6		1710		✓	Sample Point 6	1		✓	✓		
WS2 A,B,C		1725		✓	X-RAY PIT SUMP	3	40 mil	✓			
WS2D		1725		✓	X-RAY PIT SUMP	1	LTR		✓		

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	4-22-91 1930		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
		M. Hasslinian	4-22-91 19:35

Remarks: STANDARD TURNAROUND
40 mil VOA'S HCL ACIDIFIED

COMPANY: GEOLINE ENGINEERING
ADDRESS: 1940 The ALAMEDA SAN JOSE CA 95126
PHONE (408) 296-0500 FAX :

2066

ANAMETRIX REPORT DESCRIPTION
GCMS

Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anametrix ID number.

Tentatively Identified Compounds (TICs)

TIC forms contain tabulated results for non-target compounds detected in GC/MS analyses. TICs must be requested at the time samples are submitted at Anametrix. TIC forms immediately follow the OADS form for each sample. If TICs are requested but not found, then TIC forms will not be included with the report.

Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method, if the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

Qualifiers

Anametrix uses several data qualifiers (Q) in it's report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

- U - Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.
- B - Indicates that the compound was detected in the associated method blank.
- J - Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.
- E - Indicates that the amount reported exceeded the linear range of the instrument calibration.
- D - Indicates that the compound was detected in an analysis performed at a secondary dilution.
- A - Indicates that the tentatively identified compound is a suspected aldol condensation product. This is common in EPA Method 8270 soil analyses.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

REPORTING CONVENTIONS

- Due to a size limitation in our data processing step, only the first eight (8) characters of your project ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.
- Amounts reported are gross values, i.e., not corrected for method blank contamination.

PG/3274

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

DAVID C. GLICK
GEOLINE ENGINEERING
1940 THE ALAMEDA
SAN JOSE, CA 95126

Workorder # : 9104208
Date Received : 04/23/91
Project ID : AC3E4
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9104208- 1	WS1A,B,C,D	WATER	04/22/91	8240
9104208- 2	S1	SOIL	04/22/91	8240
9104208- 3	S2	SOIL	04/22/91	8240
9104208- 4	S3	SOIL	04/22/91	8240
9104208- 5	S4	SOIL	04/22/91	8240
9104208- 6	S5	SOIL	04/22/91	8240
9104208- 7	S6	SOIL	04/22/91	8240
9104208- 8	WS2A,B,C,D	WATER	04/22/91	8240

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

DAVID C. GLICK
GEOLINE ENGINEERING
1940 THE ALAMEDA
SAN JOSE, CA 95126

Workorder # : 9104208
Date Received : 04/23/91
Project ID : AC3E4
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

QA/QC SUMMARY :

- Internal standard areas are outside established limits in the EPA Method 8240 analysis of samples S1, S2, and S3.

Laura Marsh 4-30-91
Department Supervisor Date

Lee-Lee Yu 4-30-91
Chemist Date

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : AC3E4
Sample ID : S1
Matrix : SOIL
Date Sampled : 4/22/91
Date Analyzed : 4/26/91
Instrument ID : F1

Anametrix ID : 9104208-0
Analyst : LY
Supervisor : WM
Dilution Factor : 1.00
Conc. Units : ug/Kg

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	27.	
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : AC3E4
Sample ID : S2
Matrix : SOIL
Date Sampled : 4/22/91
Date Analyzed : 4/26/91
Instrument ID : F1

Anametrix ID : 9104208-0
Analyst : LT
Supervisor : LM

Dilution Factor : 1.00
Conc. Units : ug/Kg

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID	: AC3E4	Anametrix ID	: 9104208-0
Sample ID	: S3	Analyst	: LY
Matrix	: SOIL	Supervisor	: UM
Date Sampled	: 4/22/91		
Date Analyzed	: 4/26/91	Dilution Factor	: 1.00
Instrument ID	: F1	Conc. Units	: ug/Kg

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : AC3E4
Sample ID : S4
Matrix : SOIL
Date Sampled : 4/22/91
Date Analyzed : 4/26/91
Instrument ID : F1

Anametrix ID : 9104208-05
Analyst : LT
Supervisor : LM

Dilution Factor : 1.00
Conc. Units : ug/Kg

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : AC3E4
Sample ID : S5
Matrix : SOIL
Date Sampled : 4/22/91
Date Analyzed : 4/26/91
Instrument ID : F1

Anametrix ID : 9104208-0
Analyst : LY
Supervisor : LM

Dilution Factor : 1.00
Conc. Units : ug/Kg

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID	: AC3E4	Anametrix ID	: 9104208-07
Sample ID	: S6	Analyst	: LM
Matrix	: SOIL	Supervisor	: LM
Date Sampled	: 4/22/91		
Date Analyzed	: 4/26/91	Dilution Factor	: 1.00
Instrument ID	: F1	Conc. Units	: ug/Kg

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID	: AC3E4	Anametrix ID	: 9104208-0[illegible]
Sample ID	: WS1A,B,C	Analyst	: [illegible]
Matrix	: WATER	Supervisor	: [illegible]
Date Sampled	: 4/22/91		
Date Analyzed	: 4/26/91	Dilution Factor	: 1.00
Instrument ID	: F1	Conc. Units	: ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	50.	
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	5.	J
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	120.	
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	160.	
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : AC3E4
Sample ID : WS2A,B,C
Matrix : WATER
Date Sampled : 4/22/91
Date Analyzed : 4/26/91
Instrument ID : F1

Anametrix ID : 9104208-08
Analyst : LY
Supervisor : JM

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	3.	J
75-34-3	1,1-DICHLOROETHANE	5.	5.	J
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	20.	
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	2.	J
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	180.	
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

DAVID C. GLICK
GEOLINE ENGINEERING
1940 THE ALAMEDA
SAN JOSE, CA 95126

Workorder # : 9104208
Date Received : 04/23/91
Project ID : AC3E4
Purchase Order: N/A
Department : GC
Sub-Department: PEST

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9104208- 1	WS1A,B,C,D	WATER	04/22/91	8080 PCB
9104208- 2	S1	SOIL	04/22/91	8080 PCB
9104208- 3	S2	SOIL	04/22/91	8080 PCB
9104208- 4	S3	SOIL	04/22/91	8080 PCB
9104208- 5	S4	SOIL	04/22/91	8080 PCB
9104208- 6	S5	SOIL	04/22/91	8080 PCB
9104208- 7	S6	SOIL	04/22/91	8080 PCB
9104208- 8	WS2A,B,C,D	WATER	04/22/91	8080 PCB

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 608/8080
ANAMETRIX, INC. (408)432-8192

Project ID	: AC3E4	Anametrix ID	: 9104208-02
Sample ID	: S1	Analyst	: GA
Matrix	: SOIL	Supervisor	: SD
Date Sampled	: 4/22/91		
Date Extracted	: 5/ 1/91		
Amount Extracted	: 10.0 g		
Date Analyzed	: 5/ 4/91	Dilution Factor	: 1.00
Instrument ID	: HP16	Conc. Units	: UG/KG

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2	Aroclor-1016	80.	ND	U
11104-28-2	Aroclor-1221	80.	ND	U
11141-16-5	Aroclor-1232	80.	ND	U
53469-21-9	Aroclor-1242	80.	ND	U
12672-29-6	Aroclor-1248	80.	ND	U
11097-69-1	Aroclor-1254	160.	ND	U
11096-82-5	Aroclor-1260	160.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 608/8080
ANAMETRIX, INC. (408)432-8192

Project ID : AC3E4
Sample ID : S2
Matrix : SOIL
Date Sampled : 4/22/91
Date Extracted : 5/ 1/91
Amount Extracted : 10.0 g
Date Analyzed : 5/ 4/91
Instrument ID : HP16

Anametrix ID : 9104208-03
Analyst : GA
Supervisor : SD

Dilution Factor : 1.00
Conc. Units : UG/KG

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2	Aroclor-1016	80.	ND	U
11104-28-2	Aroclor-1221	80.	ND	U
11141-16-5	Aroclor-1232	80.	ND	U
53469-21-9	Aroclor-1242	80.	ND	U
12672-29-6	Aroclor-1248	80.	ND	U
11097-69-1	Aroclor-1254	160.	ND	U
11096-82-5	Aroclor-1260	160.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 608/8080
ANAMETRIX, INC. (408)432-8192

Project ID	: AC3E4	Anametrix ID	: 9104208-04
Sample ID	: S3	Analyst	: GA
Matrix	: SOIL	Supervisor	: SD
Date Sampled	: 4/22/91		
Date Extracted	: 5/ 1/91		
Amount Extracted	: 10.0 g		
Date Analyzed	: 5/ 4/91	Dilution Factor	: 1.00
Instrument ID	: HP16	Conc. Units	: UG/KG

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2	Aroclor-1016	80.	ND	U
11104-28-2	Aroclor-1221	80.	ND	U
11141-16-5	Aroclor-1232	80.	ND	U
53469-21-9	Aroclor-1242	80.	ND	U
12672-29-6	Aroclor-1248	80.	ND	U
11097-69-1	Aroclor-1254	160.	ND	U
11096-82-5	Aroclor-1260	160.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 608/8080
ANAMETRIX, INC. (408)432-8192

Project ID : AC3E4
Sample ID : S4
Matrix : SOIL
Date Sampled : 4/22/91
Date Extracted : 5/ 1/91
Amount Extracted : 10.0 g
Date Analyzed : 5/ 4/91
Instrument ID : HP16

Anametrix ID : 9104208-05
Analyst : GA
Supervisor : SD

Dilution Factor : 1.00
Conc. Units : UG/KG

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2	Aroclor-1016	80.	ND	U
11104-28-2	Aroclor-1221	80.	ND	U
11141-16-5	Aroclor-1232	80.	ND	U
53469-21-9	Aroclor-1242	80.	ND	U
12672-29-6	Aroclor-1248	80.	ND	U
11097-69-1	Aroclor-1254	160.	190.	
11096-82-5	Aroclor-1260	160.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 608/8080
ANAMETRIX, INC. (408)432-8192

Project ID : AC3E4
Sample ID : S5
Matrix : SOIL
Date Sampled : 4/22/91
Date Extracted : 5/ 1/91
Amount Extracted : 10.0 g
Date Analyzed : 5/ 4/91
Instrument ID : HP16

Anametrix ID : 9104208-06
Analyst : GA
Supervisor : SD

Dilution Factor : 1.00
Conc. Units : UG/KG

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2	Aroclor-1016	80.	ND	U
11104-28-2	Aroclor-1221	80.	ND	U
11141-16-5	Aroclor-1232	80.	ND	U
53469-21-9	Aroclor-1242	80.	ND	U
12672-29-6	Aroclor-1248	80.	ND	U
11097-69-1	Aroclor-1254	160.	ND	U
11096-82-5	Aroclor-1260	160.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 608/8080
ANAMETRIX, INC. (408)432-8192

Project ID	: AC3E4	Anametrix ID	: 9104208-07
Sample ID	: S6	Analyst	: GA
Matrix	: SOIL	Supervisor	: SD
Date Sampled	: 4/22/91		
Date Extracted	: 5/ 1/91		
Amount Extracted	: 10.0 g		
Date Analyzed	: 5/ 4/91	Dilution Factor	: 1.00
Instrument ID	: HP16	Conc. Units	: UG/KG

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2	Aroclor-1016	80.	ND	U
11104-28-2	Aroclor-1221	80.	ND	U
11141-16-5	Aroclor-1232	80.	ND	U
53469-21-9	Aroclor-1242	80.	ND	U
12672-29-6	Aroclor-1248	80.	ND	U
11097-69-1	Aroclor-1254	160.	ND	U
11096-82-5	Aroclor-1260	160.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 608/8080
ANAMETRIX, INC. (408)432-8192

Project ID : AC3E4
Sample ID : WS1A,B,C
Matrix : WATER
Date Sampled : 4/22/91
Date Extracted : 4/24/91
Amount Extracted : 1000.0 mL
Date Analyzed : 5/ 4/91
Instrument ID : HP16

Anametrix ID : 9104208-01
Analyst : GA
Supervisor : SD

Dilution Factor : 1.00
Conc. Units : UG/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2	Aroclor-1016	.50	ND	U
11104-28-2	Aroclor-1221	.50	ND	U
11141-16-5	Aroclor-1232	.50	ND	U
53469-21-9	Aroclor-1242	.50	ND	U
12672-29-6	Aroclor-1248	.50	ND	U
11097-69-1	Aroclor-1254	1.0	ND	U
11096-82-5	Aroclor-1260	1.0	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 608/8080
ANAMETRIX, INC. (408)432-8192

Project ID	: AC3E4	Anametrix ID	: 9104208-08
Sample ID	: WS2A,B,C	Analyst	: GA
Matrix	: WATER	Supervisor	: SD
Date Sampled	: 4/22/91		
Date Extracted	: 4/24/91		
Amount Extracted	: 1000.0 mL		
Date Analyzed	: 5/ 4/91	Dilution Factor	: 1.00
Instrument ID	: HP16	Conc. Units	: UG/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2	Aroclor-1016	.50	ND	U
11104-28-2	Aroclor-1221	.50	ND	U
11141-16-5	Aroclor-1232	.50	ND	U
53469-21-9	Aroclor-1242	.50	ND	U
12672-29-6	Aroclor-1248	.50	ND	U
11097-69-1	Aroclor-1254	1.0	ND	U
11096-82-5	Aroclor-1260	1.0	ND	U

ATTACHMENT 4 – "Final Report" Level II Environmental Assessment, Grove Valve and Regulator Company, Emeryville, California", Woodward-Clyde Consultants, April 1992

Woodward-Clyde Consultants

Engineering & sciences applied to the earth & its environment

April 27, 1992

Mr. Bill Tallent
Plant Services Manager
Grove Valve and Regulator Company
6529 Hollis Street
Emeryville, CA 94608

Subject: Final Level II Environmental Assessment Report
Grove Valve and Regulator Company

Dear Mr. Tallent,

Woodward-Clyde Consultants is pleased to transmit to you four copies of the subject report. The report documents the soils and groundwater investigation conducted at and around the Main Plant in February and March 1992. We have incorporated the comments of Grove Valve staff in this final report.

Thank you for giving us the opportunity to provide these services to you; we have enjoyed the project. If you have any questions or comments on this report, please do not hesitate to call me at 874-1747.

Sincerely yours,

Robin Spencer

Robin Spencer
Project Manager

RS:rs
enclosures

500 12th Street, Suite 100 • Oakland, CA 94607-4014 • (510) 893-3600 • Fax (510) 874-3268

FINAL REPORT
LEVEL II ENVIRONMENTAL ASSESSMENT
GROVE VALVE AND REGULATOR COMPANY
EMERYVILLE, CALIFORNIA

Prepared for

Grove Valve and Regulator Company
6529 Hollis Street
Emeryville, CA 94608

Prepared by

Woodward-Clyde Consultants
500 12th Street
Oakland, CA 94607

April 1992

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0.0
EXECUTIVE SUMMARY

Grove Valve and Regulator Company (Grove) contracted with Woodward-Clyde Consultants to conduct a Level II Environmental Assessment at their facility at 6529 Hollis St., Emeryville, CA. The objective of the work was to conduct a site investigation for assessing a baseline characterization of environmental contamination of the Main Plant building and the Engineering Testing Facility located west of the Main Plant.

The Level II Environmental Assessment provides a baseline assessment of environmental conditions in the soil within the Main Plant and the Engineering Testing Facility and the groundwater on the boundaries of the Main Plant. Six soil borings and three monitoring wells were installed. Soil from the borings and wells and groundwater from the wells were analyzed for oil and grease/hydrocarbons, volatile organics, and organochlorine pesticides and polychlorinated biphenyls (PCBs) following the recommendations of a previous consultant. Generally, analytical results for soil and groundwater samples were below detection limits.

Two soil samples and two groundwater samples had elevated analytical results. One soil sample at 5 feet depth at SB-4 on the north side of the Main Plant had a hydrocarbons value of 2500 mg/kg. Another soil sample at 6 inches depth at SB-3 in the west testing pit had a hydrocarbons value of 230 mg/kg. The concentration in SB-3 decreased to non-detect with depth.

Based on water level measurements in the three new wells, a groundwater gradient to the west was confirmed. Groundwater from MW-1 at the parking lot had a concentration of 103 µg/L trichloroethene. Groundwater from MW-3 by the Southern Pacific railroad tracks had a concentration of 1300 µg/L trichloroethene. These values exceed both the federal and state drinking water standards. Drinking water standards are generally used by the Regional Water Quality Control Board for cleanup purposes.

Soil borings were placed in areas most suspected of potential contamination, and, in the Main Plant and the Engineering Testing Facility, results showed little or no contamination. Soils in the area along the north side of the Main Plant should be studied further to characterize the extent of hydrocarbon contamination. Groundwater on the southeast side of the Main Plant at MW-1 and groundwater at the northwest side of the Main Plant contain levels of trichloroethene which should be investigated further. That both wells are on the property boundary indicates the possibility of potential offsite contributors to the contamination, especially in the upgradient (east) direction.

We recommend characterizing further the groundwater and geologic conditions beneath the Main Plant and exploring the potential for neighboring properties to contribute to the observed contamination. Alternatives to consider range from relatively non-intrusive work to intrusive work. The alternatives we suggest are:

- Conduct a water level survey in the wells to determine the influence of tidal and precipitation events, and

- Conduct a literature/records search of public agencies, the University, or other consultants' investigations to determine the underlying geology and potential for neighboring properties to contribute to the observed contamination.

More intrusive work could consist of installing more borings and wells onsite and offsite and conducting hydraulic tests in the area.

1.0
INTRODUCTION

Grove Valve and Regulator Company contracted with Woodward-Clyde Consultants to conduct a Level II Environmental Assessment at their facility at 6529 Hollis St., Emeryville, CA. The objective of the work was to conduct a site investigation for assessing a baseline characterization of environmental contamination of the Main Plant building and the Engineering Testing Facility located west of the Main Plant.

This report presents the results of the site investigation for the Level II Environmental Assessment. The remainder of Section 1 presents the site information, previous investigations, and the Woodward-Clyde scope of work. Section 2 describes the methodology employed in installing and sampling boreholes and wells. Section 3 reports the analytical results of the sampling. Section 4.0 describes the quality assurance/quality control (QA/QC) steps taken to ensure the integrity of the samples. Section 5.0 summarizes the work and offers recommendations for future work.

1.1 BACKGROUND

1.1.1 Site Information

The Main Plant at Grove is located in a building of approximately 220,000 square feet. The building, in which most of the production activities are carried out, occupies an entire city block between 65th and 66th Streets. Other buildings used by Grove are the Engineering Testing Facility across the railroad tracks to the west and the Warehouse/Regulator Shop across 66th Street to the north.

Grove Valve manufactures valves and regulators for use in industrial applications such as pipelines. Facility activities include metal machining, welding, parts cleaning, sandblasting, paint spraying, product testing, rubber O-ring fabrication, parts assembly, and shipping. Other related activities include administration, accounting, purchasing, engineering, and sales.

1.2 Previous Investigations

Grove Valve had a Level I Environmental Assessment performed by Canonie Environmental Services Corporation (Canonie) in 1990. Based on these findings Canonie recommended that selected samples be collected to analyze soil and groundwater for PCBs, hydrocarbons, and solvents in order to investigate the presence or absence of contamination. In December 1990, Canonie prepared a scope of work to implement their recommendations as a Level II investigation.

In April 1991, Geoline Engineers (Geoline) of San Jose, CA conducted a limited Level II investigation, as directed by Grove, in order to begin an environmental characterization of the facility. Geoline partially implemented Canonie's scope of work by collecting six soil samples at the concrete/soil interface at selected locations in and around the main plant, and by collecting two water samples at the elevator sump and the X-ray pit.

These samples were analyzed for PCBs and volatile organic compounds (VOC). One sample (S4) beneath machinery in the center of the Main Plant had a PCB concentration of 190 µg/kg. The laboratory detection limit was 160 µg/kg. One sample (S1) along the north side of the main plant had a VOC concentration of trichloroethene at 27 µg/kg. The laboratory detection limit was 5 µg/kg. The other four soil samples reported non-detect for both PCBs and VOC. The water sample from the elevator sump reported concentrations of 1,1 dichloroethene (50 µg/L), 1,1,1-trichloroethane (120 µg/L), and trichloroethene (160 µg/L). The laboratory detection limits of all of these compounds were 5 µg/L. The water sample from the X-ray pit reported concentrations of cis-1,2-dichloroethene (20 µg/L) and trichloroethene (180 µg/L). The laboratory detection limits were 5 µg/L.

1.3 Woodward-Clyde Consultants Scope of Work

The scope of work consisted of the following tasks:

- Preparing a work plan and health and safety plan to direct the field work;
- Writing specifications and contracts for the well drillers, concrete hole corer, and surveyor;
- Obtaining well permits from the City of Emeryville;
- Installing and sampling six 5-foot boreholes and three 25-foot monitoring wells;
- Sampling groundwater from the 3 monitoring wells;
- Analyzing by certified analytical laboratory all samples;
- Surveying the three wells for elevation relative to Mean Sea Level;
- Preparing well completion reports;
- Preparing draft and final reports.

2.0
SITE INVESTIGATION

The field portion of the environmental assessment involved drilling boreholes, installing monitoring wells, sampling of soil and groundwater, recording water levels in wells, and surveying the well elevations. These tasks were performed between February 25, 1992 and March 26, 1992.

2.1 Permits

One well construction permit for all three wells was obtained from the City of Emeryville Department of Public Works. Following monitoring well installation a California Form 188, "Well Completion Report" was completed and submitted to the California Department of Water Resources. Copies of both are presented in Appendix A.

2.2 Field Activities

Five separate tasks were accomplished, they were: soil boring, monitoring well installation, well development, groundwater and soil sampling and an elevation survey of the new wells. All samples were submitted to Quantec Analytical Laboratory of Pleasant Hill, CA for analysis. Kvilhaug Pump and Well Drilling Inc. of Concord, CA was subcontracted to conduct the well drilling, installation and development. Earl L. Gray of Pleasant Hill, CA conducted the elevation survey.

2.2.1 Soil Borings

A total of six soil borings, all approximately 5 feet deep, were hand-augered on February 25, 1992. Three soil borings were located inside the Main Plant building, one along the north side of the Main Plant building and the remaining two were located within the Engineering Testing Facility (Figure 1). Grove personnel cut a six-inch diameter concrete core through the floor at all six locations. At the conclusion all holes were sealed to grade with cement grout. The borings were made with a hand auger and samples taken with a slide-weight-sampler lined with stainless steel tubes.

Soil boring SB-1 was located in the loading ramp adjacent to the X-Ray area. The second soil boring, SB-2, was located in approximately the middle of the plant near a previous soil boring S4 placed by Geoline. As predicted, this boring only went to just over three feet in depth due to encountering an unpenetrable surface at depth. This surface was reported by Grove personnel to be an old paved parking area over which the present building has been extended. Soil boring SB-3 was located in the testing pit at the southwest corner of the building. The fourth soil boring, SB-4 was located outside of the building and close to the previous soil boring S1 placed by Geoline. The fifth and sixth soil borings (SB-5 and SB-6) were placed in the Engineering Testing

Facility to the northwest and southwest, respectively of the testing pit. Locations of these borings are given on Figure 1.

2.2.1.1 Soil Boring Sample Collection

Soils encountered in the borings were logged on site by the WCC geologist, (see logs Appendix B) and three samples were collected from each boring. The upper sample was collected from the soil/concrete interface, usually at 6 inches depth, by driving a split spoon sampler loaded with a stainless steel tube into the soil. At the completion of the drive, the sampler was opened, the tube was capped, labelled and placed into an ice-cooled cooler. The middle sample was collected at about 3 feet depth and the third (bottom) sample at about five feet depth. All samples were collected in the same manner as the upper sample. To control analytical costs, the upper and middle samples were analyzed first. The bottom sample was analyzed for only those parameters that were detected in the upper samples. The boreholes, soil cuttings and drive samples were scanned with an HNu photoionization detector (HNu), to screen for volatile organic or hydrocarbon vapors.

Soil samples collected were submitted and analyzed for the analytes recommended in the Canonie 1990 scope of work. The specific analytical methods used were: oil and grease hydrocarbons (Standard Method SM5520E &F), aromatic volatile hydrocarbons and halogenated volatile organic compounds (EPA Methods 8010/8020), and organochlorine pesticides and polychlorinated biphenyls (PCBs) (EPA Method 8080). Analytical results for soil boring samples are presented in Table 1.

2.2.2 Monitoring Well Installation

A total of 3 wells were constructed to a depth of about 25 feet on February 26 and 27, 1992. Monitoring well MW-1 was installed in the parking lot along Hollis Street. Monitoring well MW-2 was installed in the southwest corner of the Main Plant building. Monitoring well MW-3 was installed just outside of the northwest corner of the Main Plant building. All the wells were installed with a truck-mounted hollow stem auger drill rig. The wells were constructed of 4" diameter PVC casing with the bottom 15 feet screened with 0.020-inch slots. The annular space around the screen and two feet above the top of the screen was filled with #2/12 Monterey-type sand. The remaining annular space was sealed with approximately 1 foot of hydrated bentonite and 7 feet of cement grout. A locking well cap was placed on each well. A traffic-rated Christie box was placed around MW-1, and steel boxes fabricated by Grove was placed around MW-2 and MW-3. Well logs showing details of construction are given in Appendix B.

2.2.2.1 Soil Sampling During Well Installation

Soils encountered in the borings for the wells were logged on site by the Woodward-Clyde geologist (see logs Appendix B). Six soil drive samples using a split spoon sampler were taken in each boring, one approximately every five feet. The surface drive sample, the last drive sample, and two other drive samples were submitted for chemical analysis. Soil cuttings and drive samples were scanned with an HNu to check for contamination and to determine which drive samples should be submitted for analysis. Samples were chosen for analysis if they displayed an elevated HNu reading or had visible suspected contamination. Drive samples which were not submitted for analysis were disposed with the soil cuttings.

Soil samples from the well borings were submitted for analysis of the same analytes as the boring samples. The sampling depths and the analytical results for soil samples from well borings are presented in Table 1.

2.2.3 Well Development

Each well was developed by surging and over pumping on February 28, 1992. Well development logs are in Appendix C. All wells developed satisfactory but there was some suspended sediment remaining in the water even after development. The wells were left for 48 hours after development to fully recover before the groundwater was sampled.

2.2.4 Groundwater Sampling

On March 2, 1992, the three wells were sampled. Prior to sampling, water levels were measured and amount of standing water in each well calculated. A minimum of three times the volume of standing water in each well was extracted (purged) by pumping. Water quality measurements (temperature, pH, and specific conductance) were monitored during well purging. A record was made of all pertinent information in a water sample logbook. A copy of these records are shown in Appendix D. A groundwater sample was collected in a decontaminated Teflon bailer using new line and poured into laboratory-supplied clean bottles.

Groundwater samples were analyzed for the analytical parameters recommended by the Canonie (1990) scope of work. The specific analytical methods used were: oil and grease/hydrocarbons (Standard Method 5520 C,E, & F), aromatic volatile hydrocarbons and halogenated volatile organic compounds (EPA Methods 8010/8020), and organochlorine pesticides and PCBs (EPA Method 8080). Analytical results for groundwater samples are presented in Table 2.

2.2.5 Elevation Survey

On March 23, 1992, the three wells were surveyed relative to mean sea level (MSL). The top of each well casing and the ground surface adjacent to each well were surveyed to the the nearest 0.01 foot. The surveying was performed by Earl L. Gray, a licensed surveyor. Top of casing and ground level elevations are provided in Table 3. Results of the survey are presented in Appendix E.

2.2.6 Waste Disposal

The soil cuttings from soil borings and well borings were collected in 55-gallon steel drums. Groundwater generated during development and purging was also collected in 55-gallon steel drums. The drums were labelled to show the origin of the contents and stored on site until laboratory analyses were received. Stored groundwater was used as make-up water for the paint booths. Soil was disposed at the local municipal facility.

The investigation results are broken down into two subsections, soil and groundwater. Each subsection discusses the physical as well as analytical results of either soil or groundwater. Analytical results are presented as Appendix F.

3.1 Soil Characteristics

Soils encountered in the borings were non-native fill from the surface down to between one and five feet. The fill material is a well-graded sandy gravel. Below the fill generally fine-grained sediments were encountered that ranged from highly plastic clays to sandy gravels. Aquifer type sediments such as sands, were typically found in thin (one-inch) lenses. Boring logs showing depths and specific sediments are in Appendix B.

3.2 Soil Analytical Results

Based on the summary of analyses of soil samples as shown in Table 1, the following is the status of soil contamination. Soil boring and monitoring well locations and hence soil sample locations are shown in Figure 1. Samples from five of the six soil borings (SB-1, and SB-3 through SB-6), and one of the monitoring wells (MW-3) contained detectable levels of oil and grease/hydrocarbons. These levels decreased with depth except for SB-4, which showed an increase in concentration with depth. Figure 2 shows the results of oil and grease/hydrocarbons analyses by boring. None of the soil samples analyzed had detectable levels of aromatic volatile hydrocarbons or organochlorine pesticides or PCBs. The only halogenated volatile organic compound detected was trichloroethene. The six-inch and 5-foot sample of SB-4 had 6 μg/kg and 40 μg/kg of trichloroethene, respectively, which is only slightly above the detection limit of 5 μg/kg. The 25-foot sample from MW-3 and its replicate (split by the laboratory) had 120 μg/kg and 100 μg/kg of trichloroethene, respectively.

3.3 Groundwater Elevation

The depth to groundwater as measured in the three new monitoring wells at the site on March 2 and 26, 1992, varied from 4.28 to 9.22 feet below ground level. Groundwater measurements are summarized in Table 3. The piezometric surface elevations beneath the site have been contoured as shown on Figures 4 and 5. These data indicate a general groundwater flow direction toward the west, and an average gradient of 0.011.

3.4 Groundwater Analytical Results

Groundwater samples were taken from all three new wells on March 2, 1992. The analytical results are summarized in Table 2. No oil and grease/hydrocarbons, aromatic volatile hydrocarbons or organochlorine pesticides or PCBs were detected in groundwater samples. Halogenated volatile organics were detected in samples from all three wells. In particular, isomers of dichloroethene (both cis-1,2 and trans-1,2), trichloroethene and vinyl chloride were found in concentrations above the California state Maximum Contaminant Level (MCL) for drinking water in samples from wells MW-1 and MW-3. Figure 3 shows the results of trichloroethene by well.

4.0
QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) REVIEW OF CHEMICAL DATA

4.1 Introduction

The soil and water analytical results for this project were submitted to a thorough QA/QC review. The review included the following:

- Holding Time Review - Check for exceedences of prescribed holding times
- Blank Review - Review blank analyses for evidence of potential contaminants
- Matrix Spike Review - Review matrix recoveries and matrix spike duplicate relative percent differences as a check for analytical precision and accuracy
- Duplicate Review - Review duplicate analyses for agreement of results as a check for analytical precision
- Elevated Detection Limits - Analytical results are reviewed to check for effects of elevated detection limits
- Surrogate Review - Review surrogate recoveries for possible matrix interferences.

Each of the above QA/QC checks is discussed in detail in this section. The results of the QA/QC review show that the data set is of high quality and has acceptable analytical accuracy and precision.

Soil and water samples collected for this investigation were analyzed by the Quanteq Laboratories in Pleasant Hill, California for oil and grease/hydrocarbons (Standard Methods 5520 C, E & F), halogenated volatile organics (EPA Method 8010), aromatic volatile organics (EPA Method 8020), and organochlorine pesticides and PCBs (EPA Method 8080).

4.2 Holding Time Review

Analytical methods used for this study have an associated prescribed holding time that is the maximum amount of time after collection that a sample may be held prior to extraction and/or analysis. Sample integrity becomes questionable for samples extracted and/or analyzed outside of the holding times owing to physical and chemical changes to the sample such as degradation or volatilization. Results of such analyses are suspect. The holding times for all samples for all analyses were reviewed. Sample analyses were within the prescribed holding times with one exception. The Method 8010 analysis of sample SB-4-C' (5 ft) was requested and analyzed 15 days beyond the established holding time. The analysis was requested following receipt of elevated oil and grease/hydrocarbons results for SB-4-C'. The results for this sample should be viewed as estimates.

4.3 Blank Review

Blank samples are analyzed in order to check for potential sample contamination. Information regarding the source of contamination may also be gained by analyzing a variety of blanks prepared at several points during sample collection and analysis. The blanks analyzed for this project included the following:

- Rinsate Blanks - A blank that is prepared in the field by pouring distilled water into sampling equipment, then into sample containers. Usually, the rinsate blank is submitted to the laboratory 'blind' (under a fictitious location designation). Analysis of the rinsate blank indicates potential sources of contamination of samples from improperly cleaned sampling equipment or sample containers or from ambient air contamination. One rinsate blank was collected with the groundwater and analyzed for Standard Method 5520 C & F, and EPA Methods 8010, 8020, and 8080.

- Trip Blanks - A blank that is prepared by the laboratory by pouring deionized, distilled water into sample containers. The trip blank is shipped to the field with the sample bottles, is taken into the field (but not opened) and is shipped back to the laboratory with the filled sample bottles. Analysis of the trip blank indicates potential sources of contamination of samples from ambient air contamination or from improperly cleaned sample containers. Trip blanks are typically analyzed for volatile organic compounds only. One trip blank was prepared for the groundwater sampling round performed for this investigation. The trip blank was analyzed for EPA Method 8010 and 8020 target compounds.

The results of analysis of the trip blank showed no contamination for target analytes. However, two compounds at minor concentrations were detected in the rinsate blank. Bromodichloromethane and chloroform were detected at concentrations of 1 and 36 μg/L, respectively. Bromodichloromethane was not reported in any of the other groundwater samples collected for this project. Chloroform was reported in the sample collected from MW-3, at a concentration of 0.5 μg/L. Because the concentration of chloroform detected in the MW-3 sample is significantly less than the concentration of chloroform detected in the rinsate sample, the detection of chloroform in the MW-3 sample is not considered to be due to cross contamination from improperly decontaminated sampling equipment. Both detections in the rinsate sample are considered insignificant and as such do not impact the data set.

4.4 Matrix Spike Review

Matrix spikes are performed in order to evaluate the efficiency of the sample extraction and analysis procedures and are necessary as matrix interference (that is, interferences from the sample matrix - water, soil, or other) which may have widely varying impacts on the accuracy and precision of the extraction and analysis. The matrix spike is prepared by the addition of known quantities of target analytes to a sample. The sample is extracted and analyzed. The results of the analysis are compared with the known additions and a matrix spike recovery is calculated. The recovery gives an evaluation of the accuracy of the extraction and analysis procedures. Typically matrix spikes are performed in duplicate in order to also evaluate the precision of the methods. Matrix spike recoveries are reviewed to check that they are within acceptable range. However, the acceptable ranges vary widely according to analytical method and matrix.

The matrix spike recovery ranges for samples analyzed for this investigation were within the laboratory established acceptable ranges, indicating good analytical accuracy. oil and grease/hydrocarbons matrix spike recoveries for water analyses ranged from 98 percent to 100 percent and for soil analyses the range was from 100 percent to 105 percent. Halogenated and aromatic volatile organic recoveries for water analyses ranged from 88 percent to 105 percent and for soil analyses the range was from 71 percent to 106 percent. Organochlorine pesticide and PCBs water recoveries ranged from 98 percent to 112 percent and for soil analyses the range was from 25 percent to 106 percent.

Typically matrix spikes are performed in duplicate in order to also evaluate the precision of the methods using matrix spike duplicate recovery relative percent differences (RPDs) calculated as:

$$RPD = [(\text{Result 1} - \text{Result 2}) / (\text{Average of Result 1 and Result 2})] \times 100$$

The reported matrix spike duplicate recovery RPDs were within the laboratory established acceptable ranges. The oil and grease/hydrocarbons RPD for water analysis was 2 percent and the soil RPDs ranged from 0 percent to 2 percent. Halogenated and aromatic volatile organic water RPDs ranged from 0 percent to 3 percent and soil RPDs ranged from 0 percent to 9 percent. Organochlorine pesticides and PCBs water RPDs ranged from 1 percent to 2 percent and soil RPDs ranged from 0 percent to 6 percent.

4.5 Blind Duplicate Analyses

One blind duplicate sample (MW-2) was collected with the groundwater samples and was analyzed for all parameters of interest. Duplicate analyses showed good general agreement. In all cases, the blind duplicate results for oil & grease/hydrocarbons, aromatic volatile organics, and organochlorine pesticides and PCBs were below detection limit. The duplicate relative percent difference (RPD) for halogenated volatile organics were all 0 percent, indicating acceptable precision.

Two soil samples were collected in duplicate (SB-1A and MW-3-25) and analyzed for all parameters of interest. In both sample sets the analysis results were reported to be below the detection limits for oil and grease/hydrocarbons, aromatic volatile organics, and organochlorine pesticides and PCBs. The RPD calculated for hydrocarbons for soil samples SB-1A was 67 percent. The RPD is elevated due to the small concentrations of hydrocarbons detected in both samples. When concentrations of analytes are detected at or near the reporting limit, the RPD will be unusually exaggerated and will not fully represent the true RPD. This is the case for the hydrocarbon values. The RPD for halogenated volatile organics for samples MW-25-A was 18 percent.

4.6 Elevated Detection Limits

Detection limits for target analytes may sometimes be elevated due to sample size limitations or to dilutions necessary to counter matrix interference effects or to bring target analyte concentrations to within calibration linear range. Results reported as below an elevated detection limit must be noted and interpreted with care. All samples for this investigation were run initially without a dilution, dilutions were then performed on additional analyses. Dilutions were compound specific and as such the laboratory reported the lowest detection limit possible for all compounds. Only one result for this investigation was reported as below an elevated detection limit. The laboratory reporting limits for ethylbenzene and total xylenes were raised for the Method 8020 analysis of sample SB-4-C'. The results for these two compounds should be viewed with caution.

4.7 Surrogate Recoveries

Surrogates are organic compounds which are similar to the analytes of interest in chemical behavior, but which are not normally found in environmental samples. Surrogates are added to samples to monitor the effect of the matrix on the accuracy of the analysis. Results are reported in terms of percent recovery. The reported surrogate recoveries for this investigation were within laboratory established limits. The surrogate recoveries for halogenated volatile organic water analyses ranged from 109 percent to 127 percent and for soil analyses from 86 percent to 110 percent. Aromatic volatile organic water analyses surrogate recoveries ranged from 97 percent to 109 percent and soil analyses ranged from 89 percent 116 percent. Organochlorine pesticide and PCB water analyses surrogate recoveries ranged from 81 percent to 87 percent and soil analyses ranged from 73 percent to 103 percent.

4.8 QA/QC Summary

The results of the QA/QC review show that the data set is of high quality and has acceptable analytical accuracy and precision.

The data for the investigation has been subjected to an extensive QA/QC review, and has been found to be of satisfactory quality. Holding times were met for all sample analyses with the one noted exception. No evidence of blank contamination was found in blank analyses, with the above noted exception for Method 8010 rinsate analysis. Matrix spike recoveries were within acceptable range, indicating good analytical accuracy. Matrix spike relative percent differences were within acceptable ranges indicating good analytical precision. Blind duplicate relative percent differences were within acceptable range. Surrogate recoveries were within laboratory established limits, indicating minimal to no matrix effect on the analysis results.

5.0 SUMMARY AND RECOMMENDATIONS

5.1 Summary

The Level II Environmental Assessment provides a baseline assessment of environmental conditions in the soil within the Main Plant and the Engineering Testing Facility and the groundwater on the boundaries of the Main Plant. Generally, analytical results for soil and groundwater samples were below detection limits.

One soil sample at 5 feet depth at SB-4 on the north side of the Main Plant had a hydrocarbons value of 2500 mg/kg. Another sample at 6 inches depth at SB-3 in the west testing pit had a hydrocarbons value of 230 mg/kg. The concentration decreased to non-detect with depth.

Based on water level measurements in the three new wells, a groundwater gradient to the west was confirmed. Groundwater from MW-1 at the parking lot had a concentration of 103 µg/L trichloroethene. Groundwater from MW-3 by the Southern Pacific railroad tracks had a concentration of 1300 µg/L trichloroethene. These values exceed both the federal and state drinking water standards. Drinking water standards are generally used by the Regional Water Quality Control Board for cleanup purposes.

Soil borings were placed in areas most suspected of potential contamination, and, in the Main Plant and the Engineering Testing Facility, results showed little or no contamination. Soils in the area along the north side of the Main Plant should be studied further to characterize the extent of hydrocarbon contamination. Groundwater on the southeast side of the Main Plant at MW-1 and groundwater at the northwest side of the Main Plant contain levels of trichloroethene which should be investigaed further. That both wells are on the property boundary indicates the possibility of potential offsite contributors to the contamination, especially in the upgradient (east) direction.

5.2 Recommendations

We recommend characterizing further the groundwater and geologic conditions beneath the Main Plant and exploring the potential for neighboring properties to contribute to the observed contamination. Alternatives to consider range from relatively non-intrusive work to intrusive work. The alternatives we suggest are:

- Conduct a water level survey in the wells to determine the influence of tidal and precipitation events, and

- Conduct a literature/records search of public agencies, the University, or other consultants' investigations to determine the underlying geology and potential for neighboring properties to contribute to the observed contamination.

More intrusive work could consist of installing more borings and wells onsite and offsite and conducting hydraulic tests in the area.

Table SUMMARY OF ANALYSES FOR SOIL SAMPLES FROM GROVE VALVE AND REGULATOR COMPANY

BORING/ WELL NUMBER	Date	OIL & GREASE HYDROCARBONS STD Method 5520 E/F (mg/kg)	AROMATIC VOLATILE HYDROCARBONS EPA Method 8020 B-T-E-X (µg/kg)	Chlorobenzene (µg/kg)	1,*-Dichlorobenzene (µg/kg)	HALOGENATED VOLATILE ORGANICS EPA METHOD 8010** Trichloroethene (µg/kg)	All other target compounds (µg/kg)	ORGANOCHLORINE PESTICIDES and PCBs EPA METHOD 8080** (µg/kg)
SB-1-6"	25-Feb-92	ND	ND	ND	ND	ND	ND	ND
SB-1-6"-A	25-Feb-92	20	ND	ND	ND	ND	ND	ND
SB-1-3'	25-Feb-92	20	ND	ND	ND	ND	ND	ND
SB-1-5'	25-Feb-92	ND	--	--	--	--	--	--
SB-2-6"	25-Feb-92	ND	ND	ND	ND	ND	ND	ND
SB-2-3'	25-Feb-92	ND	ND	ND	ND	ND	ND	ND
SB-3-6"	25-Feb-92	230	ND	ND	ND	ND	ND	ND
SB-3-3'	25-Feb-92	30	ND	ND	ND	ND	ND	ND
SB-3-5'	25-Feb-92	ND	--	--	--	--	--	--
SB-4-6"	25-Feb-92	230	ND	ND	ND	6	ND	ND
SB-4-3'	25-Feb-92	50	ND	ND	ND	ND	ND	ND
SB-4-5'	25-Feb-92	2500	ND	ND	ND	40	ND	--
SB-5-6"	25-Feb-92	40	ND	ND	ND	ND	ND	ND
SB-5-3'	25-Feb-92	ND	ND	ND	ND	ND	ND	ND
SB-5-5'	25-Feb-92	10	--	--	--	--	--	--
SB-6-6"	25-Feb-92	80	ND	ND	ND	ND	ND	ND
SB-6-3'	25-Feb-92	30	ND	ND	ND	ND	ND	ND
SB-6-5'	25-Feb-92	10	--	--	--	--	--	--
MW-1-6"	27-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-1-5'	27-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-1-15'	27-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-1-25'	27-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-2-6"	26-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-2-10'	26-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-2-20'	26-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-2-25'	26-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-3-6"	26-Feb-92	20	ND	ND	ND	ND	ND	ND
MW-3-5'	26-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-3-15'	26-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-3-25'	26-Feb-92	ND	ND	ND	ND	120	ND	ND
MW-3-25'-A	26-Feb-92	ND	ND	ND	ND	100	ND	ND
Detection Limits		10	5***	5	5	5	5	5***

GENERAL NOTES

"A" samples are laboratory prepared splits

"ND" denotes not detected above analytical detection limit.

"--" denotes sample was not analyzed for this constituent.

"B-T-E-X" denotes Benzene, Toluene, Ethylbenzene and Xylenes

SPECIFIC NOTES

* = total of 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, and 1,4-Dichlorobenzene

** = see lab sheets for complete list of method-specific target compounds.

*** = detection limits vary by individual constituents

Table SUMMARY OF ANALYSES FOR GROUNDWATER SAMPLES FROM GRO VALVE AND REGULATOR COMPANY

WELL NUMBER	Date	OIL & GREASE HYDROCARBONS STD Method 5520 C/F (mg/L)	AROMATIC VOLATILE HYDROCARBONS EPA Method 8020 B-T-E-X (µg/L)	Chlorobenzene (µg/L)	1,*-Dichlorobenzene (µg/L)	Bromodichloromethane (µg/L)	HALOGENATED VOLATILE ORGANICS EPA Method 8010** Chloroform (µg/L)	1,1-Dichloroethane (µg/L)	1,1-Dichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	1,1,1-Trichloroethane (µg/L)	Trichloroethene (µg/L)	Vinyl Chloride (µg/L)	ORGANOCHLORINE PESTICIDES and PCBs EPA Method 8080** (µg/L)
MW-1	2-Mar-92	ND	ND	ND	ND		ND	ND	ND	33.0	12.0	ND	103.0	ND	ND
MW-2	2-Mar-92	ND	ND	ND	ND		ND	3.0	ND	2.0	ND	0.6	4.0	ND	ND
MW-2-DUP	2-Mar-92	ND	ND	ND	ND		ND	3.0	ND	2.0	ND	0.6	4.0	ND	ND
MW-3	2-Mar-92	ND	ND	ND	ND		0.5	0.6	2.0	18.0	ND	0.5	1300.0	5.0	ND
RINSATE	2-Mar-92	ND	ND	ND	ND	1.0	36.0	ND	ND	ND	ND	ND	ND	ND	ND
Detection Limits		0.5	0.5***	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.05***
REGULATORY STANDARDS															
EPA	MCL	–	5.0	–	75.0		100.0	--	7.0	70.0	100.0	200.0	5.0	2.0	
CA-STATE	MCL	–	1.0	–	5.0		--	5.0	6.0	6.0	10.0	200.0	5.0	0.5	

GENERAL NOTES

"ND" denotes not detected above analytical detection limit.

"–" denotes sample not regulated or no MCL established.

"B-T-E-X" denotes Benzene, Toluene, Ethylbenzene, and Xylenes.

SPECIFIC NOTES

* = total of 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, and 1,4-Dichlorobenzene

** = see lab sheets for complete list of method-specific target compounds.

*** = detection limits vary by individual constituents

SHADED = amount exceeds either EPA or CA State Maximum Contaminant Level (MCL)

Table 3. **WATER LEVEL MEASUREMENTS RELATIVE TO MEAN SEA LEVEL (MSL), GROVE VALVE and REGULATOR COMPANY**

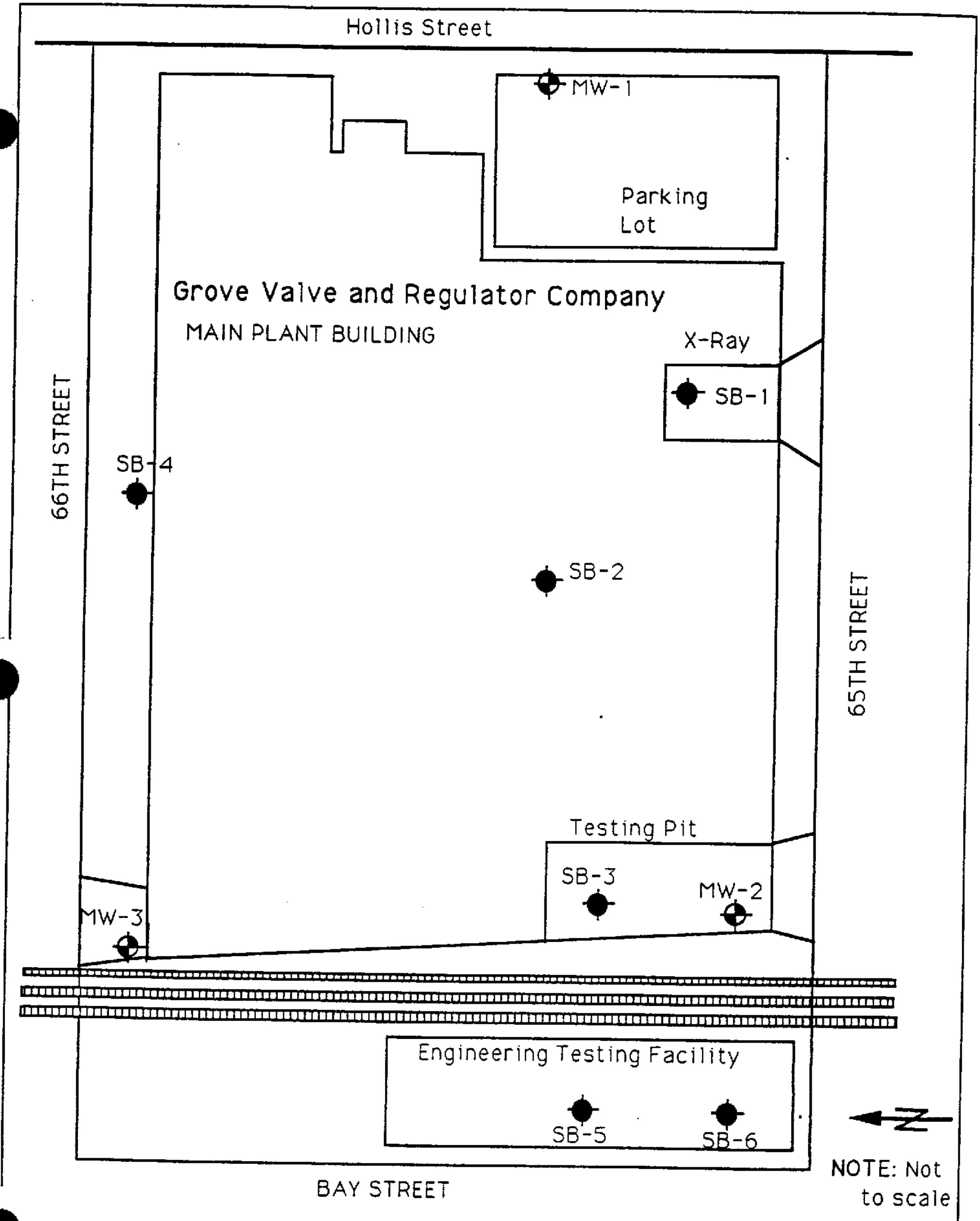
(All measurements are in feet)

Well Number	**Adjacent Ground Elevation** (Note 1)	**Top of Well Casing Elevation** (Note 1)	**Sounding Date**	**Depth to Top of Groundwater** (Note 2)	**Groundwater Elevation** (Note 1)
MW-1	20.89	20.72	3/2/92	4.28	16.44
			3/26/92	4.89	15.83
MW-2	16.28	15.95	3/2/92	7.90	8.05
			3/26/92	6.10	9.85
MW-3	17.47	16.98	3/2/92	9.22	7.76
			3/26/92	8.38	8.60

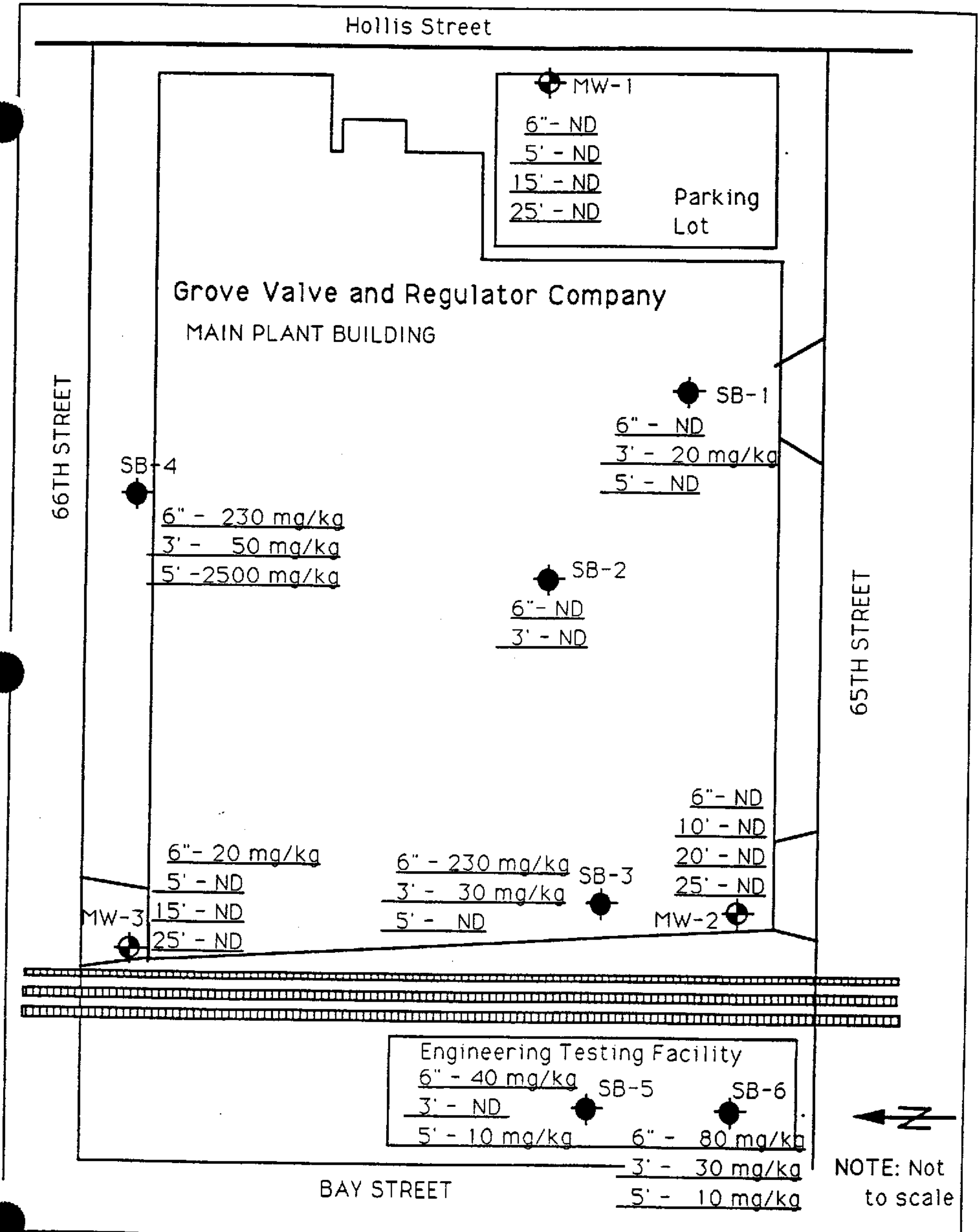
NOTES

1. Based upon USC and GS datum in feet relative to MSL; adjacent ground elevation refers to steel rim of Christy box reference mark.

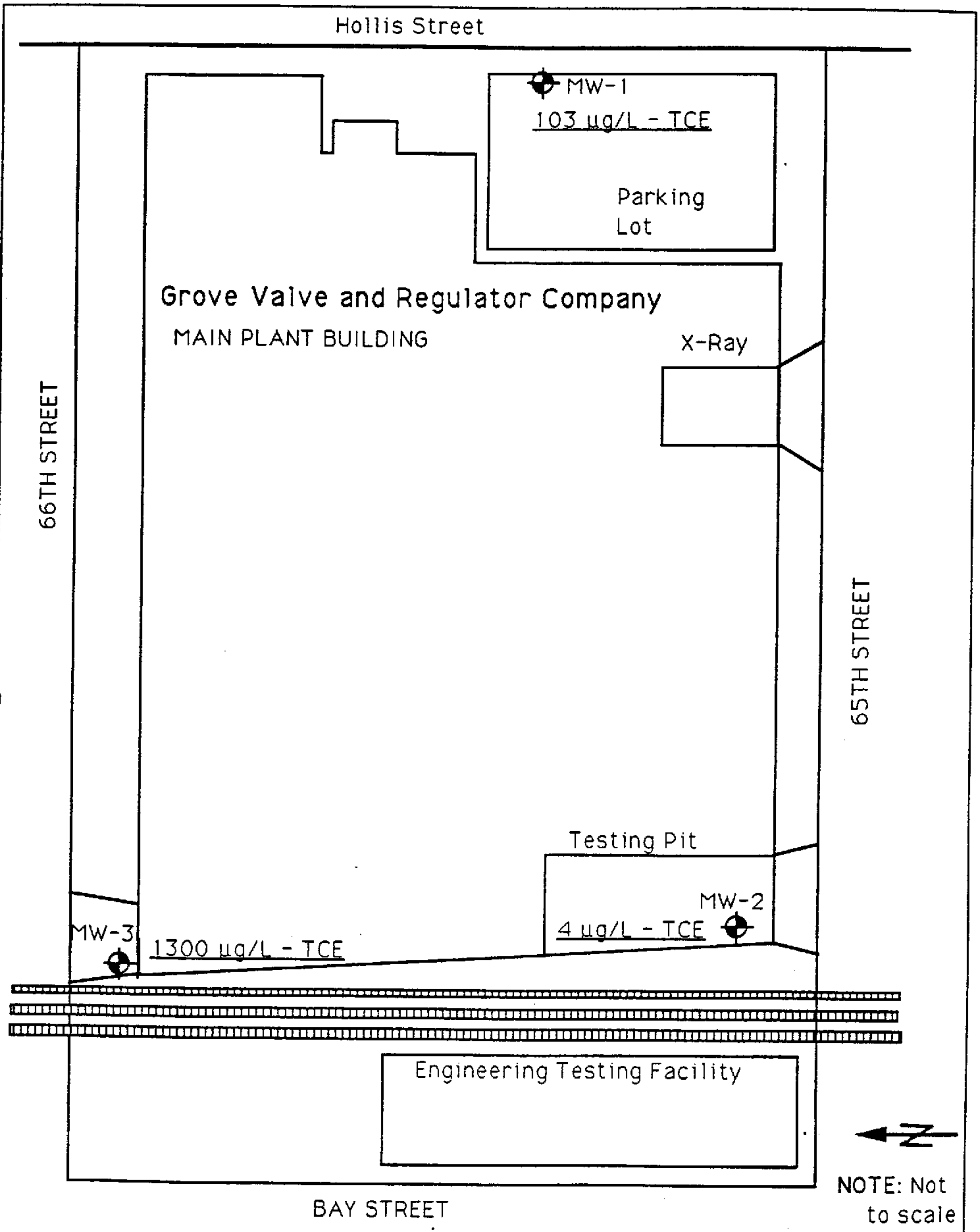
2. Relative to top-of-well-casing



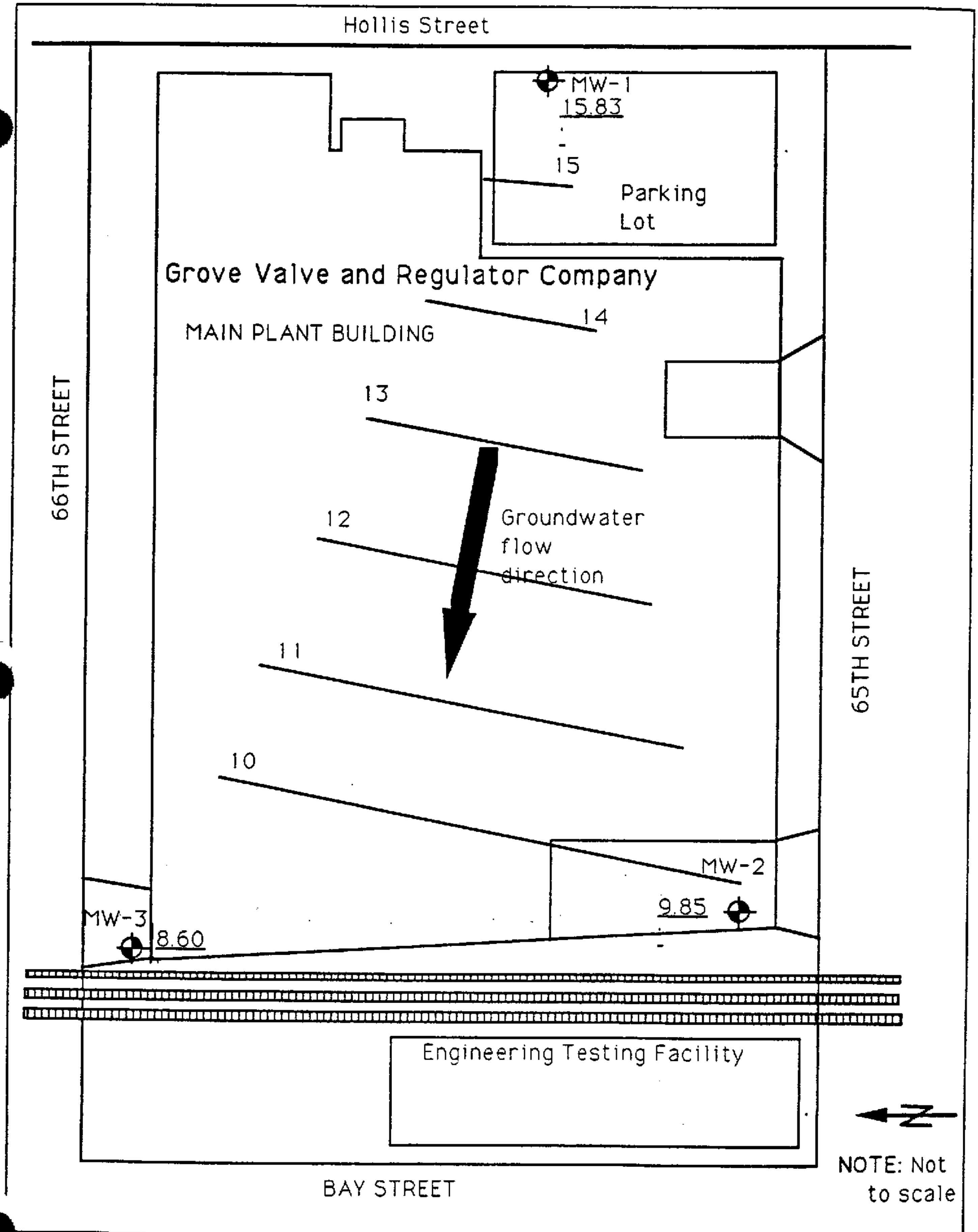
Project No. 92C091A	Grove Valve	Location of soil borings and monitoring wells at Grove Valve and Regulator Company	Figure 1
Woodward-Clyde Consultants			



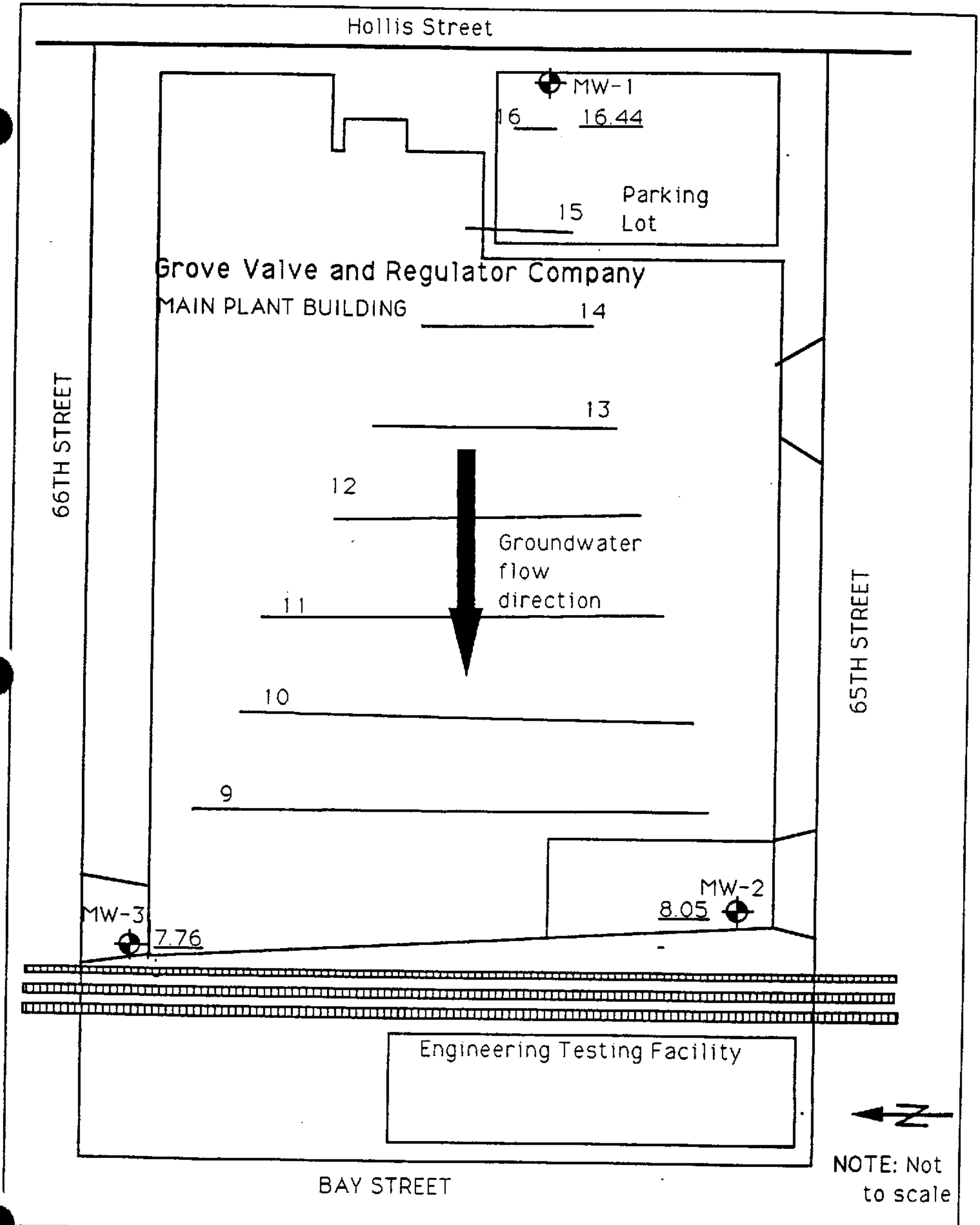
Project No. 92C091A	Grove Valve	Oil & Grease (Hydrocarbon) results in soil, Grove Valve and Regulator Company	Figure 2
Woodward-Clyde Consultants			



Project No. 92C091A	Grove Valve	Trichloroethene (TCE) in Groundwater March 2, 1992 Grove Valve and Regulator Company	Figure 3
Woodward-Clyde Consultants			



Project No. 92C091A	Grove Valve	Groundwater elevation in feet above MSL March 2, 1992 Grove Valve and Regulator Company	Figure 4
Woodward-Clyde Consultants			



Project No. 92C091A	Grove Valve	Groundwater elevation in feet above MSL March 26, 1992 Grove Valve and Regulator Company	Figure 5
Woodward-Clyde Consultants			

APPENDIX A
Permits

CITY OF EMERYVILLE
INSPECTION SERVICES DEPT.
200 POWELL STREET, 12TH FLOOR
EMERYVILLE, CA 94608
(415) 596-4310

HUMAN RESOURCES VALIDATE HERE

MAR 18 1992

B - 4224-292
Permit Number

DO NOT WRITE IN THIS SPACE

Application Received
Date 2/25/92 Signed C. S
Permit Issued
Date 2/25/92 Signed C. S

APPLICATION AND PERMIT

THIS APPLICATION IS YOUR PERMIT WHEN PROPERLY FILLED OUT, SIGNED, VALIDATED & FEES PAID.

BUILDING ADDRESS 6529 Hollis St, Emeryville
TRACT LOT APN

OWNER
NAME Grove Valve and Regulator Company
ADDRESS 6529 Hollis St PHONE 655-7700
CITY Emeryville ST CA ZIP 94608

ENGR./ARCHITECT
NAME Woodward-Clyde Consultants LICENSE # 81582
ADDRESS 500 12th St PHONE 893-3600
CITY Oakland ST CA ZIP 94607

CONTRACTOR
I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

LICENSE # AND CLASS
CITY BUSINESS TAX #
CONTRACTOR NAME
ADDRESS
CITY ST ZIP PHONE
SIGNATURE DATE

OWNER/BUILDER
I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sale requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption in this subdivision on more than two structures more than once during any three-year period. (Sec. 7044, Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law).

☐ I am exempt under Sec. ________, B&P.C. for this reason ________

Signature Date

WORKER'S COMPENSATION
I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Workers' Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C).
Policy # NGA1496114 Company Name Planet Insurance Company
☒ Certified copy is hereby furnished.
☐ Certified copy is filed with the city building inspection department.
Signature Robin Spencer Date 2/25/92

(This section need not be completed if the permit is for one hundred dollars ($100) or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.
Signature Date

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

LENDER
I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.) (If no lender indicate "None".)
LENDERS NAME
LENDERS ADDRESS

I CERTIFY THAT I HAVE READ THIS APPLICATION AND STATE THAT THE INFORMATION GIVEN IS TRUE AND CORRECT. I AGREE TO COMPLY WITH ALL LOCAL ORDINANCES AND STATE LAWS RELATING TO BUILDING CONSTRUCTION AND I MAKE THIS STATEMENT UNDER PENALTY OF LAW. I HEREBY AUTHORIZE REPRESENTATIVES OF THIS CITY TO ENTER UPON THE ABOVE MENTIONED PROPERTY FOR INSPECTION PURPOSES. NOTICE: THIS PERMIT WILL EXPIRE BY LIMITATION IF WORK IS NOT STARTED WITHIN 180 DAYS OR IF WORK IS ABANDONED FOR MORE THAN 180 DAYS. DO NOT CONCEAL OR COVER ANY CONSTRUCTION UNTIL THE WORK IS INSPECTED AND THE INSPECTION IS RECORDED ON THE FIELD CARD ISSUED FOR THIS PERMIT. ALL INSPECTION REQUESTS ARE REQUIRED 24 HOURS IN ADVANCE OF THIS INSPECTION.

I hereby agree to save, indemnify and keep harmless the City of Emeryville, and its officers, employees and agents against all liabilities, judgments, costs and expenses which may accrue against the City in consequence of the granting of this permit or from the use or occupancy of any sidewalk, street or subsidewalk, or otherwise by virtue thereof, and will in all things strictly comply with the conditions under which this permit is granted.

☐ Contractor
☐ Owner
x Edward G. Michel Date 2/25/92
Signature of Contractor Owner or Agent

☒ Agent for ☐ Contractor ☒ Owner
Address of Agent
500 12th St., Oakland CA 94607 893-3600
ADDRESS CITY STATE ZIP TELEPHONE

PERMIT TYPE / BUILDING DESCRIPTION / VALUATION / DESCRIPTION OF WORK

☐ Single Family	☐ New	Grading:
☐ Apartment	☐ Addition	☐ Excavation
☐ Condominium	☐ Alteration	☐ Fill
☐ Commercial	☐ Repair	☐ Drainage
☐ Industrial	☐ Improve	☐ Other
☐ Public Building	☐ Other	
☐ Accessory		
☐ Other		

Describe Briefly All Proposed Construction Work
Install 3 Monitoring Wells on property
Completed 2/27/92 C. S

New Building Floor Area (Sq. Ft.)
1st ____ 2nd ____ 3rd ____ Total ____
Garage ____ Carport ____ # Bedrooms ____ # Baths ____
Building Setbacks
Front ____ Rear ____ Left ____ Right ____
Occupancy Group and Division ____ (Per UBC Table 5A) Type ____ (Per UBC Table 17A)
Valuation of Proposed Work $ 0
(Include all labor and materials, all lighting, heating, ventilation, water supply, plumbing, electrical, fire sprinklers, elevator equipment therein and thereon.)

THIS PERMIT SHALL COVER:

☐ Building	☐ Plan Check	☐ Electrical
☐ Plumbing	☐ Mechanical	☐ Insulation
☐ Solar	☐ Sign	☐ Pool/Spa
☐ S.M.I.P.	☐ Grading	☐ Other

DO NOT WRITE BELOW THIS LINE

N/A Planning Approval-Date
N/A Fire Dept. Approval-Date
N/A Health Dept. Approval-Date
2/25/92 Final Approval-Date

Special Conditions:
Variance Date ____ Use Permit Date ____

PERMIT FEES

Building	N/A
Plan Check	
Filing	45.00
Electrical	
Plumbing	
Mechanical	
Insulation	
Fire	
Traffic	N/A
School	
S.M.I.P.-SB1374	
Grading	
Annexation	
Sewer Connection	
Community Development	
Growth Impact Fee	
Total	$45.00

APPLICANT

DISTRIBUTION
1. ADDRESS FILE
2. APPLICANT
3. INSPECTOR
4. FINANCE
5. ASSESSOR

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

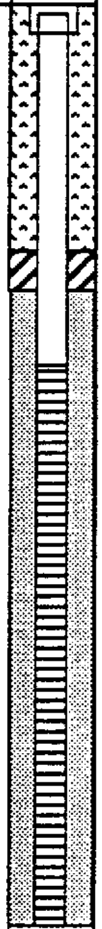
REMOVED

Woodward-Clyde Consultants

PROJECT NAME GROVE VALVE NO. 91C0091A/2000

MONITORING WELL LOCATION	Grove Valve and Regulator 6529 Hollis Street, Emeryville, CA	MW-1 Southeast parking lot	ELEVATION AND DATUM 20.72' MSL
DRILLING AGENCY Kvilhaug Well Drilling	DRILLER Rodney Furlow		DATE STARTED DATE FINISHED 2/27/92
DRILLING EQUIPMENT Mobile Drill B-61			COMPLETION DEPTH 25 / SAMPLER 2" split spoon
DRILLING METHOD Hollow stem auger	DRILL BIT		NO. OF SAMPLES DIST. -- / UNDIST. 6
SIZE AND TYPE OF CASING 4" Schedule 40 PVC	FROM 0.0 TO 10.0 FT.		WATER LEVEL FIRST -7.52 / COMPL. -- / 24 HRS. 15.62
TYPE OF PERFORATION 0.020" Slot	FROM 10.0 TO 25.0 FT.		LOGGED BY: K. O. Guyer / CHECKED BY: R. Ely
SIZE AND TYPE OF PACK #2/12 Monterey sand	FROM 8.0 TO 25.0 FT.		
TYPE OF SEAL NO. 1 1/4" Bentonite pellets	FROM 7.0 TO 8.0 FT.		
TYPE OF SEAL NO. 2 Neat cement grout	FROM surface TO 7.0 FT.		

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Well Construction
0	■	4, 2, 2	Cement Pavement FILL - Silty Sand tan, coarse sand with silt, loose, moist	ML	
			SILTY CLAY dark brown, some fine sand, soft, medium plastic, damp HNu= 0 ppm	CL	
5	■	10, 15, 22	SILTY SAND light brown, medium grained with silt, some clay, medium dense, dry	SM	
10	■	4, 5, 12	HNu= 0 ppm Increase in clay		
			Increase in moisture		
15	■	5, 7, 10	HNu= 0 ppm		
			SILTY CLAY tan, some 1/8" pebbles, stiff, slightly moist	CL	
20	■	3, 5, 8	HNu= 0 ppm NOTE: Lenses of medium to coarse sand, about 2" thick, saturated	(SP)	
25	■	2, 3, 7	HNu= 0 ppm		
			Total Depth = 25 feet		
30					
35					



LOG OF MONITORING WELL NO. MW-1 SHEET 1 OF 1

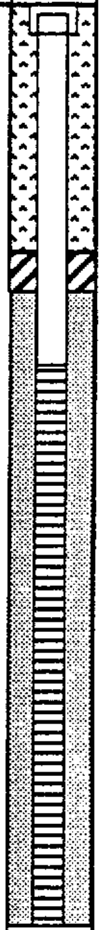
Woodward-Clyde Consultants

PROJECT NAME GROVE VALVE NO. 91C0091A/2000

MONITORING WELL LOCATION Grove Valve and Regulator 6529 Hollis Street, Emeryville, CA	MW-2 Southwest corner of Main Plant building	ELEVATION AND DATUM 15.95' MSL	
DRILLING AGENCY Kvilhaug Well Drilling	DRILLER Rodney Furlow	DATE STARTED / DATE FINISHED 2/26/92	
DRILLING EQUIPMENT Mobile Drill B-61		COMPLETION DEPTH 25	SAMPLER 2" split spoon
DRILLING METHOD Hollow stem auger	DRILL BIT	NO. OF SAMPLES DIST.	UNDIST. 6
SIZE AND TYPE OF CASING 4" Schedule 40 PVC	FROM 0.0 TO 10.0 FT.	WATER LEVEL FIRST -7.35	COMPL. -- 24 HRS. 9.1
TYPE OF PERFORATION 0.020" Slot	FROM 10.0 TO 25.0 FT.	LOGGED BY: K. O. Guyer	CHECKED BY: R. Ely
SIZE AND TYPE OF PACK #2/12 Monterey sand	FROM 8.0 TO 25.0 FT.		
TYPE OF SEAL NO. 1 1/4" Bentonite pellets	FROM 7.0 TO 8.0 FT.		
TYPE OF SEAL NO. 2 Neat cement grout	FROM surface TO 7.0 FT.		

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS
0	■	15, 22, 28	Cement Pavement, 7" thick FILL - Silty Sandy Gravel greenish tan, gravel to 1", angular, coarse sand with silt, loose, moist Cobbles to 3"	GM
5	■	3, 6, 8	Increase in moisture to wet — HNu= 0 ppm	
8			SANDY SILT tan, medium stiff, dry, lenses of sand, black, medium grained loose and damp to wet	MH
10	■	18, 22, 25	HNu= 0 ppm	
14			CLAYEY SILT light brown, low plasticity, damp to dry — HNu= 0 ppm	OL
15	■	6, 10, 15		
19			SANDY SILT — HNu= 0 ppm light brown, fine sand, trace clay, medium stiff, damp	MH
20	■	8, 15, 25		
23			SILTY CLAY mottled gray and tan, medium stiff to stiff, damp to wet — HNu= 0 ppm	OL
24	■	6, 8, 13		
25			Total Depth = 25 feet	

Well Construction



Woodward-Clyde Consultants

PROJECT NAME GROVE VALVE NO. 91C0091A/2000

MONITORING WELL LOCATION	Grove Valve and Regulator, 6529 Hollis Street, Emeryville, CA — MW-3 Northwest corner outside of Main Plant bldg.	ELEVATION AND DATUM	16.98' MSL
DRILLING AGENCY	Kvilhaug Well Drilling; DRILLER Rodney Furlow	DATE STARTED / DATE FINISHED	2/26/92
DRILLING EQUIPMENT	Mobile Drill B-61	COMPLETION DEPTH 25	SAMPLER 2" split spoon
DRILLING METHOD	Hollow stem auger; DRILL BIT	NO. OF SAMPLES: DIST.	UNDIST. 6
SIZE AND TYPE OF CASING	4" Schedule 40 PVC FROM 0.0 TO 10.0 FT.	WATER LEVEL: FIRST -6.02	COMPL. -- ; 24 HRS. 8.38
TYPE OF PERFORATION	0.020" Slot FROM 10.0 TO 25.0 FT.	LOGGED BY: K. O. Guyer	CHECKED BY: R. Ely
SIZE AND TYPE OF PACK	#2/12 Monterey sand FROM 8.0 TO 25.0 FT.		
TYPE OF SEAL NO. 1	1/4" Bentonite pellets FROM 7.0 TO 8.0 FT.		
TYPE OF SEAL NO. 2	Neat cement grout FROM surface TO 7.0 FT.		

Depth (feet)	Blows	MATERIAL DESCRIPTION	USCS
0	8, 7, 16	Asphalt Pavement	
		FILL/ROAD BASE - Sandy Gravel gray to tan, gravel to 1", some fines, poorly sorted, angular, gravel to 1 1/2", well compacted, damp Cobles to 3"	GM
		SILTY CLAY — HNu= 0 ppm	CL
5	4, 8, 12	CLAY gray , soft, plastic, some pebbles to 1/4", dry	OL
10	4, 8, 10	Same as above but with sand lenses, black, 2-3" thick, medium to coarse sand, wet HNu= 0 ppm	(SP)
		SILTY CLAY mottled gray and tan, some to few 1/4" pebbles, medium stiff, dry HNu= 0 ppm	CL
15	8, 7, 10		
20	7, 10, 12	HNu= 0 ppm	
		SILTY SAND light brown,medium sand with silt, moderate sorting, loose, wet — HNu= 0 ppm	SM
25	10, 18, 45	Total Depth = 25 feet	
30			
35			

LOG OF MONITORING WELL MW-3 SHEET 1 OF 1

APPENDIX B
Soil Boring and Well Logs

SAMPLE CLASSIFICATION CHART

UNIFIED SOIL CLASSIFICATION SCHEME

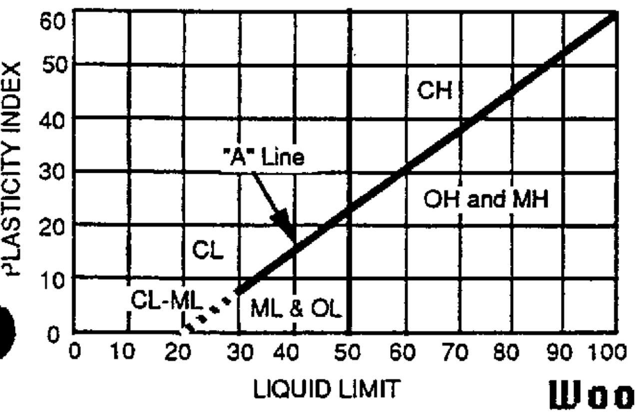
MAJOR DIVISIONS		SYMBOLS	GRAPHIC COLUMN	TYPICAL NAMES
	GRAVELS (More than 1/2 of coarse fraction > no. 4 sieve size)	GW		Well-graded gravels and gravel-sand mixtures, little or no fines
		GP		Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM		Silty gravels, gravel-sand-silt mixtures
		GC		Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 1/2 of coarse fraction < no. 4 sieve size)	SW		Well-graded sands or gravelly sands, little or no fines
		SP		Poorly-graded sands or gravelly sands, little or no fines
		SM		Silty sands, sand-silt mixtures
		SC		Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (More than 1/2 of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL		Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL > 50	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH		Inorganic clays of high plasticity, fat clays
		OH		Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt		Peat and other highly organic soils

CLASSIFICATION MODIFIERS

TRACE	0 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
AND	35 - 50%

± MODIFIERS

PLASTICITY CHART



GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
coarse (c)	3" to 3/4"	76.2 to 19.1
fine (f)	3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.074
coarse (c)	No. 4 to No. 10	4.76 to 2.00
medium (m)	No. 10 to No. 40	2.00 to 0.420
fine (f)	No. 40 to No 200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

Woodward-Clyde Consultants

SAMPLE CLASSIFICATION CHART

MOISTURE CONTENT

DRY	- LITTLE/NO PERCEPTIBLE MOISTURE
DAMP	- SOME PERCEPTIBLE MOISTURE, NOT COMPACTABLE
MOIST	- COMPACTABLE
WET	- ABOVE COMPACTABLE RANGE
SATURATED	- PORES, VOIDS FILLED WITH WATER
▼	- WATER TABLE (AT TIME OF DRILLING)

SORTING (So = P_{75}/P_{25})

	So
EXTREMELY WELL	1.0-1.1
VERY WELL	1.1-1.2
WELL	1.2-1.4
MODERATELY	1.4-2.0
POORLY	2.0-2.7
VERY POORLY	2.7-5.0

SOIL CONSISTANCY

SILT, SAND and GRAVEL	BLOWS/FT 2 1/2 in. O.D. SAMPLER	CLAY	BLOWS/FT 2 1/2 in. O.D. SAMPLER	THUMB PENETRATION
Very loose	< 6	Very Soft	< 3	Very easily - inches
Loose	6 - 16	Soft	3 - 6	Easily - inches
Medium Dense	16 - 47	Medium (firm)	6 - 13	Moderate effort - inches
Dense	47 - 78	Stiff	13 - 23	Indented easily
Very Dense	> 78	Very Stiff	23 - 47	Indented by nail
		Hard	> 47	Difficult by nail

SOIL BORING AND WELL CONSTRUCTION LEGEND

MODIFIED CALIFORNIA SAMPLE RECOVERY

WATER LEVEL OBSERVED IN BORING

STATIC WATER LEVEL MEASURED IN WELL

BLANK CASING

SCREENED CASING

CEMENT GROUT

BENTONITE

SAND PACK

NOTE: BLOW COUNT (BLOWS/FT) REPRESENTS THE NUMBER OF BLOWS OF A 140 - POUND HAMMER FALLING 30 INCHES PER BLOW REQUIRED TO DRIVE A SAMPLER THROUGH THE LAST 12 INCHES OF AN 18 - INCH PENETRATION

NOTE: THE LINE SEPARATING STRATA ON THE LOGS REPRESENTS APPROXIMATE BOUNDARIES ONLY. THE ACTUAL TRANSITION MAY BE GRADUAL. NO WARRANTY IS PROVIDED AS TO THE CONTINUITY OF SOIL STRATA BETWEEN BORINGS. LOGS REPRESENT THE SOIL SECTION OBSERVED AT THE BORING LOCATION ON THE DATE OF DRILLING ONLY.

Woodward-Clyde Consultants

Woodward-Clyde Consultants PROJECT NAME Grove Valve NO. 92C0091A/2000

BORING LOCATION SB-2, Center of Main Plant building, near previous S4 boring		ELEVATION AND DATUM Not surveyed	
DRILLING AGENCY Woodward-Clyde Consultants	DRILLER K. Guyer & J. Haus	DATE STARTED 2/25/92 DATE FINISHED 2/25/92	
DRILLING EQUIPMENT Hand Auger		COMPLETION DEPTH 3' 6"	SAMPLER Slide-weight drive Sampler
DRILLING METHOD 3-inch Solid stem auger		NO. OF SAMPLES DIST. 2	UNDIST.
LOGGED BY: K. Guyer		WATER LEVEL FIRST	COMPL. 24 HRS.
CHECKED BY: R. Spencer			

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Moisture Content	Dry Density pcf
			Cement			
1	A	8	SILTY SAND (FILL) H Nu = 0 ppm reddish light brown, coarse sand, trace gravel to 1/2", dry	SM		
2						
3	B	50	H Nu = 7 ppm			
			REFUSAL, possibly hit old pavement			
4						
5						
6						

Woodward-Clyde Consultants

PROJECT NAME Grove Valve NO. 92C0091A/2000

BORING LOCATION	SB-3, Southwest end of Main Plant building, in test pit	ELEVATION AND DATUM	Not surveyed
DRILLING AGENCY	Woodward-Clyde Consultants DRILLER K. Guyer & J. Haus	DATE STARTED 2/25/92 DATE FINISHED 2/25/92	
DRILLING EQUIPMENT	Hand Auger	COMPLETION DEPTH 5' 6"	SAMPLER Slide-weight drive Sampler
DRILLING METHOD	3-inch Solid stem auger	NO. OF SAMPLES DIST. 3	UNDIST.
LOGGED BY:	K. Guyer	WATER LEVEL FIRST	COMPL. — 24 HRS. —
CHECKED BY:	R. Spencer		

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Moisture Content	Dry Density pcf
			Cement			
1	A	26	SILTY SANDY GRAVEL (FILL) light brown, fine sand, gravel to 1", subrounded, damp. H Nu = 0 ppm	GM		
2			SILTY CLAY tan, highly plastic, some medium to coarse sand, damp. H Nu = 0 ppm	CL		
3	B	50				
4						
5	C	22	More sand with minor iron staining. H Nu ~ 1 ppm			
6			Total Depth 5' 6"			

Woodward-Clyde Consultants

PROJECT NAME Grove Valve **NO.** 92C0091A/2000

BORING LOCATION SB-5, Inside Engineering Test Facility building, west center		**ELEVATION AND DATUM** Not surveyed	
DRILLING AGENCY Woodward-Clyde Consultants	**DRILLER** K. Guyer & J. Haus	**DATE STARTED** 2/25/92 **DATE FINISHED** 2/25/92	
DRILLING EQUIPMENT Hand Auger		**COMPLETION DEPTH** 5' 6"	**SAMPLER** Slide-weight drive Sampler
DRILLING METHOD 3-inch Solid stem auger		**NO. OF SAMPLES** DIST. 3	**UNDIST.**
LOGGED BY: K. Guyer		**WATER LEVEL** FIRST	**COMPL.** — **24 HRS.** —
CHECKED BY: R. Spencer			

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Moisture Content	Dry Density pcf
			Cement			
	A	8	SANDY GRAVEL (FILL) brown, loose, fine sand, gravel to 1", dry H Nu = 0 ppm	GM		
1			SANDY CLAY dark brown, some red brick chips, few 1/4" angular pebbles, moist.	SC		
2						
3	B	4	CLAYEY GRAVEL brown, poorly sorted, some sand in lenses, damp. H Nu = 0ppm	GC		
4			H Nu = 0 ppm			
5	C	30				
			Total Depth 5' 6"			
6						

Woodward-Clyde Consultants

PROJECT NAME GROVE VALVE NO. 91C0091A/2000

MONITORING WELL LOCATION	Grove Valve and Regulator, 6529 Hollis Street, Emeryville, CA — MW-1 Southeast parking lot	ELEVATION AND DATUM	20.72' MSL
DRILLING AGENCY	Kvilhaug Well Drilling; DRILLER Rodney Furlow	DATE STARTED / DATE FINISHED	2/27/92
DRILLING EQUIPMENT	Mobile Drill B-61	COMPLETION DEPTH	25; SAMPLER 2" split spoon
DRILLING METHOD	Hollow stem auger; DRILL BIT	NO. OF SAMPLES	DIST. --; UNDIST. 6
SIZE AND TYPE OF CASING	4" Schedule 40 PVC, FROM 0.0 TO 10.0 FT.	WATER LEVEL	FIRST -7.52; COMPL. --; 24 HRS. 15.62
TYPE OF PERFORATION	0.020" Slot, FROM 10.0 TO 25.0 FT.	LOGGED BY: K. O. Guyer	CHECKED BY: R. Ely
SIZE AND TYPE OF PACK	#2/12 Monterey sand, FROM 8.0 TO 25.0 FT.		
TYPE OF SEAL NO. 1	1/4" Bentonite pellets, FROM 7.0 TO 8.0 FT.		
TYPE OF SEAL NO. 2	Neat cement grout, FROM surface TO 7.0 FT.		

Depth (feet)	Blows	MATERIAL DESCRIPTION	USCS
0	4, 2, 2	Cement Pavement	
		FILL - Silty Sand: tan, coarse sand with silt, loose, moist	ML
		SILTY CLAY: dark brown, some fine sand, soft, medium plastic, damp	CL
5	10, 15, 22	HNu= 0 ppm	
		SILTY SAND: light brown, medium grained with silt, some clay, medium dense, dry	SM
10	4, 5, 12	Increase in clay — HNu= 0 ppm	
		Increase in moisture	
15	5, 7, 10	HNu= 0 ppm	
		SILTY CLAY: tan, some 1/8" pebbles, stiff, slightly moist	CL
20	3, 5, 8	HNu= 0 ppm	
		NOTE: Lenses of medium to coarse sand, about 2" thick, saturated	(SP)
25	2, 3, 7	HNu= 0 ppm	
		Total Depth = 25 feet	

Depth scale: 5, 10, 15, 20, 25, 30, 35

LOG OF MONITORING WELL NO. MW-1 SHEET 1 OF 1

Woodward-Clyde Consultants

PROJECT NAME Grove Valve NO. 92C0091A/2000

BORING LOCATION	SB-4, Between fence and north side of building, near previous S1 boring	ELEVATION AND DATUM	Not surveyed
DRILLING AGENCY	Woodward-Clyde Consultants; DRILLER K. Guyer & J. Haus	DATE STARTED 2/25/92 DATE FINISHED 2/25/92	
DRILLING EQUIPMENT	Hand Auger	COMPLETION DEPTH 5' 6"	SAMPLER Slide-weight drive Sampler
DRILLING METHOD	3-inch Solid stem auger	NO. OF SAMPLES: DIST. 3	UNDIST.
LOGGED BY:	K. Guyer	WATER LEVEL: FIRST	COMPL. ___ 24 HRS. ___
CHECKED BY:	R. Spencer		

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Moisture Content	Dry Density pcf
			Cement			
0–2	A	30	SANDY GRAVEL (FILL) reddish brown, fine sand, gravel to 1", trace silt size, dry (damp to wet at 2') H Nu = 1 ppm	GM		
2–2.8			CLAY blue gray, highly plastic, few 1/4" pebbles, moist. H Nu = 3 ppm	CH		
2.8–4	B	20	CLAYEY SAND reddish brown, similar to above but with less clay. H Nu = 7 ppm	SC		
4–5.5	C	30	SANDY GRAVEL reddish brown, poorly sorted, trace silt size, damp. H Nu = 11 ppm	GM		
			Total Depth 5' 6"			

Woodward-Clyde Consultants PROJECT NAME GROVE VALVE NO. 91C0091A/2000

MONITORING WELL LOCATION	Grove Valve and Regulator 6529 Hollis Street, Emeryville, CA	MW-2 Southwest corner of Main Plant building		ELEVATION AND DATUM	15.95' MSL		
DRILLING AGENCY	Kvilhaug Well Drilling	DRILLER	Rodney Furlow	DATE STARTED DATE FINISHED	2/26/92		
DRILLING EQUIPMENT	Mobile Drill B-61			COMPLETION DEPTH	25	SAMPLER	2" split spoon
DRILLING METHOD	Hollow stem auger	DRILL BIT		NO. OF SAMPLES	DIST.	UNDIST.	6
SIZE AND TYPE OF CASING	4" Schedule 40 PVC	FROM 0.0 TO 10.0 FT.		WATER LEVEL	FIRST -7.35	COMPL. --	24 HRS. 9.1
TYPE OF PERFORATION	0.020" Slot	FROM 10.0 TO 25.0 FT.		LOGGED BY:		CHECKED BY:	
SIZE AND TYPE OF PACK	#2/12 Monterey sand	FROM 8.0 TO 25.0 FT.		K. O. Guyer		R. Ely	
TYPE OF SEAL NO. 1	1/4" Bentonite pellets	FROM 7.0 TO 8.0 FT.					
TYPE OF SEAL NO. 2	Neat cement grout	FROM surface TO 7.0 FT.					

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Well Construction
0		15, 22, 28	Cement Pavement, 7" thick		
			FILL - Silty Sandy Gravel greenish tan, gravel to 1", angular, coarse sand with silt, loose, moist	GM	
			Cobbles to 3"		
5		3, 6, 8	Increase in moisture to wet HNu= 0 ppm		
			SANDY SILT tan, medium stiff, dry, lenses of sand, black, medium grained loose and damp to wet	MH	
10		18, 22, 25	HNu= 0 ppm		
			CLAYEY SILT light brown, low plasticity, damp to dry HNu= 0 ppm	OL	
15		6, 10, 15			
			SANDY SILT HNu= 0 ppm light brown, fine sand, trace clay, medium stiff, damp	MH	
20		8, 15, 25			
			SILTY CLAY mottled gray and tan, medium stiff to stiff, damp to wet HNu= 0 ppm	OL	
25		6, 8, 13			
			Total Depth = 25 feet		
30					
35					

Woodward-Clyde Consultants

PROJECT NAME GROVE VALVE NO. 91C0091A/2000

MONITORING WELL LOCATION	Grove Valve and Regulator 6529 Hollis Street, Emeryville, CA	MW-3 Northwest corner outside of Main Plant bldg.		ELEVATION AND DATUM	16.98' MSL	
DRILLING AGENCY	Kvilhaug Well Drilling	DRILLER	Rodney Furlow	DATE STARTED DATE FINISHED	2/26/92	
DRILLING EQUIPMENT	Mobile Drill B-61			COMPLETION DEPTH	25	SAMPLER 2" split spoon
DRILLING METHOD	Hollow stem auger	DRILL BIT		NO. OF SAMPLES	DIST.	UNDIST. 6
SIZE AND TYPE OF CASING	4" Schedule 40 PVC	FROM 0.0 TO 10.0 FT.		WATER LEVEL	FIRST -6.02	COMPL. -- / 24 HRS. 8.38
TYPE OF PERFORATION	0.020" Slot	FROM 10.0 TO 25.0 FT.		LOGGED BY:	K. O. Guyer	CHECKED BY: R. Ely
SIZE AND TYPE OF PACK	#2/12 Monterey sand	FROM 8.0 TO 25.0 FT.				
TYPE OF SEAL NO. 1	1/4" Bentonite pellets	FROM 7.0 TO 8.0 FT.				
TYPE OF SEAL NO. 2	Neat cement grout	FROM surface TO 7.0 FT.				

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Well Construction
		8 7 16	Asphalt Pavement		
			FILL/ROAD BASE - Sandy Gravel gray to tan, gravel to 1", some fines, poorly sorted, angular, gravel to 1 1/2", well compacted, damp	GM	
			Cobles to 3"		
			SILTY CLAY HNu= 0 ppm	CL	
5		4 8 12	CLAY gray, soft, plastic, some pebbles to 1/4", dry	OL	
10		4 8 10	Same as above but with sand lenses, black, 2-3" thick, medium to coarse sand, wet HNu= 0 ppm	(SP)	
			SILTY CLAY mottled gray and tan, some to few 1/4" pebbles, medium stiff, dry	CL	
15		8 7 10	HNu= 0 ppm		
20		7 10 12	HNu= 0 ppm		
		10 18 45	SILTY SAND light brown, medium sand with silt, moderate sorting, loose, wet HNu= 0 ppm	SM	
25			Total Depth = 25 feet		
30					
35					

LOG OF MONITORING WELL MW-3 SHEET 1 OF 1

APPENDIX C

Well Development Logs

KVILHAUG WELL DRILLING AND PUMP COMPANY, INC.

WELL DEVELOPMENT REPORT

ENT Woodward Clyde Oakland DATE 28 Feb 1992

O. 92C00 91A-200 SITE NAME & ADDRESS Grove Valve-6529 Hollis St. Emery

WELL # MW#1 STATIC 5.1' DEPTH 24.94'

IME	REMARKS	
:25	SET UP ON MW#1	
	Took static	
	Took TD	
:30	START Surging	
3:00	STOP surging - water is brown in color w/heavy	
	amount of silts	
?:05	SET PUMP & START PUMPING	
3	STOP PUMPING - aprox amount taken 30 gals	
	water is light brown w/silts	
:20	START Surging	
?:35	STOP SURGING - WATER is brown in color	
	with heavy silts.	
:37	START PUMPING	
4:10	Stop Pump - aprox amount taken 45 gals	
	water cleared to a transparent light tan	
	w/small amount of fine silts. Total amount	
	taken 75 gals	
	STEAM CLEAN	
	LOAD UP	
	off site	

PAGE 3 OF

REPARED BY Paul

WELL DEVELOPMENT REPORT

LIENT Woodward Clyde Oakland DATE 28 Feb 1992

U. 2C0091A-2000 SITE NAME & ADDRESS GroveValve-6529 Hollis St Emeryville

WELL # MW#2 STATIC 6.85' DEPTH 24.21

TIME	REMARKS	
:45	ON SITE	
8:00	MEET ROBIN + SIGN IN	
:15	SET UP STEAM CLEAN AREA + STEAM Equiptment.	
55	SET UP ON MW #2	
	Took static	
	Took TD	
:00	STARTED surging	
9:	STOP SURGING - WATER is Light BROWN In color	
	with a heavy amount of fine silts.	
:40	SET PUMP + START Pumping	
10:00	STOP PUMPING - APROX AMOUNT taken 33 gals water	
	cleared to a light tan w/ some silts.	
10:05	STARTED surging	
10:20	STOP SURGING - water is light brown + silty	
:25	START PUMPING	
:55	STOP PUMPING - APROX amount taken 22 gals water	
	cleared to a transparent light tan w/ very	
	Little amount of fine silts. Total amount taken 55gals	
	STEAM CLEAN	

PAGE 1 OF 3

REPARED BY Paul

KVILHAUG WELL DRILLING AND PUMP COMPANY, INC.

WELL DEVELOPMENT REPORT

CLIENT Woodward Clyde Oakland DATE 28 Feb 1992

JOB 92C0091A-2000 SITE NAME & ADDRESS Grove Valve - 6529 Hollis St. Emeryville

WELL # MW#3 STATIC 8.6' DEPTH 24.9

TIME	REMARKS	
1:25	SET UP ON MW #3	
	Took static	
	Took TD	
1:30	STARTED Surging	
12:00	STOP surging water is Brown in color w/heavy silts & some fine sands.	
2:05	STARTED pumping - pumped 10 gals & WELL WENT DRY, ALLOWED 10 mins RECOVERY time & RESUMED pumping	
:30	STOP Pumping - aprox amount taken 31 gals water cleared to a light brown w/moderate silts	
12:35	STARTED Surging	
2:50	STOP Surging - water is brown w/heavy silts & very small amount of fine sands.	
12:53	STARTED Pumping	
:45	STOP Pumping - aprox amount taken 44 gals water cleared to a transparent very light tan with very little or no fine silts. total amount taken 75 gals	
	STEAM clean	

PREPARED BY Paul

PAGE 2 OF 3

APPENDIX D
Water Sample Logs

25.00
4.28
20.72
x .66
12432
12432
13.6752
X 3
42

WATER SAMPLE LOG

Sample No. U-1

Project No.: 92C0091A/2000 Date: 3-2-92

Project Name: Grove Valve

Sample Location: front parking lot

Well Description: 4"

Weather Conditions: Clr.

Observations / Comments:

Quality Assurance

Sampling Method: Teflon bailer

Method to Measure Water Level: 200' Solinst

Pump Lines: New / Cleaned Bailer Lines: New / Cleaned

Method of cleaning ~~Pump~~ Bailer: Alconox wash, double tap & D.I. rinse

pH Meter No.: Beckman 0230977 Calibrated 4.00/10.01

Specific Conductance Meter No.: YSI 13749 Calibrated 3-2

Comments:

rinsate for full sweep

Sampling Measurements

Water Level (below MP) at Start: 4.28 End: 4.96

Measuring Point (MP): TOC

Time	Discharge (gallons)	pH	Temp. (°C)	Specific Conductance (µmhos / cm)	Turbidity	Color	Odor	~~Comments~~ Sal. ‰
12:27	10	6.60	18.5	1200	HIGH	TAN	N.D.	1.3
12:35	20	6.60	18.5	1220	"	"	"	1.3
12:45	30	6.62	19	1200	"	"	"	1.2
12:52	42	6.60	19	1190	"	"	"	1.1

Total Discharge: 42 gal. Casing Volumes Removed: 3

Method of disposal of discharged water: 55 gal. drum

Number and size of sample containers filled: 2 liters (oil & grease); 2 liters (PCB/8080); 2 VOA's (VOC/8010/8020); + rinsate of full ~~[illegible]~~ sweep

Collected by: J. HAUS

Woodward-Clyde Consultants
500 12th Street, Suite 100, Oakland, CA 94607-4014
(415) 893-3600

Sample No.

25.00
7.90
17.10
X .66
10260
10260
11.2860
X 3
~~33~~34

WATER SAMPLE LOG

Sample No. MW-2

Project No.: 92C0091A/2000 Date: 3-2-92

Project Name: Grove Valve

Sample Location: inside bldg., near railroad tracks

Well Description: 4"

Weather Conditions: Clr.

Observations / Comments:

Quality Assurance

Sampling Method: Teflon bailer

Method to Measure Water Level: 200' Solinst

Pump Lines: New / Cleaned Bailer Lines: New / Cleaned

Method of cleaning ~~Pump~~/Bailer: Alconox wash, double tap & D.I. rinse

pH Meter No.: Beckman 0230977 Calibrated 4.00/10.01

Specific Conductance Meter No.: YSI 13749 Calibrated 3-2

Comments:

duplicate

Sampling Measurements

Water Level (below MP) at Start: 7.90 End: 8.22

Measuring Point (MP): TOC

Time	Discharge (gallons)	pH	Temp. (°C)	Specific Conductance (µmhos / cm)	Turbidity	Color	Odor	Comments Sal. ‰
10:40	10	6.78	14	2510	HIGH	BRN	N.D.	1.7
10:50	20	6.72	18	2580	"	"	"	1.6
10:58	27	6.69	18.5	2710	"	"	"	4.8
11:05	31	6.67	18.5	2550	"	"	"	4.5
11:10	34	6.65	18.5	2480	"	"	"	4.2
11:15	37	6.63	18.5	2400	"	"	"	4.0
11:17	40	6.65	18.5	2400	"	"	"	4.0

Total Discharge: 40 gal. Casing Volumes Removed: 3.6

Method of disposal of discharged water: 55 gal. drum

Number and size of sample containers filled: 4 liters (oil & grease); 4 liters (PCB/8080); 4 VOA's (VOC/8010/8020)

Collected by: J. Haws

Woodward-Clyde Consultants
500 12th Street, Suite 100, Oakland, CA 94607-4014
(415) 893-3600

Sample [redacted]

25.00
- 9.22
15.78
X .66
9468
9468
10.4148
X 3
31

WATER SAMPLE LOG

Sample No. [redacted]1-3

Project No.: 72C0091A/2000 Date: 3-2-92

Project Name: Grove Valve

Sample Location: outside, corner of bldg. near R.R. tracks

Well Description: 4"

Weather Conditions: Clr.

Observations / Comments:

Quality Assurance

Sampling Method: Teflon bailer

Method to Measure Water Level: 200' Solinst

Pump Lines: New / Cleaned Bailer Lines: New / Cleaned

Method of cleaning ~~Pump~~ / Bailer: Alconox wash, double tap & D.I. rinse

pH Meter No.: Beckman 0230977 Calibrated 4.00/10.01

Specific Conductance Meter No.: YSI 13749 Calibrated 3-2

Comments:

Sampling Measurements

Water Level (below MP) at Start: 9.22 End: 9.30

Measuring Point (MP): TOC

Time	Discharge (gallons)	pH	Temp. (°C)	Specific Conductance (µmhos / cm)	Turbidity	Color	Odor	Comments Sal.‰
11:39	10	6.53	18	2980	HIGH	BRN	ND	6.8
11:45	20	6.60	18	3200	"	"	"	7.2
11:55	25	6.63	18	3160	"	"	"	6.3
11:59	30	6.55	18	3210	"	"	"	6.2
12:10	35	6.54	18	3200	"	"	"	6.2

Total Discharge: 35 gal. Casing Volumes Removed: 3.2

Method of disposal of discharged water: 55 gal. drum

Number and size of sample containers filled: 2 liters (oil & grease); 2 liters (PCB/8080); 2 VOA's (VOC/8010/8020)

Collected by: J. Haus

Woodward-Clyde Consultants
500 12th Street, Suite 100, Oakland, CA 94607-4014
(415) 893-3600

APPENDIX E
Elevation Survey

SURVEYING

EARL L. GRAY — Licensed Land Surveyor
3496 Buskirk Ave., Suite 103, Pleasant Hill, CA 94523 • (415) 934-4322

Job No. 9216
March 27, 1992

Woodward Clyde Consultants
500 12th Street Suite 100
Oakland, CA 94607-4014

Attn: Keith Guyer

RE: Grove Valve and Regulator Company, Monitoring Wells located at 6529 Hollis Street Emeryville, California

General Notes:

1) Benchmark: City of Emeryville BM No. EBM 15, NGS Azimuth mark for S. Berkeley Base (Destroyed) at 65th St. and the West line of S.P. Right of Way, 9 feet North of Bay Strret Adjusted Elevation = 16.17, (1929 NGVD Sea Level Datum)

2) Monitoring Well P.V.C. elevations were taken on the north rim marked with a cut groove and black marker. Monitoring Well Rim elevations were taken at the north side adjacent to P.V.C. shot, marked with a cut groove and orange paint dot.

3) All data shown is based on a field survey on March 23, 1992 as per field book 77/16.

WELL	RIM ELEV	PVC ELEV
MW-1	20.89	20.72
MW-2	16.28	15.95
MW-3	17.47	16.98

Prepared under the direction of:

Earl L. Gray

Earl L. Gray
P.L.S. 3874

LICENSED LAND SURVEYOR
EARL L. GRAY
3874
EXPIRES 6-30-93
STATE OF CALIFORNIA

APPENDIX F
Analytical Results

QuanteQ Laboratories

An Ecologics Company

FORMERLY MED-TOX

Certificate of Analysis

DOHS CERTIFICATION NO. E772

AIHA ACCREDITATION NO. 332

WOODWARD-CLYDE CONSULTANTS
500 12TH STREET
SUITE 100
OAKLAND, CA 94607
ATTN: ROBIN SPENCER

CLIENT PROJ. ID: 92C0091A/2000

REPORT DATE: 03/25/92

DATE SAMPLED: 02/25/92

DATE RECEIVED: 02/25/92

ADDITIONAL ANALYSIS
REQUESTED: 03/13/92

QUANTEQ JOB NO: 9202194

ANALYSIS OF: SOIL SAMPLES

See attached for results

Andrew Bradeen

Andrew Bradeen, Manager
Organic Laboratory

Results FAXed: 03/11-24/92

WOODWARD-CLYDE CONSULTANTS

DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/25/92
CLIENT PROJ. ID: 92C0091A/2000

REPORT DATE: 03/25/92
QUANTEQ JOB NO: 9202194

Client Sample Id.	Quanteq Lab Id.	Oil & Grease (mg/kg)	Hydrocarbons (mg/kg)
SB-1-A'	01A	10	ND
SB-1-B'	02A	100	20
SB-1-C'	03A	ND	ND
SB-3-A'	04A	250	230
SB-3-B'	05A	60	30
SB-3-C'	06A	ND	ND
SB-2-A'	07A	ND	ND
SB-2-B'	08A	ND	ND
SB-4-A'	09A	330	230
SB-4-B'	10A	60	50
SB-4-C'	11A	2,800	2,500
SB-5-A'	12A	60	40
SB-5-B'	13A	10	ND
SB-5-C'	14A	30	10
SB-6-A'	15A	90	80
SB-6-B'	16A	50	30
SB-6-C'	17A	20	10
SB-1-AA	18A	30	20
Detection Limit		10	10
Method:		5520E	5520F

Instrument: IR

Date Extracted: 02/27, 03/20/92
Date Analyzed: 03/02-23/92

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-1-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-01A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-1-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-02A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-3-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-04A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-3-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-05A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-2-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-07A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-2-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-08A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-4-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-09A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	6	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-4-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-10A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-5-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-12A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-5-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-13A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-6-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-15A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-6-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-16A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-1-AA
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-18A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-1-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-01A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-1-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-02A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-3-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-04A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-3-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-05A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-2-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-07A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-2-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-08A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-4-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-09A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-4-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-10A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-5-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-12A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-5-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-13A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-6-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-15A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

QuanteQ Laboratories

An Ecologics Company

FORMERLY MED-TOX

Certificate of Analysis

DOHS CERTIFICATION NO. E772

AIHA ACCREDITATION NO. 332

WOODWARD-CLYDE CONSULTANTS
500 12TH STREET
SUITE 100
OAKLAND, CA 94607

ATTN: ROBIN SPENCER

CLIENT PROJ. ID: 92C0091A/2000

REPORT DATE: 04/03/92

DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/25/92

ADDITIONAL ANALYSIS
REQUESTED: 03/24/92

QUANTEQ JOB NO: 9203191

ANALYSIS OF: SOIL SAMPLE

See attached for results

Andrew Bradeen, Manager
Organic Laboratory

Results FAXed 04/02/92

3440 Vincent Road • Pleasant Hill, CA 94523 • (510) 930-9090 • FAX (510) 930-0256

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-4-C'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/25/92
REPORT DATE: 04/03/92

QUANTEQ LAB NO: 9203191-01A
QUANTEQ JOB NO: 9203191
DATE ANALYZED: 03/25/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	40	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-4-C'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/25/92
REPORT DATE: 04/03/92

QUANTEQ LAB NO: 9203191-01A
QUANTEQ JOB NO: 9203191
DATE ANALYZED: 03/25/92
INSTRUMENT: G

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	* 50
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	* 200

ND = Not Detected

* Detection limits raised due to the presence of diesel type hydrocarbons.

QUALITY CONTROL DATA

INSTRUMEMT: G

QUANTEQ JOB NO: 9203191

CLIENT PROJ. ID: 92C0091A/2000

INSTRUMENT: G

SURROGATE STANDARD RECOVERY SUMMARY

METHOD 8010/8020
(SOIL MATRIX)

SAMPLE IDENTIFICATION			SURROGATE RECOVERY (PERCENT)		
Date Analyzed	Client Id.	Lab No.	Bromochloro-methane	1-Bromo-2-chloro-propane	1-Chloro-2-fluoro-benzene
03/26/92	SB-4-C'	01A	109.1	105.3	116.8

CURRENT QC LIMITS (Revised 01/06/92)

ANALYTE	PERCENT RECOVERY
Bromochloromethane	(67-131)
1-Bromo-2-chloropropane	(73-133)
1-Chloro-2-fluorobenzene	(82-124)

QUALITY CONTROL DATA

DATE ANALYZED: 03/26/92
INSTRUMENT: G
CLIENT PROJ. ID: 92C0091A/2000

QUANTEQ JOB NO: 9203191

SAMPLE SPIKED: 9203201-06A

METHOD SPIKE RECOVERY SUMMARY

METHOD 8010/8020
(SOIL MATRIX)

ANALYTE	Spike Conc. (ug/kg)	Sample Result (ug/kg)	MS Result (ug/kg)	MSD Result (ug/kg)	Average Percent Recovery	RPD
1,1-Dichloroethene	500	ND	320	301	62.1	6.1
Trichloroethene	500	ND	398	385	78.3	3.3
Benzene	500	ND	403	393	79.6	2.5
Toluene	500	ND	406	398	80.4	2.0
Chlorobenzene	500	ND	388	378	76.6	2.6

CURRENT QC LIMITS (Revised 01/06/92)

Analyte	Percent Recovery	RPD
1,1-Dichloroethene	(44-126)	10.1
Trichloroethene	(69-136)	14.0
Benzene	(79-118)	6.4
Toluene	(74-126)	6.7
Chlorobenzene	(75-122)	10.4

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

R-4,S-B ~~9202194~~ 9203191

Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607-~~4014~~ 4014
(415) 893-3600

Chain of Custody Record

PROJECT NO. 92C0091A/2000

SAMPLERS: (Signature) Keith O. Guyer

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method 8080 (PCBs)	EPA Method 8010/8020 (VOC)	EPA Method	EPA Method	oil & grease SM 520	Hold*				Number of Containers
2/25	0840	SB-1-A 01A	S	X	X			X					1
2/25	0920	SB-1-B 02A	S	X	X			X					1
2/25	0950	SB-1-C 03A	S					X	X				1
2/25	1015	SB-3-A 04A	S	X	X			X					1
2/25	1030	SB-3-B 05A	S	X	X			X					1
2/25	1050	SB-3-C 06A	S					X	X				1
2/25	1110	SB-2-A 07A	S	X	X			X					1
2/25	1130	SB-2-B 08A	S	X	X			X					1
2/25	1325	SB-4-A 09A	S	X	X			X					1
2/25	1345	SB-4-B 10A	S	X	X			X					1
X 2/25	1410	SB-4-C 11A	S		*			X	X				1
2/25	1450	SB-5-A 12A	S	X	X			X					1
2/25	1505	SB-5-B 13A	S	X	X			X					1
2/25	1515	SB-5-C 14A	S					X	X				1
2/25	1530	SB-6-A 15A	S	X	X			X					1
2/25	1545	SB-6-B 16A	S	X	X			X					1
2/25	1605	SB-6-C 17A	S					X	X				1
2/25	0840	SB-1-AA 18A	S	X	X			X					

REMARKS (Sample preservation, handling procedures, etc.)

standard TAT

* hold samples will analyze if positive hits in "B"

Questions / Results to Ms Robin Spencer 874-1747

*3/13/92 Take samples off hold & analyze for 5520EF

TOTAL NUMBER OF CONTAINERS: 17

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Keith O. Guyer	2/25 1732				

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
			Gina Gillespie	2/25/92 1735

Quanteq Laboratories
An Ecologics Company

FORMERLY MED-TOX

Certificate of Analysis

DOHS CERTIFICATION NO. E772

AIHA ACCREDITATION NO. 332

WOODWARD-CLYDE CONSULTANTS
500 12TH STREET
SUITE 100
OAKLAND, CA 94607
ATTN: ROBIN SPENCER

CLIENT PROJ. ID: 92C0091A/2000

REPORT DATE: 03/18/92

DATE SAMPLED: 03/02/92

DATE RECEIVED: 03/02/92

QUANTEQ JOB NO: 9203004

ANALYSIS OF: WATER SAMPLES

Client Sample Id.	Quanteq Lab Id.	Oil & Grease (mg/L)	Hydrocarbons (mg/L)
MW-1	01E	ND	ND
MW-1R	02E	ND	ND
MW-2	03E	ND	ND
MW-2D	04E	ND	ND
MW-3	05E	ND	ND
Detection Limit		0.5	0.5
Method:		5520C	5520F

Instrument: IR

Date Extracted: 03/10,11/92
Date Analyzed: 03/11/92

ND = Not Detected

Andrew Bradeen

Andrew Bradeen, Manager
Organic Laboratory

3440 Vincent Road • Pleasant Hill, CA 94523 • (510) 930-9090 • FAX (510) 930-0256

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92
REPORT DATE: 03/18/92

QUANTEQ LAB NO: 9203004-01A
QUANTEQ JOB NO: 9203004
DATE ANALYZED: 03/03/92
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-34-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	**156-59-2**	**33**	**0.5**
trans-1,2-Dichloroethene	**156-60-5**	**12**	**0.5**
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	**79-01-6**	**103**	**0.5**
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	0.5

ND = Not Detected

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WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1R
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92
REPORT DATE: 03/18/92

QUANTEQ LAB NO: 9203004-02A
QUANTEQ JOB NO: 9203004
DATE ANALYZED: 03/03/92
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Bromodichloromethane	75-27-4	1	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	36	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-34-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	156-59-2	ND	0.5
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	ND	0.5
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	0.5

ND = Not Detected

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An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92
REPORT DATE: 03/18/92

QUANTEQ LAB NO: 9203004-03A
QUANTEQ JOB NO: 9203004
DATE ANALYZED: 03/03/92
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-34-3	3	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	156-59-2	2	0.5
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	0.5	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	4	0.5
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	0.5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2D
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92
REPORT DATE: 03/18/92

QUANTEQ LAB NO: 9203004-04A
QUANTEQ JOB NO: 9203004
DATE ANALYZED: 03/03/92
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	**75-34-3**	**3**	**0.5**
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	**156-59-2**	**2**	**0.5**
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	**71-55-6**	**0.6**	**0.5**
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	**79-01-6**	**4**	**0.5**
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	0.5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92
REPORT DATE: 03/18/92

QUANTEQ LAB NO: 9203004-05A
QUANTEQ JOB NO: 9203004
DATE ANALYZED: 03/03/92
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	**67-66-3**	**0.5**	**0.5**
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	**75-34-3**	**0.6**	**0.5**
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	**75-35-4**	**2**	**0.5**
cis-1,2-Dichloroethene	**156-59-2**	**18**	**0.5**
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	**71-55-6**	**0.5**	**0.5**
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	**79-01-6**	**1,300**	**10**
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	**75-01-4**	**5**	**0.5**

ND = Not Detected

Note: This sample was re-analyzed at a 1:20 dilution for the quantification of Trichloroethene.

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: TRIP BLANK
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 03/02/92
REPORT DATE: 03/18/92

QUANTEQ LAB NO: 9203004-06A
QUANTEQ JOB NO: 9203004
DATE ANALYZED: 03/03/92
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-34-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	156-59-2	ND	0.5
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	ND	0.5
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	0.5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92

QUANTEQ LAB NO: 9203004-01A
QUANTEQ JOB NO: 9203004
DATE ANALYZED: 03/03/92
INSTRUMENT: G
REPORT DATE: 03/18/92

EPA METHOD 8020 (WATER MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene	71-43-2	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Toluene	108-88-3	ND	0.5
Xylenes, Total	1330-20-7	ND	2

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1R
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92

QUANTEQ LAB NO: 9203004-02A
QUANTEQ JOB NO: 9203004
DATE ANALYZED: 03/03/92
INSTRUMENT: G
REPORT DATE: 03/18/92

EPA METHOD 8020 (WATER MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene	71-43-2	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Toluene	108-88-3	ND	0.5
Xylenes, Total	1330-20-7	ND	2

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92

QUANTEQ LAB NO: 9203004-03A
QUANTEQ JOB NO: 9203004
DATE ANALYZED: 03/03/92
INSTRUMENT: G
REPORT DATE: 03/18/92

EPA METHOD 8020 (WATER MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene	71-43-2	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Toluene	108-88-3	ND	0.5
Xylenes, Total	1330-20-7	ND	2

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92

QUANTEQ LAB NO: 9203004-05A
QUANTEQ JOB NO: 9203004
DATE ANALYZED: 03/03/92
INSTRUMENT: G
REPORT DATE: 03/18/92

EPA METHOD 8020 (WATER MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene	71-43-2	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Toluene	108-88-3	ND	0.5
Xylenes, Total	1330-20-7	ND	2

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: TRIP BLANK
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 03/02/92

QUANTEQ LAB NO: 9203004-06A
QUANTEQ JOB NO: 9203004
DATE ANALYZED: 03/03/92
INSTRUMENT: G
REPORT DATE: 03/18/92

EPA METHOD 8020 (WATER MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene	71-43-2	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Toluene	108-88-3	ND	0.5
Xylenes, Total	1330-20-7	ND	2

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92
REPORT DATE: 03/18/92

QUANTEQ LAB NO: 9203004-01C
QUANTEQ JOB NO: 9203004
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/11/92
INSTRUMENT: B

EPA METHOD 8080 (WATER MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aldrin	309-00-2	ND	0.05
alpha-BHC	319-84-6	ND	0.05
beta-BHC	319-85-7	ND	0.05
delta-BHC	319-86-8	ND	0.05
gamma-BHC (Lindane)	58-89-9	ND	0.05
Chlordane	57-74-9	ND	0.5
4,4'-DDD	72-54-8	ND	0.1
2,4'-DDD	53-19-0	ND	0.1
4,4'-DDE	72-55-9	ND	0.1
2,4'-DDE	3424-82-6	ND	0.1
4,4'-DDT	50-29-3	ND	0.1
2,4'-DDT	789-02-6	ND	0.1
Dieldrin	60-57-1	ND	0.1
Endosulfan I	959-98-8	ND	0.05
Endosulfan II	33212-65-9	ND	0.1
Endosulfan sulfate	1031-07-8	ND	0.1
Endrin	72-20-8	ND	0.1
Endrin aldehyde	7421-93-4	ND	0.1
Heptachlor	76-44-8	ND	0.05
Heptachlor epoxide	1024-57-3	ND	0.05
Methoxychlor	72-43-5	ND	0.1
Toxaphene	8001-35-2	ND	0.5
PCB-1016	12674-11-2	ND	0.5
PCB-1221	11104-28-2	ND	0.5
PCB-1232	11141-16-5	ND	0.5
PCB-1242	53469-21-9	ND	0.5
PCB-1248	12672-29-6	ND	0.5
PCB-1254	11097-69-1	ND	0.5
PCB-1260	11096-82-5	ND	0.5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1R
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92
REPORT DATE: 03/18/92

QUANTEQ LAB NO: 9203004-02C
QUANTEQ JOB NO: 9203004
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/11/92
INSTRUMENT: B

EPA METHOD 8080 (WATER MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aldrin	309-00-2	ND	0.05
alpha-BHC	319-84-6	ND	0.05
beta-BHC	319-85-7	ND	0.05
delta-BHC	319-86-8	ND	0.05
gamma-BHC (Lindane)	58-89-9	ND	0.05
Chlordane	57-74-9	ND	0.5
4,4'-DDD	72-54-8	ND	0.1
2,4'-DDD	53-19-0	ND	0.1
4,4'-DDE	72-55-9	ND	0.1
2,4'-DDE	3424-82-6	ND	0.1
4,4'-DDT	50-29-3	ND	0.1
2,4'-DDT	789-02-6	ND	0.1
Dieldrin	60-57-1	ND	0.1
Endosulfan I	959-98-8	ND	0.05
Endosulfan II	33212-65-9	ND	0.1
Endosulfan sulfate	1031-07-8	ND	0.1
Endrin	72-20-8	ND	0.1
Endrin aldehyde	7421-93-4	ND	0.1
Heptachlor	76-44-8	ND	0.05
Heptachlor epoxide	1024-57-3	ND	0.05
Methoxychlor	72-43-5	ND	0.1
Toxaphene	8001-35-2	ND	0.5
PCB-1016	12674-11-2	ND	0.5
PCB-1221	11104-28-2	ND	0.5
PCB-1232	11141-16-5	ND	0.5
PCB-1242	53469-21-9	ND	0.5
PCB-1248	12672-29-6	ND	0.5
PCB-1254	11097-69-1	ND	0.5
PCB-1260	11096-82-5	ND	0.5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92
REPORT DATE: 03/18/92

QUANTEQ LAB NO: 9203004-03C
QUANTEQ JOB NO: 9203004
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/11/92
INSTRUMENT: B

EPA METHOD 8080 (WATER MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aldrin	309-00-2	ND	0.05
alpha-BHC	319-84-6	ND	0.05
beta-BHC	319-85-7	ND	0.05
delta-BHC	319-86-8	ND	0.05
gamma-BHC (Lindane)	58-89-9	ND	0.05
Chlordane	57-74-9	ND	0.5
4,4'-DDD	72-54-8	ND	0.1
2,4'-DDD	53-19-0	ND	0.1
4,4'-DDE	72-55-9	ND	0.1
2,4'-DDE	3424-82-6	ND	0.1
4,4'-DDT	50-29-3	ND	0.1
2,4'-DDT	789-02-6	ND	0.1
Dieldrin	60-57-1	ND	0.1
Endosulfan I	959-98-8	ND	0.05
Endosulfan II	33212-65-9	ND	0.1
Endosulfan sulfate	1031-07-8	ND	0.1
Endrin	72-20-8	ND	0.1
Endrin aldehyde	7421-93-4	ND	0.1
Heptachlor	76-44-8	ND	0.05
Heptachlor epoxide	1024-57-3	ND	0.05
Methoxychlor	72-43-5	ND	0.1
Toxaphene	8001-35-2	ND	0.5
PCB-1016	12674-11-2	ND	0.5
PCB-1221	11104-28-2	ND	0.5
PCB-1232	11141-16-5	ND	0.5
PCB-1242	53469-21-9	ND	0.5
PCB-1248	12672-29-6	ND	0.5
PCB-1254	11097-69-1	ND	0.5
PCB-1260	11096-82-5	ND	0.5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2D
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92
REPORT DATE: 03/18/92

QUANTEQ LAB NO: 9203004-04C
QUANTEQ JOB NO: 9203004
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/11/92
INSTRUMENT: B

EPA METHOD 8080 (WATER MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aldrin	309-00-2	ND	0.05
alpha-BHC	319-84-6	ND	0.05
beta-BHC	319-85-7	ND	0.05
delta-BHC	319-86-8	ND	0.05
gamma-BHC (Lindane)	58-89-9	ND	0.05
Chlordane	57-74-9	ND	0.5
4,4'-DDD	72-54-8	ND	0.1
2,4'-DDD	53-19-0	ND	0.1
4,4'-DDE	72-55-9	ND	0.1
2,4'-DDE	3424-82-6	ND	0.1
4,4'-DDT	50-29-3	ND	0.1
2,4'-DDT	789-02-6	ND	0.1
Dieldrin	60-57-1	ND	0.1
Endosulfan I	959-98-8	ND	0.05
Endosulfan II	33212-65-9	ND	0.1
Endosulfan sulfate	1031-07-8	ND	0.1
Endrin	72-20-8	ND	0.1
Endrin aldehyde	7421-93-4	ND	0.1
Heptachlor	76-44-8	ND	0.05
Heptachlor epoxide	1024-57-3	ND	0.05
Methoxychlor	72-43-5	ND	0.1
Toxaphene	8001-35-2	ND	0.5
PCB-1016	12674-11-2	ND	0.5
PCB-1221	11104-28-2	ND	0.5
PCB-1232	11141-16-5	ND	0.5
PCB-1242	53469-21-9	ND	0.5
PCB-1248	12672-29-6	ND	0.5
PCB-1254	11097-69-1	ND	0.5
PCB-1260	11096-82-5	ND	0.5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/02/92
DATE RECEIVED: 03/02/92
REPORT DATE: 03/18/92

QUANTEQ LAB NO: 9203004-05C
QUANTEQ JOB NO: 9203004
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/11/92
INSTRUMENT: B

EPA METHOD 8080 (WATER MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Aldrin	309-00-2	ND	0.05
alpha-BHC	319-84-6	ND	0.05
beta-BHC	319-85-7	ND	0.05
delta-BHC	319-86-8	ND	0.05
gamma-BHC (Lindane)	58-89-9	ND	0.05
Chlordane	57-74-9	ND	0.5
4,4'-DDD	72-54-8	ND	0.1
2,4'-DDD	53-19-0	ND	0.1
4,4'-DDE	72-55-9	ND	0.1
2,4'-DDE	3424-82-6	ND	0.1
4,4'-DDT	50-29-3	ND	0.1
2,4'-DDT	789-02-6	ND	0.1
Dieldrin	60-57-1	ND	0.1
Endosulfan I	959-98-8	ND	0.05
Endosulfan II	33212-65-9	ND	0.1
Endosulfan sulfate	1031-07-8	ND	0.1
Endrin	72-20-8	ND	0.1
Endrin aldehyde	7421-93-4	ND	0.1
Heptachlor	76-44-8	ND	0.05
Heptachlor epoxide	1024-57-3	ND	0.05
Methoxychlor	72-43-5	ND	0.1
Toxaphene	8001-35-2	ND	0.5
PCB-1016	12674-11-2	ND	0.5
PCB-1221	11104-28-2	ND	0.5
PCB-1232	11141-16-5	ND	0.5
PCB-1242	53469-21-9	ND	0.5
PCB-1248	12672-29-6	ND	0.5
PCB-1254	11097-69-1	ND	0.5
PCB-1260	11096-82-5	ND	0.5

ND = Not Detected

QUALITY CONTROL DATA

DATE EXTRACTED: 03/11/92
DATE ANALYZED: 03/11/92
CLIENT PROJ. ID: 92C0091A/2000

QUANTEQ JOB NO: 9203004
SAMPLE SPIKED: D.I. WATER
INSTRUMENT: IR

IR DETERMINATION FOR OIL & GREASE/HYDROCARBONS
METHOD SPIKE RECOVERY SUMMARY
(WATER MATRIX)

ANALYTE	Spike Conc. (mg/L)	Sample Result (mg/L)	MS Result (mg/L)	MSD Result (mg/L)	Average Percent Recovery	RPD
Oil	6.14	ND	6.14	6.00	98.9	2.3

CURRENT QC LIMITS (Revised 01/09/92)

Analyte	Percent Recovery	RPD
Oil	(87-112)	5.4

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

QUALITY CONTROL DATA

INSTRUMEMT: G

QUANTEQ JOB NO: 9203004

CLIENT PROJ. ID: 92C0091A/2000

SURROGATE STANDARD RECOVERY SUMMARY

METHOD 8010/8020
(WATER MATRIX)

SAMPLE IDENTIFICATION			SURROGATE RECOVERY (PERCENT)		
Date Analyzed	Client Id.	Lab No.	Bromochloro-methane	1-Bromo-2-chloro-propane	1-Chloro-2-fluoro-benzene
03/03/92	MW-1	01A	118.3	110.4	96.7
03/03/92	MW-1R	02A	127.0	116.4	102.3
03/03/92	MW-2	03A	115.3	118.5	102.8
03/03/92	MW-2D	04A	113.0	109.4	98.2
03/03/92	MW-3	05A	127.0	124.6	108.7
03/03/92	TRIP BLANK	06A	109.9	114.4	101.9

CURRENT QC LIMITS (Revised 01/06/92)

ANALYTE	PERCENT RECOVERY
Bromochloromethane	(70-127)
1-Bromo-2-chloropropane	(71-128)
1-Chloro-2-fluorobenzene	(76-124)

Quanteq Laboratories
An Ecologics Company

QUALITY CONTROL DATA

DATE ANALYZED: 03/03/92
INSTRUMENT: G
CLIENT PROJ. ID: 92C0091A/2000

QUANTEQ JOB NO: 9203004

SAMPLE SPIKED: D.I. WATER

METHOD SPIKE RECOVERY SUMMARY

METHOD 8010/8020 (WATER MATRIX)

ANALYTE	Spike Conc. (ug/L)	Sample Result (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	Average Percent Recovery	RPD
1,1-Dichloroethene	50.0	ND	43.9	44.5	88.4	1.4
Trichloroethene	50.0	ND	52.4	52.7	105.1	0.6
Benzene	50.0	ND	45.2	45.0	90.2	0.4
Toluene	50.0	ND	45.4	45.2	90.6	0.4
Chlorobenzene	50.0	ND	46.6	48.1	94.7	3.2

CURRENT QC LIMITS (Revised 01/06/92)

Analyte	Percent Recovery	RPD
1,1-Dichloroethene	(58-116)	8.2
Trichloroethene	(76-130)	5.0
Benzene	(84-114)	5.0
Toluene	(81-114)	5.0
Chlorobenzene	(64-116)	5.0

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

QUALITY CONTROL DATA

DATE EXTRACTED: 03/09/92 QUANTEQ JOB NO: 9203004

CLIENT PROJ. ID: 92C0091A/2000 INSTRUMENT: B

SURROGATE STANDARD RECOVERY SUMMARY

METHOD 8080
(WATER MATRIX)

SAMPLE IDENTIFICATION			SURROGATE RECOVERY (PERCENT)
Date Analyzed	Client Id.	Lab No.	2,4,5,6-Tetrachloro-meta-xylene
03/11/92	MW-1	01C	81
03/11/92	MW-1R	02C	87
03/11/92	MW-2	03C	85
03/11/92	MW-2D	04C	83
03/11/92	MW-3	05C	81

CURRENT QC LIMITS

ANALYTE	PERCENT RECOVERY
2,4,5,6-Tetrachloro-meta-xylene	(23-125)

Quanteq Laboratories
An Ecologics Company

QUALITY CONTROL DATA

DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/11/92
SAMPLE SPIKED: D.I. WATER

QUANTEQ JOB NO: 9203004

INSTRUMENT: B

MATRIX SPIKE RECOVERY SUMMARY

METHOD 8080
(WATER MATRIX)

ANALYTE	Spike Conc. (ug/L)	Sample Result (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	Average Percent Recovery	RPD
Lindane	0.500	ND	0.513	0.519	103.2	1.2
Heptachlor	0.500	ND	0.510	0.514	102.4	0.8
Aldrin	0.500	ND	0.503	0.512	101.5	1.8
Dieldrin	1.25	ND	1.20	1.22	96.8	1.7
Endrin	1.25	ND	1.39	1.40	111.6	0.7
DDT	1.25	ND	1.22	1.24	98.4	1.6

CURRENT QC LIMITS (Revised 08/15/91)

Analyte	Percent Recovery	RPD
Lindane	(39-135)	9.3
Heptachlor	(56-116)	11
Aldrin	(45-120)	16
Dieldrin	(52-131)	9.7
Endrin	(51-129)	11
DDT	(39-132)	14

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

K-1, S-
R-3, S-

9203004

Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607-[redacted]
(415) 893-3600 —4014

Chain of Custody Record

PROJECT NO. 92C0091A / 2000

SAMPLERS: (Signature)

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method	EPA Method	EPA Method	EPA Method	VOC 8010/8020	PCB/8080	Oil & Grease				Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
3-2-92	13:40	MW-1	W					2	2	2				6	01A-F
	13:55	MW-1R						2	2	2				6	02A-F
	14:30	MW-2						2	2	2				6	03A-F
	14:30	MW-2D						2	2	2				6	04A-F
3-2-92	15:00	MW-3						2	2	2				6	05A-F
2-25-92	—	Trip Blank						2						2	06AB

Standard 2-week turnaround
Any questions and/or results to: Robin Spencer 874-1747

TOTAL NUMBER OF CONTAINERS: 32

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	3-2-92 16:00				

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
			[signature]	3/4/92 1600

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-6-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-16A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-1-AA
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92

QUANTEQ LAB NO: 9202194-18A
QUANTEQ JOB NO: 9202194
DATE ANALYZED: 02/27/92
INSTRUMENT: G
REPORT DATE: 03/25/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-1-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-01A
QUANTEQ JOB NO: 9202194
DATE EXTRACTED: 02/28/92
DATE ANALYZED: 02/28/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-1-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-02A
QUANTEQ JOB NO: 9202194
DATE EXTRACTED: 02/28/92
DATE ANALYZED: 02/28/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-3-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-04A
QUANTEQ JOB NO: 9202194
DATE EXTRACTED: 02/28/92
DATE ANALYZED: 02/28-03/03/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-3-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-05A
QUANTEQ JOB NO: 9202194
DATE EXTRACTED: 03/02/92
DATE ANALYZED: 03/03/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-2-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-07A
QUANTEQ JOB NO: 9202194
DATE EXTRACTED: 03/02/92
DATE ANALYZED: 03/03/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-2-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-08A
QUANTEQ JOB NO: 9202194
DATE EXTRACTED: 03/02/92
DATE ANALYZED: 03/03/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-4-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-09A
QUANTEQ JOB NO: 9202194
DATE EXTRACTED: 03/02/92
DATE ANALYZED: 03/03/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-4-B'	QUANTEQ LAB NO: 9202194-10A
CLIENT PROJ. ID: 92C0091A/2000	QUANTEQ JOB NO: 9202194
DATE SAMPLED: 02/25/92	DATE EXTRACTED: 03/02/92
DATE RECEIVED: 02/26/92	DATE ANALYZED: 03/03/92
REPORT DATE: 03/25/92	INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-5-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-12A
QUANTEQ JOB NO: 9202194
DATE EXTRACTED: 03/04/92
DATE ANALYZED: 03/04/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-5-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-13A
QUANTEQ JOB NO: 9202194
DATE EXTRACTED: 03/04/92
DATE ANALYZED: 03/04/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-6-A'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-15A
QUANTEQ JOB NO: 9202194
DATE EXTRACTED: 03/04/92
DATE ANALYZED: 03/04/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-6-B'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-16A
QUANTEQ JOB NO: 9202194
DATE EXTRACTED: 03/04/92
DATE ANALYZED: 03/04/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: SB-1-AA
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/25/92
DATE RECEIVED: 02/26/92
REPORT DATE: 03/25/92

QUANTEQ LAB NO: 9202194-18A
QUANTEQ JOB NO: 9202194
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/10/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

Quanteq Laboratories
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QUALITY CONTROL DATA

DATE EXTRACTED: 03/06/92
DATE ANALYZED: 03/06-09/92
CLIENT PROJ. ID: 92C0091A/2000

QUANTEQ JOB NO: 9202194
SAMPLE SPIKED: 9202194-18A
INSTRUMENT: IR

IR DETERMINATION FOR OIL & GREASE/HYDROCARBONS
METHOD SPIKE RECOVERY SUMMARY
(SOIL MATRIX)

ANALYTE	MS Conc. (mg/kg)	Sample Result (mg/kg)	MS Result (mg/kg)	MSD Result (mg/kg)	Average Percent Recovery	RPD
Oil	205	31	246	246	104.9	0.0

CURRENT QC LIMITS (Revised 01/09/92)

Analyte	Percent Recovery	RPD
Oil	(84-113)	8.1

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

QUALITY CONTROL DATA

DATE EXTRACTED: 03/20/92
DATE ANALYZED: 03/23/92
CLIENT PROJ. ID: 92C0091A/2000

QUANTEQ JOB NO: 9202194
SAMPLE SPIKED: 9202194-14A
INSTRUMENT: IR

IR DETERMINATION FOR OIL & GREASE/HYDROCARBONS
METHOD SPIKE RECOVERY SUMMARY
(SOIL MATRIX)

ANALYTE	MS Conc. (mg/kg)	Sample Result (mg/kg)	MS Result (mg/kg)	MSD Result (mg/kg)	Average Percent Recovery	RPD
Oil	211	27	238	238	100.0	0.0

CURRENT QC LIMITS (Revised 01/09/92)

Analyte	Percent Recovery	RPD
Oil	(84-113)	8.1

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

QUALITY CONTROL DATA

INSTRUMEMT: G

QUANTEQ JOB NO: 9202194

CLIENT PROJ. ID: 92C0091A/2000

SURROGATE STANDARD RECOVERY SUMMARY

METHOD 8010/8020
(SOIL MATRIX)

SAMPLE IDENTIFICATION			SURROGATE RECOVERY (PERCENT)		
Date Analyzed	Client Id.	Lab No.	Bromochloro-methane	1-Bromo-2-chloro-propane	1-Chloro-2-fluoro-benzene
02/27/92	SB-1-A'	01A	101.9	99.5	109.5
02/27/92	SB-1-B'	02A	105.0	106.1	110.4
02/27/92	SB-3-A'	04A	99.9	100.2	110.9
02/27/92	SB-3-B'	05A	99.1	96.3	110.4
02/27/92	SB-2-A'	07A	95.7	93.9	106.7
02/27/92	SB-2-B'	08A	95.7	96.7	105.2
02/27/92	SB-4-A'	09A	92.8	100.6	105.4
02/27/92	SB-4-B'	10A	99.4	101.3	110.6
02/27/92	SB-5-A'	12A	97.9	102.4	108.4
02/27/92	SB-5-B'	13A	97.7	100.4	108.4
02/27/92	SB-6-A'	15A	82.0	86.2	96.0
02/27/92	SB-6-B'	16A	96.4	98.9	107.7
02/27/92	SB-1-AA	18A	88.1	90.0	110.2

CURRENT QC LIMITS (Revised 01/06/92)

ANALYTE	PERCENT RECOVERY
Bromochloromethane	(67-131)
1-Bromo-2-chloropropane	(73-133)
1-Chloro-2-fluorobenzene	(82-124)

QUALITY CONTROL DATA

DATE ANALYZED: 02/27/92
INSTRUMENT: G
CLIENT PROJ. ID: 92C0091A/2000

QUANTEQ JOB NO: 9202194
SAMPLE SPIKED: 9202194-02A

METHOD SPIKE RECOVERY SUMMARY

METHOD 8010/8020
(SOIL MATRIX)

ANALYTE	Spike Conc. (ug/kg)	Sample Result (ug/kg)	MS Result (ug/kg)	MSD Result (ug/kg)	Average Percent Recovery	RPD
1,1-Dichloroethene	500	ND	369	367	73.6	0.5
Trichloroethene	500	ND	531	528	105.9	0.6
Benzene	500	ND	516	490	100.6	5.2
Toluene	500	ND	522	500	102.2	4.3
Chlorobenzene	500	ND	456	439	89.5	3.8

CURRENT QC LIMITS (Revised 01/06/92)

Analyte	Percent Recovery	RPD
1,1-Dichloroethene	(44-126)	10.1
Trichloroethene	(69-136)	14.0
Benzene	(79-118)	6.4
Toluene	(74-126)	6.7
Chlorobenzene	(75-122)	10.4

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

Quanteq Laboratories
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QUALITY CONTROL DATA

DATE EXTRACTED: 02/28,03/02,04,10/92 QUANTEQ JOB NO: 9202194

CLIENT PROJ. ID: 92C0091A/2000 INSTRUMENT: B

SURROGATE STANDARD RECOVERY SUMMARY

METHOD 8080
(SOIL MATRIX)

SAMPLE IDENTIFICATION			SURROGATE RECOVERY (PERCENT)
Date Analyzed	Client Id.	Lab No.	2,4,5,6-Tetrachloro-meta-xylene
02/28/92	SB-1-A'	01A	95
02/28/92	SB-1-B'	02A	103
02/28/92	SB-3-A'	04A	96
03/03/92	SB-3-B'	05A	82
03/03/92	SB-2-A'	07A	82
03/03/92	SB-2-B'	08A	85
03/03/92	SB-4-A'	09A	79
03/03/92	SB-4-B'	10A	79
03/03/92	SB-5-A'	12A	82
03/03/92	SB-5-B'	13A	87
03/03/92	SB-6-A'	15A	87
03/03/92	SB-6-B'	16A	88
03/03/92	SB-1-AA	18A	98

CURRENT QC LIMITS

ANALYTE	PERCENT RECOVERY
2,4,5,6-Tetrachloro-meta-xylene	(50-150)

QUALITY CONTROL DATA

DATE EXTRACTED: 03/02/92
DATE ANALYZED: 03/03/92
SAMPLE SPIKED: 9202194-05A

QUANTEQ JOB NO: 9202194

INSTRUMENT: B

MATRIX SPIKE RECOVERY SUMMARY

METHOD 8080 (SOIL MATRIX)

ANALYTE	Spike Conc. (ug/kg)	Sample Result (ug/kg)	MS Result (ug/kg)	MSD Result (ug/kg)	Average Percent Recovery	RPD
Lindane	0.500	ND	0.433	0.442	87.5	2.1
Heptachlor	0.500	ND	0.481	0.480	96.1	0.2
Aldrin	0.500	ND	0.485	0.486	97.1	0.2
Dieldrin	1.25	ND	1.09	1.08	86.8	0.9
Endrin	1.25	ND	1.32	1.32	106.0	0.0
DDT	1.25	ND	1.26	1.27	101.0	0.8

CURRENT QC LIMITS (Revised 08/15/91)

Analyte	Percent Recovery	RPD
Lindane	(53-128)	12
Heptachlor	(63-122)	11
Aldrin	(50-130)	12
Dieldrin	(50-131)	14
Endrin	(33-161)	15
DDT	(24-149)	31

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

QUALITY CONTROL DATA

DATE EXTRACTED: 03/04/92
DATE ANALYZED: 03/04/92
SAMPLE SPIKED: 9202222-03A

QUANTEQ JOB NO: 9202194

INSTRUMENT: B

MATRIX SPIKE RECOVERY SUMMARY

METHOD 8080
(SOIL MATRIX)

ANALYTE	Spike Conc. (ug/kg)	Sample Result (ug/kg)	MS Result (ug/kg)	MSD Result (ug/kg)	Average Percent Recovery	RPD
Lindane	0.500	ND	0.470	0.482	95.2	2.5
Heptachlor	0.500	ND	0.414	0.424	83.8	2.4
Aldrin	0.500	ND	0.503	0.517	102.0	2.7
Dieldrin	1.25	ND	0.800	0.818	64.7	2.2
Endrin	1.25	ND	1.12	1.15	90.8	2.6
DDT	1.25	ND	0.31	0.32	25.2	6.0

CURRENT QC LIMITS (Revised 08/15/91)

Analyte	Percent Recovery	RPD
Lindane	(53-128)	12
Heptachlor	(63-122)	11
Aldrin	(50-130)	12
Dieldrin	(50-131)	14
Endrin	(33-161)	15
DDT	(24-149)	31

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

R-4,S-B 9202194

Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607-~~4014~~ 4014
(415) 893-3600

Chain of Custody Record

PROJECT NO. 92C0091A/2000

SAMPLERS: (Signature) Keith O. Guyer

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method 8080 (PCBs)	EPA Method 8010/8020 (VOC)	EPA Method	EPA Method	Oil & Grease SM 520	Hold*					Number of Containers
2/25	0840	SB-1-A' 01A	S	X	X			X						1
2/25	0920	SB-1-B' 02A	S	X	X			X						1
2/25	0950	SB-1-C' 03A	S					X	X					1
2/25	1015	SB-3-A' 04A	S	X	X			X						1
2/25	1030	SB-3-B' 05A	S	X	X			X						1
2/25	1050	SB-3-C' 06A	S					X	X					1
2/25	1110	SB-2-A' 07A	S	X	X			X						1
2/25	1130	SB-2-B' 08A	S	X	X			X						1
2/25	1325	SB-4-A' 09A	S	X	X			X						1
2/25	1345	SB-4-B' 10A	S	X	X			X						1
2/25	1410	SB-4-C' 11A	S					X	X					1
2/25	1450	SB-5-A' 12A	S	X	X			X						1
2/25	1505	SB-5-B' 13A	S	X	X			X						1
2/25	1515	SB-5-C' 14A	S					X	X					1
2/25	1530	SB-6-A' 15A	S	X	X			X						1
2/25	1545	SB-6-B' 16A	S	X	X			X						1
2/25	1605	SB-6-C' 17A	S					X	X					1
2/25	0840	SB-1-AA 18A	S	x	x			x						

TOTAL NUMBER OF CONTAINERS: 17

REMARKS (Sample preservation, handling procedures, etc.):

standard TAT

*hold samples will analyze if positive hits in "B"

Questions/Results to Ms Robin Spencer 874-1747

3/13/92 Take samples off hold & analyze for 5520EF

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Keith O. Guyer	2/25 1732				

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
			Gina Gillespie	2/25/92 1735

QuanteQ Laboratories
Ecologics Company

FORMERLY MED-TOX

Certificate of Analysis

DOHS CERTIFICATION NO. E772

AIHA ACCREDITATION NO. 332

WOODWARD-CLYDE CONSULTANTS
500 12TH STREET
SUITE 100
OAKLAND, CA 94607
ATTN: ROBIN SPENCER

CLIENT PROJ. ID: 92C0091A/2000

REPORT DATE: 03/18/92

DATE SAMPLED: 02/26-27/92

DATE RECEIVED: 02/27/92

QUANTEQ JOB NO: 9202222

ANALYSIS OF: SOIL SAMPLES

See attached for results

Andrew Bradeen, Manager
Organic Laboratory

3440 Vincent Road • Pleasant Hill, CA 94523 • (510) 930-9090 • FAX (510) 930-0256

WOODWARD-CLYDE CONSULTANTS

DATE SAMPLED: 02/26-27/92
DATE RECEIVED: 02/27/92
CLIENT PROJ. ID: 92C0091A/2000

REPORT DATE: 03/18/92

QUANTEQ JOB NO: 9202222

Client Sample Id.	Quanteq Lab Id.	Oil & Grease (mg/kg)	Hydrocarbons (mg/kg)
MW-2-6"	01A	10	ND
MW-2-10	02A	ND	ND
MW-2-20	03A	ND	ND
MW-2-25	04A	ND	ND
MW-3-6"	05A	30	20
MW-3-5'	06A	10	ND
MW-3-15	07A	ND	ND
MW-3-25'	08A	ND	ND
MW-1-6"	09A	ND	ND
MW-1-5	10A	ND	ND
MW-1-15	11A	ND	ND
MW-1-25	12A	ND	ND
MW-3-25A	13A	ND	ND
Detection Limit		10	10
Method:		5520E	5520F

Instrument: IR

Date Extracted: 03/12,13/92
Date Analyzed: 03/13/92

ND = Not Detected

Quanteq Laboratories

An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2-6"
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-01A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2-10
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-02A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2-20
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-03A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2-25
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-04A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

Quanteq Laboratories

An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-6"
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-05A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-5'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-06A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

Quanteq Laboratories

An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-15
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-07A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-25'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-08A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	**120**	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1-6"
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/27/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-09A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1-5
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/27/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-10A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

Quanteq Laboratories
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WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1-15
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/27/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-11A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-25A
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-13A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G

EPA METHOD 8010 (SOIL MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	5
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	5
2-Chloroethyl Vinyl Ether	110-75-8	ND	5
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	5
Dibromochloromethane	124-48-1	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Dichlorodifluoromethane	75-71-8	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
cis-1,2-Dichloroethene	156-59-2	ND	5
trans-1,2-Dichloroethene	156-60-5	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Methylene Chloride	75-09-2	ND	5
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	100	5
Trichlorofluoromethane	75-69-4	ND	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	5
Vinyl Chloride	75-01-4	ND	5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2-6"
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92

QUANTEQ LAB NO: 9202222-01A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G
REPORT DATE: 03/19/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/k)	DETECTION LIMIT (ug/k)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2-20
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92

QUANTEQ LAB NO: 9202222-03A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G
REPORT DATE: 03/19/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/k)	DETECTION LIMIT (ug/k)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2-25
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92

QUANTEQ LAB NO: 9202222-04A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G
REPORT DATE: 03/19/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/k)	DETECTION LIMIT (ug/k)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-6"
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92

QUANTEQ LAB NO: 9202222-05A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G
REPORT DATE: 03/19/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/k)	DETECTION LIMIT (ug/k)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-5'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92

QUANTEQ LAB NO: 9202222-06A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G
REPORT DATE: 03/19/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/k)	DETECTION LIMIT (ug/k)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-15
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92

QUANTEQ LAB NO: 9202222-07A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G
REPORT DATE: 03/19/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/k)	DETECTION LIMIT (ug/k)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-25'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92

QUANTEQ LAB NO: 9202222-08A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G
REPORT DATE: 03/19/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/k)	DETECTION LIMIT (ug/k)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1-6"
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/27/92
DATE RECEIVED: 02/27/92

QUANTEQ LAB NO: 9202222-09A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G
REPORT DATE: 03/19/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/k)	DETECTION LIMIT (ug/k)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1-5
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/27/92
DATE RECEIVED: 02/27/92

QUANTEQ LAB NO: 9202222-10A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G
REPORT DATE: 03/19/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/k)	DETECTION LIMIT (ug/k)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1-15
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/27/92
DATE RECEIVED: 02/27/92

QUANTEQ LAB NO: 9202222-11A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G
REPORT DATE: 03/19/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/k)	DETECTION LIMIT (ug/k)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-25A
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/26/92
DATE RECEIVED: 02/27/92

QUANTEQ LAB NO: 9202222-13A
QUANTEQ JOB NO: 9202222
DATE ANALYZED: 03/05/92
INSTRUMENT: G
REPORT DATE: 03/19/92

EPA METHOD 8020 (SOIL MATRIX)
AROMATIC VOLATILE HYDROCARBONS

COMPOUND	CAS #	CONCENTRATION (ug/k)	DETECTION LIMIT (ug/k)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	ND	5
Xylenes, Total	1330-20-7	ND	20

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2-6"
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-01A
QUANTEQ JOB NO: 9202222
DATE EXTRACTED: 03/04/92
DATE ANALYZED: 03/04/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2-10
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-02A
QUANTEQ JOB NO: 9202222
DATE EXTRACTED: 03/04/92
DATE ANALYZED: 03/04/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2-20
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-03A
QUANTEQ JOB NO: 9202222
DATE EXTRACTED: 03/04/92
DATE ANALYZED: 03/04/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-2-25
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-04A
QUANTEQ JOB NO: 9202222
DATE EXTRACTED: 03/04/92
DATE ANALYZED: 03/04/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

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WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-6"
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-05A
QUANTEQ JOB NO: 9202222
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/10/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-5'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-06A
QUANTEQ JOB NO: 9202222
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/10/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

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WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-15
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-07A
QUANTEQ JOB NO: 9202222
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/10/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-25'
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-08A
QUANTEQ JOB NO: 9202222
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/10/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1-6"	QUANTEQ LAB NO: 9202222-09A
CLIENT PROJ. ID: 92C0091A/2000	QUANTEQ JOB NO: 9202222
DATE SAMPLED: 02/27/92	DATE EXTRACTED: 03/09/92
DATE RECEIVED: 02/27/92	DATE ANALYZED: 03/10/92
REPORT DATE: 03/19/92	INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1-5
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/27/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-10A
QUANTEQ JOB NO: 9202222
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/10/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

Quanteq Laboratories
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WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1-15
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/27/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-11A
QUANTEQ JOB NO: 9202222
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/10/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-1-25
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 02/27/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-12A
QUANTEQ JOB NO: 9202222
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/10/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

CLIENT ID: MW-3-25A
CLIENT PROJ. ID: 92C0091A/2000
DATE SAMPLED: 03/26/92
DATE RECEIVED: 02/27/92
REPORT DATE: 03/19/92

QUANTEQ LAB NO: 9202222-13A
QUANTEQ JOB NO: 9202222
DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/10/92
INSTRUMENT: B

EPA METHOD 8080 (SOIL MATRIX)
ORGANOCHLORINE PESTICIDES AND PCBs

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Aldrin	309-00-2	ND	5
alpha-BHC	319-84-6	ND	5
beta-BHC	319-85-7	ND	5
delta-BHC	319-86-8	ND	5
gamma-BHC (Lindane)	58-89-9	ND	5
Chlordane	57-74-9	ND	50
4,4'-DDD	72-54-8	ND	10
2,4'-DDD	53-19-0	ND	10
4,4'-DDE	72-55-9	ND	10
2,4'-DDE	3424-82-6	ND	10
4,4'-DDT	50-29-3	ND	10
2,4'-DDT	789-02-6	ND	10
Dieldrin	60-57-1	ND	10
Endosulfan I	959-98-8	ND	5
Endosulfan II	33212-65-9	ND	10
Endosulfan sulfate	1031-07-8	ND	10
Endrin	72-20-8	ND	10
Endrin aldehyde	7421-93-4	ND	10
Heptachlor	76-44-8	ND	5
Heptachlor epoxide	1024-57-3	ND	5
Methoxychlor	72-43-5	ND	10
Toxaphene	8001-35-2	ND	50
PCB-1016	12674-11-2	ND	50
PCB-1221	11104-28-2	ND	50
PCB-1232	11141-16-5	ND	50
PCB-1242	53469-21-9	ND	50
PCB-1248	12672-29-6	ND	50
PCB-1254	11097-69-1	ND	50
PCB-1260	11096-82-5	ND	50

ND = Not Detected

QUALITY CONTROL DATA

DATE EXTRACTED: 03/12/92
DATE ANALYZED: 03/13/92
CLIENT PROJ. ID: 92C0091A/2000

QUANTEQ JOB NO: 9202222
SAMPLE SPIKED: 9202228-03A
INSTRUMENT: IR

IR DETERMINATION FOR OIL & GREASE/HYDROCARBONS
METHOD SPIKE RECOVERY SUMMARY
(SOIL MATRIX)

ANALYTE	MS Conc. (mg/kg)	Sample Result (mg/kg)	MS Result (mg/kg)	MSD Result (mg/kg)	Average Percent Recovery	RPD
Oil	195	ND	200	205	103.9	2.5

CURRENT QC LIMITS (Revised 01/09/92)

Analyte	Percent Recovery	RPD
Oil	(84-113)	8.1

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

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QUALITY CONTROL DATA

DATE ANALYZED: 03/05/92 QUANTEQ JOB NO: 9202222
INSTRUMENT: G
CLIENT PROJ. ID: 92C0091A/2000 SAMPLE SPIKED: 9202222-07A

METHOD SPIKE RECOVERY SUMMARY

METHOD 8010/8020
(SOIL MATRIX)

ANALYTE	Spike Conc. (ug/kg)	Sample Result (ug/kg)	MS Result (ug/kg)	MSD Result (ug/kg)	Average Percent Recovery	RPD
1,1-Dichloroethene	50.0	ND	37.1	33.8	70.9	9.3
Trichloroethene	50.0	ND	46.3	45.1	91.4	2.6
Benzene	50.0	ND	50.8	49.8	100.6	2.0
Toluene	50.0	ND	51.6	50.6	102.2	2.0
Chlorobenzene	50.0	ND	43.1	42.4	85.5	1.6

CURRENT QC LIMITS (Revised 01/06/92)

Analyte	Percent Recovery	RPD
1,1-Dichloroethene	(44-126)	10.1
Trichloroethene	(69-136)	14.0
Benzene	(79-118)	6.4
Toluene	(74-126)	6.7
Chlorobenzene	(75-122)	10.4

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

QUALITY CONTROL DATA

DATE EXTRACTED: 03/04,09/92 QUANTEQ JOB NO: 9202222

CLIENT PROJ. ID: 92C0091A/2000 INSTRUMENT: B

SURROGATE STANDARD RECOVERY SUMMARY

METHOD 8080
(SOIL MATRIX)

SAMPLE IDENTIFICATION			SURROGATE RECOVERY (PERCENT)
Date Analyzed	Client Id.	Lab No.	2,4,5,6-Tetrachloro-meta-xylene
03/04/92	MW-2-6"	01A	92
03/04/92	MW-2-10	02A	83
03/04/92	MW-2-20	03A	83
03/04/92	MW-2-25	04A	73
03/10/92	MW-3-6"	05A	87
03/10/92	MW-3-5'	06A	85
03/10/92	MW-3-15	07A	87
03/10/92	MW-3-25'	08A	86
03/10/92	MW-1-6"	09A	80
03/10/92	MW-1-5	10A	79
03/10/92	MW-1-15	11A	84
03/10/92	MW-1-25	12A	88
03/10/92	MW-3-25A	13A	91

CURRENT QC LIMITS

ANALYTE	PERCENT RECOVERY
2,4,5,6-Tetrachloro-meta-xylene	(50-150)

QUALITY CONTROL DATA

DATE EXTRACTED: 03/09/92
DATE ANALYZED: 03/10/92
SAMPLE SPIKED: 9202222-08A

QUANTEQ JOB NO: 9202222

INSTRUMENT: B

MATRIX SPIKE RECOVERY SUMMARY

METHOD 8080
(SOIL MATRIX)

ANALYTE	Spike Conc. (ug/kg)	Sample Result (ug/kg)	MS Result (ug/kg)	MSD Result (ug/kg)	Average Percent Recovery	RPD
Lindane	16.7	ND	15.9	16.2	96.1	1.9
Heptachlor	16.7	ND	15.3	15.6	92.5	1.9
Aldrin	16.7	ND	15.3	15.6	92.5	1.9
Dieldrin	41.7	ND	38.0	38.8	92.1	2.1
Endrin	41.7	ND	43.2	44.3	104.9	2.5
DDT	41.7	ND	38.9	40.4	95.1	3.8

CURRENT QC LIMITS (Revised 08/15/91)

Analyte	Percent Recovery	RPD
Lindane	(53-128)	12
Heptachlor	(63-122)	11
Aldrin	(50-130)	12
Dieldrin	(50-131)	14
Endrin	(33-161)	15
DDT	(24-149)	31

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

ATTACHMENT 5 -- Woodward-Clyde Consultants
Correspondence Regarding
Results of Water Level and
Literature Survey
Dated May 15, 1992

Woodward-Clyde Consultants

Engineering & sciences applied to the earth & its environment

May 15, 1992

Mr. John Tescher
President
Grove Valve and Regulator Company
6529 Hollis Street
Emeryville, CA 94608

Subject: Results of Water Level and Literature Survey
Grove Valve and Regulator Company

Dear Mr. Tescher,

Earlier this year, Woodward-Clyde Consultants (WCC) conducted a Level II Environmental Assessment of the Main Plant and Equipment Testing Facility to achieve a baseline characterization of the environmental conditions at these facilities. One of the results of the Level II Assessment was finding trichloroethene (TCE) contamination at concentrations above state and federal drinking water standards at two of the three monitoring wells. The upgradient well in the parking lot, MW-1, had a concentration of 103 ug/L TCE and the downgradient well by the Southern Pacific railroad tracks, MW-3, had a concentration of 1300 ug/L TCE. The locations of the wells and the TCE concentrations are shown on Figure 1. This letter report documents the subsequent investigation to gather further information on the possible source of contamination.

Woodward-Clyde Consultants Scope of Work

The level of TCE contamination was unexpected. Woodward-Clyde Consultants proposed a survey of water level measurements to determine if there was any impact of tides or precipitation on water levels which might influence the movement of groundwater. With the assistance of Grove staff this water level survey was conducted over a six-day period and evaluated. Specific details of the water level survey are given below.

In addition to the water level survey, WCC proposed to conduct a literature survey to ascertain if the potential exists for neighboring properties to contribute to the concentrations of contaminants in the groundwater observed during the Level II Environmental Assessment. At issue were the chemical use and environmental status of neighboring facilities and any hydrogeologic

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studies associated with those facilities which may reveal information affecting Grove.

The scope of this assignment consisted of reviewing regulatory agency documents, especially those related to the the Myers Container Corporation (Myers) state superfund site two blocks away on San Pablo Avenue, reviewing Sanborn maps, reviewing agency lists of of contaminators and inquiring of other consulting firms if they were aware of studies which may have been conducted in the Grove neighborhood.

In addition, staff members at regulatory agencies responsible for sites in Emeryville were contacted and interviewed. Public files were reviewed for all sites on file near Grove: Myers, Oliver Rubber, Emeryville Redevelopment Agency (Transo/LaCoste site) and Bayox. As part of the remedial investigation/feasibility study (RI/FS) for the Myers site, a recent review of Sanborn maps, aerial photos, agency lists, and other phases of property assessment had been performed. This was reviewed and was found sufficiently recent to preclude further Sanborn map or aerial photo review as part of this study. Specific details of the literature survey are presented below.

Results of Water Level Survey

The water level survey was conducted by Grove staff over the 6-day period of April 6-13, 1992 (excluding the weekend). Grove staff had been instructed by WCC in the operation of the water level recorder, how to perform consistent water level measurements, and the frequency of measurements. Water level measurement were taken at each of the three monitoring wells at approximately 3-hour intervals during the 6-day period. The attached Table 1 presents the water level data. The attached Figures 2 through 4 graph the measurements. Generally, the water levels only fluctuated about one-tenth of a foot over most of the days. Over the weekend of April 11-12, a rainfall occurred which may have influenced a trend to higher water level measurements in the three wells. Tide tables corrected to the nearest measuring station of Oakland Matson Wharf were consulted to determine tidal influence on water levels. The water levels fluctuated so little that the influence of tidal action was considered negligible.

Results of Literature Survey - Geohydrological and Environmental Review

A review of portions of reports of investigation at the four sites near Grove was made. These reports were reviewed at the Regional Water Quality Control Board (RWQCB) and the Cal-EPA Department of Toxic Substances Control (DTSC).

The first site is the closest, being due south of the Engineering Testing Facility at the southern end of Bay Street. The site is known as the "Transco/LaCoste Site," in the report dated 10/26/90, by Harding Lawson and Associates, (HLA) of Novato, CA, for the City of Emeryville Redevelopment Agency.

In the HLA report, the groundwater gradient for the Transco/LaCoste site is similar (but slightly less) than the gradient measured at Grove. The direction, west/northwest, of the gradient is parallel to the gradient at Grove. Based on the position of the two sites and the westerly direction of groundwater flow, the Transco/LaCoste site is crossgradient from Grove. Therefore, the two sites should have little or no impact on the groundwater below either. The HLA report also indicated that at the time of the report groundwater was being pumped at the Emery Bay Apartments which could have some effect on the gradient and direction of flow. The extracted groundwater was being treated through the use of an air stripper to remove hydrocarbon contamination.

Analysis of groundwater at the Transco/LaCoste site did indicate detection of TCE in one well in March of 1990 but at low levels (0.99 µg/L). Based on two boring logs the soil is similar to the soil under Grove property, especially the soil under the Engineering Test Facility.

The other site is the Myers Container Corporation (Myers) site which is east/northeast of Grove along 66th Street. Myers is a state Superfund site and a RI/FS is being conducted by TRC Environmental of Petaluma, CA.

Based on groundwater measurements from multiple wells at the Myers site the gradient is approximately the same as at Grove and in a parallel direction. Due to the relative position of the Myers site it is also slightly crossgradient of Grove. In other words, contaminants in groundwater under Myers would probably pass to the north of the Main Plant building of Grove on their predominantly western flow.

Analytical results of groundwater from wells at the Myers site indicate the presence of several organic contaminants. One well (W-2), has consistently had TCE detected in it at levels of 46 to 110 µg/L. Other wells at the Myers site including wells on the west end (towards Grove) have indicated nondetectable (<5 µg/L) levels of TCE or other volatile organic compounds.

The soils under Myers based on the boring logs in the report are very similar to that under the north side of Grove. Near-surface soils are predominantly clay and silt with some layers of more porous materials below about 10 feet.

From a review of these data, it is likely that neither the Transo/LaCoste nor the Myers sites have influenced the TCE concentrations at the perimeter of the Grove site.

The other two sites, Bayox and Oliver Rubber, had limited investigations performed. Bayox had had a fuel leak from an underground deisel tank in 1988. The tank was removed and any contaminated soil was excavated. Oliver Rubber had a leaking tank as well and also has a high lead level in soil that was part of a parcel of land leased to Myers. Based on these limited reports, neither site would have influenced TCE in groundwater found below Grove.

Results of Interviews with Regulatory Agencies

A reconnaissance of the area was made between San Pablo Avenue to the east, Bay Street to the west, and between 63rd and 67th Streets to the south and north, respectively. Names and addresses of businesses having a remote chance of solvent use were recorded. Knowledgeable staff from Grove Valve, B. Tallent and S. Knutson, a long-time local resident, J. Rodoni, and the Emeryville Fire Department (EFD) Chief, R Vittori were shown the list of businesses and questioned about the possibility of any of the businesses using solvents. From these interviews, the list was reduced to 31 businesses that possibly use or have used solvents. This list is shown in Table 2.

This list was given to professional staff at two regulatory agencies, DTSC in Emeryville and Alameda County Health Department (Alameda County) in Oakland and the EFD. Knowledgeable staff in these departments and that of the RWQCB were interviewed at least once in regards to their knowledge of environmental contamination or investigations at these businesses or in the Grove area. The names of those spoken to and specifics of these conversations are given below.

<u>DTSC: Karen Toth, Environmental Specialist</u>

The only business of concern on the DTSC Active Site Tracking List and in the general area of Grove is the state superfund site, Myers, on San Pablo Avenue, two blocks to the east as described above. This site is undergoing a RI/FS and a number of documents have been prepared describing the surface and subsurface investigations. A synopsis of the Myers contamination was given above.

<u>Alameda County: Brian Oliva, Susan Hugo, Dennis Burns, Hazardous Materials Specialists</u>

Mr. Oliva is the current staff person responsible for Emeryville and was unaware of any TCE enforcements. He has been at this position only a few months and was preceded by Ms. Hugo and Mr. Burns. Ms. Hugo had no recollection of any TCE spills or problems. Mr. Burns has kept the active Emeryville contaminant cases and now, with Ms. Hugo, chiefly enforces leaky underground tanks. He couldn't think of any industry which had any TCE plume or problems. His position as an Alameda County enforcer is that

- Emeryville is a "problem child since it's been reclaimed from the bay and filled and that the RWQCB generally agrees with the theory yet doesn't make exceptions on cleanups."

- Emeryville is normally considered low priority by Alameda County which tends not to make companies look for contamination because there is so much residual contamination from past industrial use.

- Alameda County has a Memorandum of Understanding (MOU) with DTSC and the RWQCB to enforce Title 22 of the California Code of Regulations. Alameda County acts as an agent for these two agencies.

- Under Proposition 65 (Prop 65), Grove is required to notify both the RWQCB and Alameda County of the TCE in groundwater. Under Prop 65, Grove will be required to monitor quarterly for one year. Alameda County would be the lead agency for this monitoring activity.

- If the property were to be sold, a case could be made to reduce the groundwater monitoring under closure regulations. The buyer would assume the environmental encumbrances.

- There are "weird" groundwater gradient effects in Emeryville. A report by the consultant Bill Dubrovsky, 3931 Luneman Rd., Placerville, CA presents the most comprehensive geological study of the Emeryville area to Mr. Burns' knowledge. Mr. Dubrovsky compiled all geological and geohydrologic studies performed in Emeryville to about 1989 to write this report.

RWQCB: Rich Hyatt, Environmental Specialist

Mr. Hyatt is the RWQCB staff person responsible for Emeryville water quality. His position on the TCE in groundwater is:

- "Emeryville has contamination, period. Solvents and heavy metals are ubiquitous. 1300 ug/l is not relatively high".

- With the reporting of the groundwater monitoring results, the Grove site would be placed on the North Bay Toxic Leak List. This is a long list with sites that have reported contamination.

- Once the site is put on the North Bay Toxic Leak List, it is a question of manpower whether or not the site is pursued by the RWQCB. Perhaps a staff person would make a visit. Probably Grove would be requested to monitor the wells quarterly.

- There is a section in the Water Code which could be interpreted that the groundwater monitoring results must be reported to the RWQCB.

EFD: Frank Alhino, Fire Marshal

Fire Marshal Alhino is reviewing the Hazardous Materials Management Plans (HMMP) submitted by local businesses which use or generate hazardous materials. He is also contacting local businesses to identify the types or names of solvents used, if any. The results of Fire Marshal Alhino's review and survey will be documented in another letter report to Grove as soon as they are available.

Results of Agency List Review

Several agency lists were reviewed to see if any sites had been added or deleted from those sites reported in the 1990 Canonie Environmental Services Corporation (Canonie) Level I environmental assessment. In addition, the section on agency lists in the Myers Container Corporation RI/FS Workplan (October 1990) was reviewed. Except for those firms noted above, i.e., Myers, Oliver Rubber, Bayox, and Emeryville Redevelopment Agency, no businesses were listed which had more than a leaking underground storage tank. Specifically, the lists reviewed with businesses cited were:

- RWQCB North Bay Toxic Leaks List: Myers and Oliver Rubber
- RWQCB Fuel Leaks List: Henry Horn & Sons, Emeryville Bay Front/U.S. Postal Service, Bay Center Project, Liquid Sugar, Inc., FABCO, and HFH Limited
- RWQCB Chemical Release List: Emeryville Redevelopment Agency
- California State Bond Expenditure Sites (State Superfund): Myers

Conclusions

The water level and literature survey was conducted to determine if, by measuring water levels in monitoring wells and comparing the levels to corrected tide tables, reviewing agency lists and files, and conducting interviews with knowledgeable persons, a case could be made that the TCE in groundwater found at the perimeter of the Grove property could be ascribed to an offsite source. Water level data indicated very little fluctuation, suggesting that tidal influence is negligible. Data available from the regulatory agencies are limited to only those sites known to the agencies undergoing environmental investigations. Interviews from knowledgeable persons indicate the possible (and even the probable) use of solvents by many neighboring businesses. Confirmation of neighbors' solvent use may be forthcoming from the EFD review of HMMP Plans and interviews with businesses.

Based on the data collected from the water level and literature survey at this point, the source of the TCE in groundwater at the perimeter of the Grove property is still unknown.

Limitations

This work was limited to available and published documents in the public domain and to interviews of staff representing the agencies cited above. Every opportunity to validate the data reviewed or received was made, yet no warranty as to the accuracy of the data reviewed or received is expressed or implied.

Woodward-Clyde Consultants appreciates the opportunity to have assisted Grove in this survey. If you have questions or comments on the content of this report please do not hesitate to call me at 874-1747.

Sincerely yours,

WOODWARD-CLYDE CONSULTANTS

Robin Spencer, CHMM, R.E.A.
Project Manager

RS:rs
Attachments:

Water Level Measurement Tables
List of Sites in the Vicinity of Grove Valve Submitted to Agency Review
Grove Valve Site Map
Water Level Measurement Graphs

TABLE 1 - WATER LEVEL MEASUREMENTS

RECORDED AT MONITORING WELLS MW-1, MW-2 AND MW-3

GROVE VALVE AND REGULATOR COMPANY

WELL NO.	SOUNDING DATE	SOUNDING TIME	D. to TOP G.W.	WELL NO.	SOUNDING DATE	SOUNDING TIME	D. To TOP G.W.
	MONDAY				TUESDAY		
MW-1	4/6/92	6:00AM	5.52	MW-1	4/7/92	6:00AM	5.60
MW-2		6:15	6.30	MW-2		6:10	6.67
MW-3		6:30	8.54	MW-3		6:15	8.25
MW-1		9:50	5.58	MW-1		9:45	5.62
MW-2		10:00	6.50	MW-2		9:55	6.68
MW-3		10:00	8.34	MW-3		10:00	8.22
MW-1		12:45PM	5.66	MW-1		12:30PM	5.65
MW-2		1:00	6.72	MW-2		12:40	6.66
MW-3		1:15	8.22	MW-3		12:45	8.21
MW-1		3:00	5.67	MW-1		3:15	5.66
MW-2		3:15	6.68	MW-2		3:30	6.62
MW-3		3:30	8.21	MW-3		3:45	8.20
MW-1		6:00	5.60	MW-1		6:00	5.60
MW-2		6:15	6.64	MW-2		6:15	6.61
MW-3		6:25	8.20	MW-3		6:25	8.20

WELL NO.	SOUNDING DATE	SOUNDING TIME	D. to TOP G.W.	WELL NO.	SOUNDING DATE	SOUNDING TIME	D. to TOP G.W.
	WEDNESDAY				THURSDAY		
MW-1	4/8/92	6:00AM	5.60	MW-1	4/9/92	6:00AM	5.64
MW-2		6:10	6.64	MW-2		6:10	6.65
MW-3		6:15	8.26	MW-3		6:15	8.25
MW-1		9:00	5.62	MW-1		9:00	5.64
MW-2		9:10	6.70	MW-2		9:10	6.70
MW-3		9:15	8.20	MW-3		9:15	8.21
MW-1		12:00PM	5.67	MW-1		12:00PM	5.68
MW-2		12:10	6.69	MW-2		12:10	6.73
MW-3		12:15	8.21	MW-3		12:15	8.21
MW-1		3:00	5.67	MW-1		3:00	5.67
MW-1		3:15	6.63	MW-2		3:15	6.70
MW-2		3:30	8.20	MW-3		3:30	8.21
MW-1		6:00	5.62	MW-1		6:00	5.68
MW-2		6:15	6.63	MW-2		6:15	6.73
MW-3		6:25	8.20	MW-3		6:25	8.22

TABLE 1 - WATER LEVEL MEASUREMENTS

RECORDED AT MONITORING WELLS MW-1, MW-2 AND MW-3

GROVE VALVE AND REGULATOR COMPANY

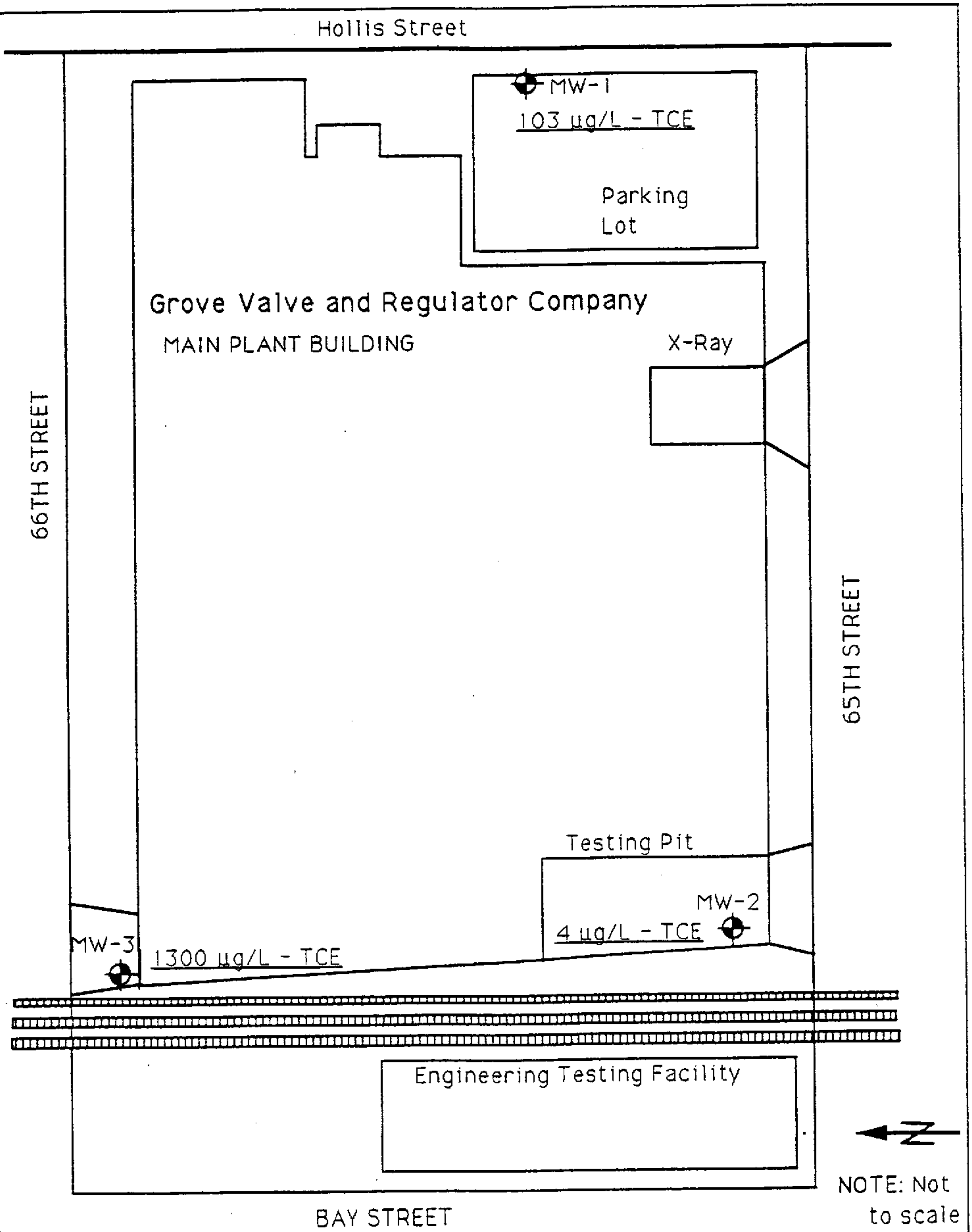
WELL NO.	SOUNDING DATE	SOUNDING TIME	D. to Top G.W.	WELL NO.	SOUNDING DATE	SOUNDING TIME	D. to TOP G.W.
FRIDAY				MONDAY			
MW-1	4/10/92	6:00AM	5.66	MW-1	4/13/92	6:30AM	5.65
MW-2		6:10	6.72	MW-2		6:40	6.66
MW-3		6:15	8.28	MW-3		6:45	8.52
MW-1		9:00	5.64	MW-1		10:00	5.70
MW-2		9:10	6.69	MW-2		10:10	6.76
MW-3		9:15	8.21	MW-3		10:15	8.22
MW-1		12:00PM	5.68	MW-1		1:00PM	5.74
MW-2		12:10	6.68	MW-2		1:10	6.76
MW-3		12:15	8.21	MW-3		1:15	8.22
MW-1		3:45	5.67				
MW-2		3:55	6.63				
MW-3		4:05	8.20				
MW-1		6:00	5.64				
MW-2		6:15	6.61				
MW-3		6:25	8.19				

TABLE 2. LIST OF SITES IN THE VICINITY OF GROVE VALVE SUBMITTED TO AGENCIES FOR REVIEW AND COMMENT

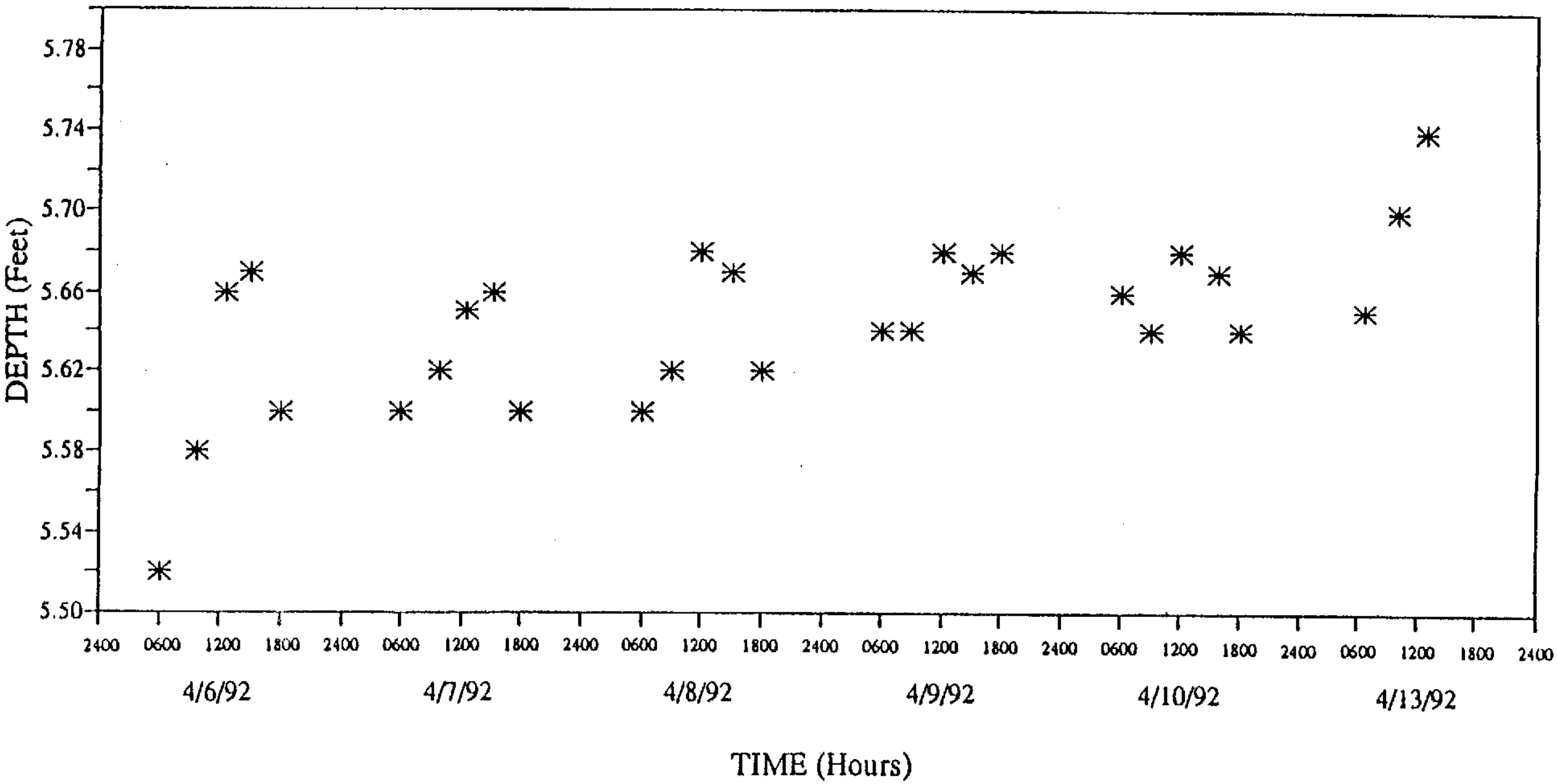
A.A. Johnson & Son, 1164 66th St. Oakland
Aalborg Ciserv of San Francisco, 1315 67th St., Emeryville
American Transit Supply, about 6450 Hollis St., Emeryville
Atlas Pacific Engineering, 1321 67th St., Emeryville ***
Autumn Press, 1280 65th St., Emeryville *
Bacchus Press, 1287 66th St., Emeryville *
Baker Metal Products, 1265 65th St., Emeryville *
Bayox, Marshal St. at Ocean, Emeryville
California Pacific, 6450 Bay St., Emeryville
Card House Distributing, 1303 66th St., Emeryville
Conversion Techniques, 1309 66th St., Emeryville
Copper & Brass Sales, Inc., 1295 67th St., Emeryville
Coulter Steel & Forge Co., 1494 67th St., Emeryville ***
E.E. Richter & Sons (may be under Richter), 6598 Hollis St., Emeryville *
Fabco Automotive Corp., 1249 67th St., Emeryville ***
General Auto, about 1300 66th St., Emeryville *
Geo. Martin & Sons (may be under Martin), 1250 67th St., Emeryville *
Grove Valve and Regulator Co., 6529 Hollis St., Emeryville ***
Knopp, Inc. 1307 66th St., Emeryville
Lawrence Berkeley Lab Storehouse, 64th St., Emeryville
LSI (Liquid Sugar Inc.), 1285 66th St., Emeryville ***
McGrath Steel, 6655 Hollis St., Emeryville ***
Meyers Containers Corp., 6549 San Pablo Ave., Oakland ***
Monarch Tool & Engineering, 1463 67th St., Emeryville ***
Oakland Diesel, about 1309 65th St., Emeryville
Oliver Rubber Co., 1200 65th St., Emeryville ***
Peet's Coffee, 1310 65th St., Emeryville
Qualimatrix, 1410 64th St., Emeryville *
Rix Industries, 6460 Hollis St., Emeryville ***
Roller Press, 6647 Hollis St., Emeryville ***
Ryerson Steel, 1465 65th St., Emeryville *
Rypins-Lipinski & Associates, 1490 66th St. and 1499 67th St., Emery. *
U.C. Berkeley Central Storehouse, 1180 67th St., Emeryville/Oakland *

NOTE:
The list is divided into three categories. Those with three "***" are the businesses which probably use or have used solvents; those with a single "*" are the businesses which possibly use or have used solvents; those with no "*" are businesses which might use or have used solvents.

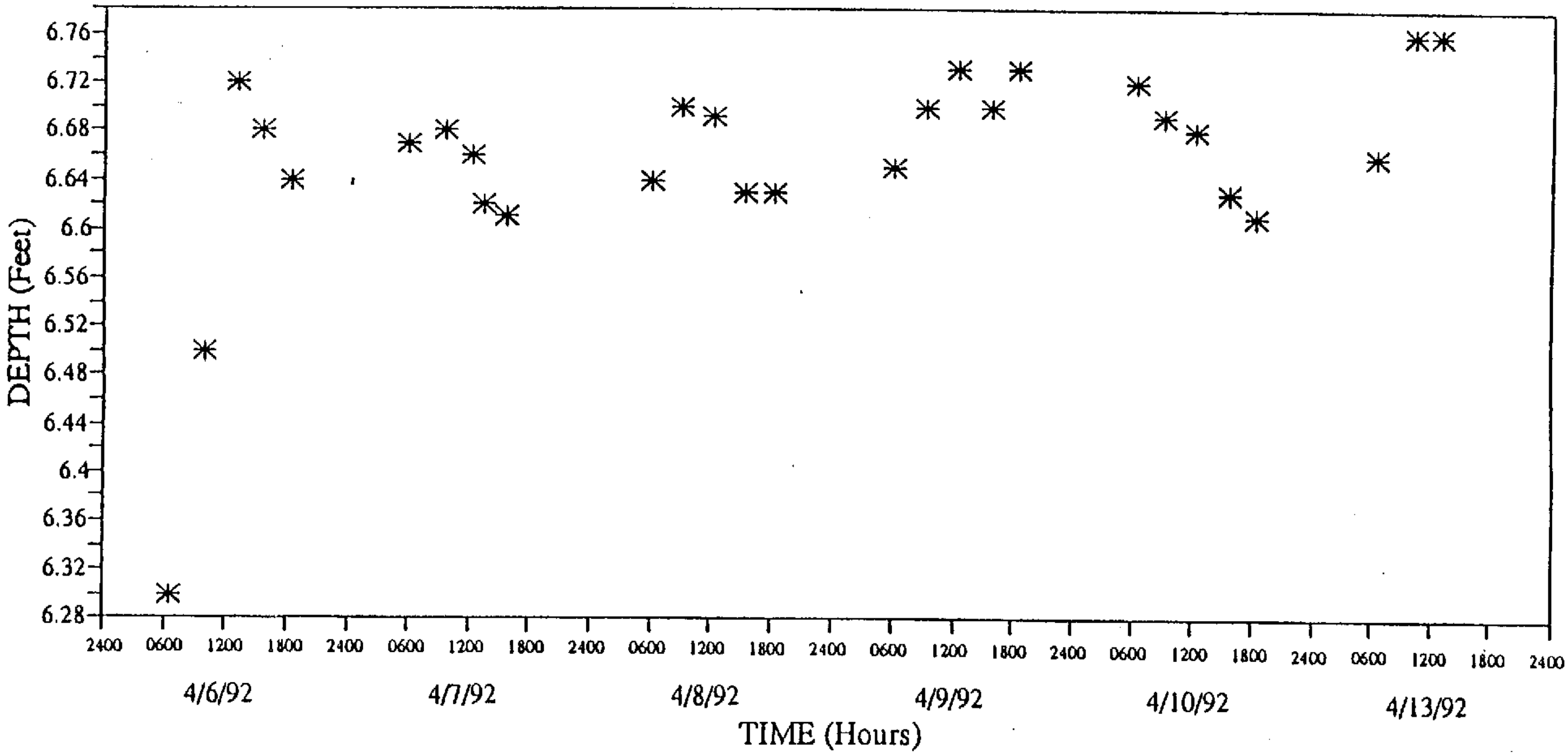
This list was sent to the Cal-EPA DTSC, Alameda County Health Department, and the Emeryville Fire Department for review and comment.



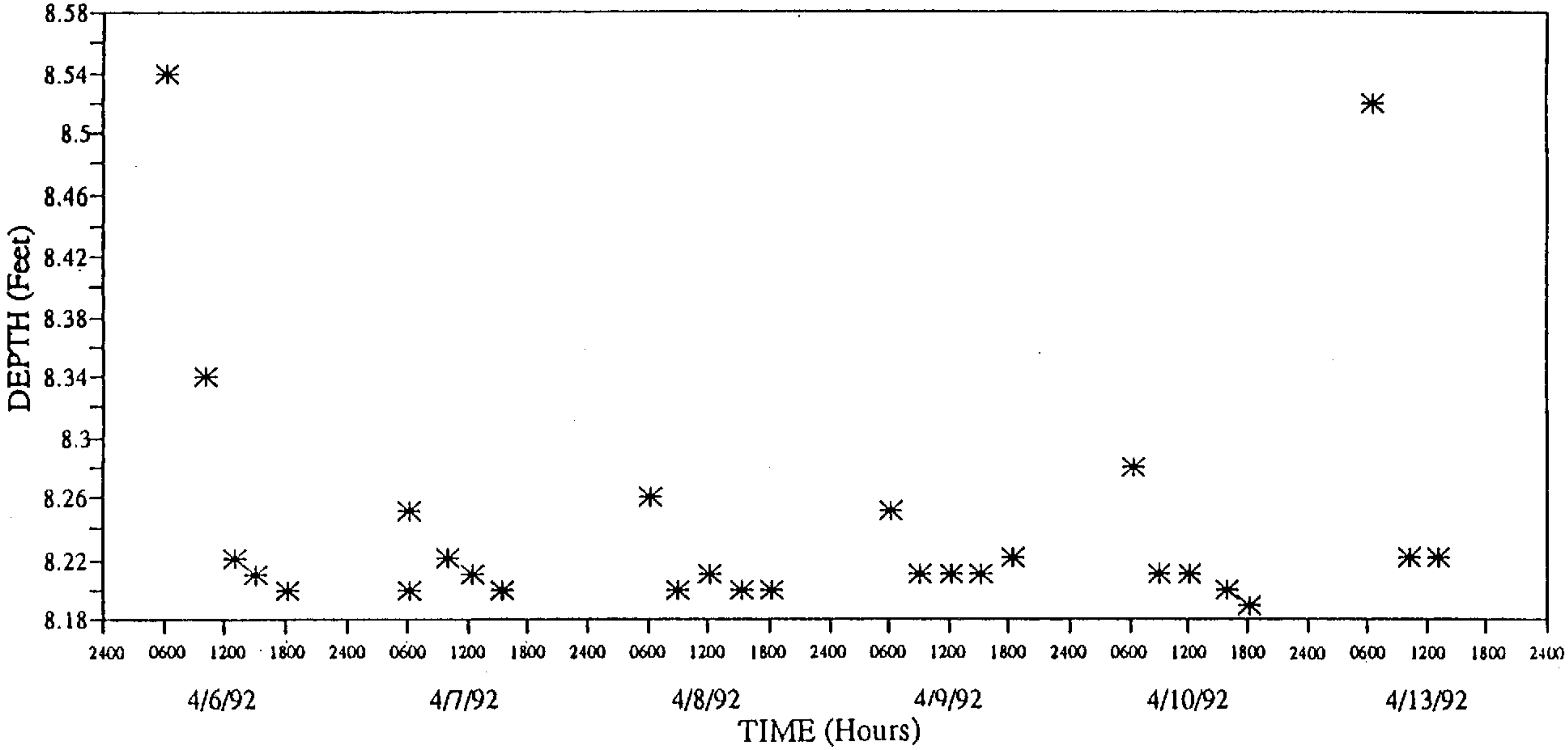
Project No. 92C091A	Grove Valve	Trichloroethene (TCE) in Groundwater March 2, 1992 Grove Valve and Regulator Company	Figure 1
Woodward-Clyde Consultants			



Project No. 92C091A	Grove Valve	**Water Level Measurements Recorded at MW-1 April 6-13, 1992**	**Figure 2**
Woodward-Clyde Consultants			



Project No. 92C091A	Grove Valve	**Water Level Measurements Recorded at MW-2 April 6-13, 1992**	**Figure 3**
Woodward-Clyde Consultants			



Project No. 92C091A	Grove Valve	**Water Level Measurements Recorded at MW-3 April 6-13, 1992**	**Figure 4**
Woodward-Clyde Consultants			

ATTACHMENT 6 -- "Status of Environmental Investigation of Soil and Groundwater at Grove Valve and Regulator Company", Robin K. Spencer, April 1995

ROBIN K. SPENCER
Certified Hazardous Materials Manager
Registered Environmental Assessor

WORKPLAN

STATUS OF ENVIRONMENTAL INVESTIGATION OF SOIL AND GROUNDWATER AT GROVE VALVE AND REGULATOR COMPANY

Prepared For

Grove Valve And Regulator Company
6529 Hollis Street
Emeryville, Ca 94608

Prepared by

Robin K. Spencer, CHMM, R.E.A.
6 Via San Inigo
Orinda, CA 94563

April 1995

SECTION 1.0

INTRODUCTION

Grove Valve and Regulator Company (Grove) began an environmental assessment of soil and groundwater on their property in 1992. The results of the investigation were transmitted to the Regional Water Quality Control Board by letter June 24, 1992. Since that time three rounds of groundwater sampling have taken place. On March 9, 1995, the Alameda County Environmental Health Department, Environmental Protection Division requested Grove to furnish their office with a workplan that specifically addressed four issues of concern. These issues are discussed below. Supporting documentation is included as Attachments.

SECTION 2.0

DISCUSSION OF ISSUES OF CONCERN

Four issues of concern were expressed by Alameda County.

2.1 Status of the investigation regarding the contamination at the site including source identification and corrective actions taken to date.

An investigation of the environmental conditions at Grove was conducted in February and March 1992. Six soil borings were drilled and three shallow groundwater wells were installed near the property boundary. Additional groundwater samples were collected and analyzed in October 1992, February 1993, and April 1995. In April 1992, a water level survey and a literature survey were conducted.. The water level survey was designed to identify if there was any impact by tidal fluctuation or precipitation on groundwater levels which might influence the movement of groundwater beneath the site. The literature survey consisted of reviewing regulatory agency documents prepared for nearby sites which had had environmental investigations, reviewing regulatory agency lists, and interviewing knowledgeable regulatory staff and locals to see if a potential existed for neighboring properties to contribute to the concentrations of contaminants found in the groundwater underlying the Grove property. The report on these surveys is included as Attachment A. Tidal and precipitation effects are negligible and the source of trichloroethylene (TCE) in groundwater at the perimeter of the Grove property is still unknown. No source has been identified and no corrective actions have been taken to date.

2.2 Complete soil and groundwater definition of the extent of the petroleum hydrocarbon and chlorinated solvents found at the site.

Attachment B consists of tables showing the levels of petroleum hydrocarbon and chlorinated solvents found in soil and groundwater for the past rounds of sampling. Samples were collected on Grove property only. Also included with Attachment B are maps showing the location of the boreholes and wells. Groundwater data is given under Issue 2.3 below.

In two locations, oil and grease (Method 5520 E/F) was found at the surface (6") in concentrations of 230 mg/kg. At Soil Boring 3, the concentrations decreased to 30 mg/kg at 3 feet and ND at 5 feet. At Soil Boring 4, on the north side of the main facility, the concentrations decreased to 50 mg/kg at 3 feet and increased to 2500 mg/kg at 5 feet. Trichloroethylene concentrations at 6 ug/kg and 40 ug/kg were found in this borehole at depths of 6 inches and 5 feet, respectively. Trichloroethylene was found at a concentration of 120 ug/kg at 25 feet in Boring MW-3.

In two wells, MW-1 at the southeast corner and MW-3 at the northwest corner of the property, concentrations of halogenated volatile organics were reported. The summary of analyses for groundwater samples in Attachment B show a steady decline in cis-1,2-dichloroethene (from 33 to 20 ug/L in MW-1) and trichloroethylene (from 103 to 79 ug/L in MW-1 and from 1300 to 800 ug/L in MW-3). Vinyl chloride in MW-3 has increased from 2 to 9 ug/L in MW-3.

2.3 Status of the groundwater monitoring program, frequency of sampling events, and the groundwater data collected during the last sampling event.

On February 26, 1993, Mr. Brian Oliva of the Alameda County Department of Environmental Health, Hazardous Materials Division and Mr.Lester Feldman of the San Francisco Bay Regional Water Quality Control Board were each sent a copy of all groundwater monitoring results to date. A copy of this submittal is included as Attachment C. A groundwater gradient to the west was indicated; the gradient is shown in groundwater contour maps also included in Attachment C. As stated above, groundwater has been sampled on four occasions: March 1992, October 1992, February 1993, and April 1995. Groundwater monitoring results from the April 1995 sampling are included in Attachment C.

2.4 Copies of the groundwater monitoring well completion diagrams and boring logs.

Copies of the groundwater monitoring well completion diagrams and the boring logs are included as Attachment D.

SECTION 3.0

QUALIFICATIONS OF LEAD PROFESSIONALS

Robin Spencer is an environmental scientist with 14 years experience in the environmental and hazardous materials fields. She is a Certified Hazardous Materials Manager and Registered Environmental Assessor in the State of California. She was the project manager for the soils and groundwater investigation conducted in April 1992 by Woodward-Clyde Consultants, her former employer. Currently she is an independent consultant.

Elyse Heilshorn is a consulting environmental engineer and a registered civil engineer in the State of California, a Certified Hazardous Materials Manager, and a Registered Environmental Assessor. She has 18 years experience in the environmental field as an engineer and a chemist.

Robin K. Spencer

Elyse D. Heilshorn

ATTACHMENT A

- Report on the Water Level Survey and the Literature Survey at and around Grove Valve

Woodward-Clyde Consultants

Engineering & sciences applied to the earth & its environment

May 15, 1992

Mr. John Tescher
President
Grove Valve and Regulator Company
6529 Hollis Street
Emeryville, CA 94608

Subject: Results of Water Level and Literature Survey
Grove Valve and Regulator Company

Dear Mr. Tescher,

Earlier this year, Woodward-Clyde Consultants (WCC) conducted a Level II Environmental Assessment of the Main Plant and Equipment Testing Facility to achieve a baseline characterization of the environmental conditions at these facilities. One of the results of the Level II Assessment was finding trichloroethene (TCE) contamination at concentrations above state and federal drinking water standards at two of the three monitoring wells. The upgradient well in the parking lot, MW-1, had a concentration of 103 ug/L TCE and the downgradient well by the Southern Pacific railroad tracks, MW-3, had a concentration of 1300 ug/L TCE. The locations of the wells and the TCE concentrations are shown on Figure 1. This letter report documents the subsequent investigation to gather further information on the possible source of contamination.

Woodward-Clyde Consultants Scope of Work

The level of TCE contamination was unexpected. Woodward-Clyde Consultants proposed a survey of water level measurements to determine if there was any impact of tides or precipitation on water levels which might influence the movement of groundwater. With the assistance of Grove staff this water level survey was conducted over a six-day period and evaluated. Specific details of the water level survey are given below.

In addition to the water level survey, WCC proposed to conduct a literature survey to ascertain if the potential exists for neighboring properties to contribute to the concentrations of contaminants in the groundwater observed during the Level II Environmental Assessment. At issue were the chemical use and environmental status of neighboring facilities and any hydrogeologic

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studies associated with those facilities which may reveal information affecting Grove.

The scope of this assignment consisted of reviewing regulatory agency documents, especially those related to the the Myers Container Corporation (Myers) state superfund site two blocks away on San Pablo Avenue, reviewing Sanborn maps, reviewing agency lists of of contaminators and inquiring of other consulting firms if they were aware of studies which may have been conducted in the Grove neighborhood.

In addition, staff members at regulatory agencies responsible for sites in Emeryville were contacted and interviewed. Public files were reviewed for all sites on file near Grove: Myers, Oliver Rubber, Emeryville Redevelopment Agency (Transo/LaCoste site) and Bayox. As part of the remedial investigation/feasibility study (RI/FS) for the Myers site, a recent review of Sanborn maps, aerial photos, agency lists, and other phases of property assessment had been performed. This was reviewed and was found sufficiently recent to preclude further Sanborn map or aerial photo review as part of this study. Specific details of the literature survey are presented below.

Results of Water Level Survey

The water level survey was conducted by Grove staff over the 6-day period of April 6-13, 1992 (excluding the weekend). Grove staff had been instructed by WCC in the operation of the water level recorder, how to perform consistent water level measurements, and the frequency of measurements. Water level measurement were taken at each of the three monitoring wells at approximately 3-hour intervals during the 6-day period. The attached Table 1 presents the water level data. The attached Figures 2 through 4 graph the measurements. Generally, the water levels only fluctuated about one-tenth of a foot over most of the days. Over the weekend of April 11-12, a rainfall occurred which may have influenced a trend to higher water level measurements in the three wells. Tide tables corrected to the nearest measuring station of Oakland Matson Wharf were consulted to determine tidal influence on water levels. The water levels fluctuated so little that the influence of tidal action was considered negligible.

Results of Literature Survey - Geohydrological and Environmental Review

A review of portions of reports of investigation at the four sites near Grove was made. These reports were reviewed at the Regional Water Quality Control Board (RWQCB) and the Cal-EPA Department of Toxic Substances Control (DTSC).

The first site is the closest, being due south of the Engineering Testing Facility at the southern end of Bay Street. The site is known as the "Transco/LaCoste Site," in the report dated 10/26/90, by Harding Lawson and Associates, (HLA) of Novato, CA, for the City of Emeryville Redevelopment Agency.

In the HLA report, the groundwater gradient for the Transco/LaCoste site is similar (but slightly less) than the gradient measured at Grove. The direction, west/northwest, of the gradient is parallel to the gradient at Grove. Based on the position of the two sites and the westerly direction of groundwater flow, the Transco/LaCoste site is crossgradient from Grove. Therefore, the two sites should have little or no impact on the groundwater below either. The HLA report also indicated that at the time of the report groundwater was being pumped at the Emery Bay Apartments which could have some effect on the gradient and direction of flow. The extracted groundwater was being treated through the use of an air stripper to remove hydrocarbon contamination.

Analysis of groundwater at the Transco/LaCoste site did indicate detection of TCE in one well in March of 1990 but at low levels (0.99 µg/L). Based on two boring logs the soil is similar to the soil under Grove property, especially the soil under the Engineering Test Facility.

The other site is the Myers Container Corporation (Myers) site which is east/northeast of Grove along 66th Street. Myers is a state Superfund site and a RI/FS is being conducted by TRC Environmental of Petaluma, CA.

Based on groundwater measurements from multiple wells at the Myers site the gradient is approximately the same as at Grove and in a parallel direction. Due to the relative position of the Myers site it is also slightly crossgradient of Grove. In other words, contaminants in groundwater under Myers would probably pass to the north of the Main Plant building of Grove on their predominantly western flow.

Analytical results of groundwater from wells at the Myers site indicate the presence of several organic contaminants. One well (W-2), has consistently had TCE detected in it at levels of 46 to 110 µg/L. Other wells at the Myers site including wells on the west end (towards Grove) have indicated nondetectable (<5 µg/L) levels of TCE or other volatile organic compounds.

The soils under Myers based on the boring logs in the report are very similar to that under the north side of Grove. Near-surface soils are predominantly clay and silt with some layers of more porous materials below about 10 feet.

From a review of these data, it is likely that neither the Transo/LaCoste nor the Myers sites have influenced the TCE concentrations at the perimeter of the Grove site.

The other two sites, Bayox and Oliver Rubber, had limited investigations performed. Bayox had had a fuel leak from an underground deisel tank in 1988. The tank was removed and any contaminated soil was excavated. Oliver Rubber had a leaking tank as well and also has a high lead level in soil that was part of a parcel of land leased to Myers. Based on these limited reports, neither site would have influenced TCE in groundwater found below Grove.

Results of Interviews with Regulatory Agencies

A reconnaissance of the area was made between San Pablo Avenue to the east, Bay Street to the west, and between 63rd and 67th Streets to the south and north, respectively. Names and addresses of businesses having a remote chance of solvent use were recorded. Knowledgeable staff from Grove Valve, B. Tallent and S. Knutson, a long-time local resident, J. Rodoni, and the Emeryville Fire Department (EFD) Chief, R Vittori were shown the list of businesses and questioned about the possibility of any of the businesses using solvents. From these interviews, the list was reduced to 31 businesses that possibly use or have used solvents. This list is shown in Table 2.

This list was given to professional staff at two regulatory agencies, DTSC in Emeryville and Alameda County Health Department (Alameda County) in Oakland and the EFD. Knowledgeable staff in these departments and that of the RWQCB were interviewed at least once in regards to their knowledge of environmental contamination or investigations at these businesses or in the Grove area. The names of those spoken to and specifics of these conversations are given below.

<u>DTSC: Karen Toth, Environmental Specialist</u>

The only business of concern on the DTSC Active Site Tracking List and in the general area of Grove is the state superfund site, Myers, on San Pablo Avenue, two blocks to the east as described above. This site is undergoing a RI/FS and a number of documents have been prepared describing the surface and subsurface investigations. A synopsis of the Myers contamination was given above.

<u>Alameda County: Brian Oliva, Susan Hugo, Dennis Burns, Hazardous Materials Specialists</u>

Mr. Oliva is the current staff person responsible for Emeryville and was unaware of any TCE enforcements. He has been at this position only a few months and was preceded by Ms. Hugo and Mr. Burns. Ms. Hugo had no recollection of any TCE spills or problems. Mr. Burns has kept the active Emeryville contaminant cases and now, with Ms. Hugo, chiefly enforces leaky underground tanks. He couldn't think of any industry which had any TCE plume or problems. His position as an Alameda County enforcer is that

- Emeryville is a "problem child since it's been reclaimed from the bay and filled and that the RWQCB generally agrees with the theory yet doesn't make exceptions on cleanups."

- Emeryville is normally considered low priority by Alameda County which tends not to make companies look for contamination because there is so much residual contamination from past industrial use.

- Alameda County has a Memorandum of Understanding (MOU) with DTSC and the RWQCB to enforce Title 22 of the California Code of Regulations. Alameda County acts as an agent for these two agencies.

- Under Proposition 65 (Prop 65), Grove is required to notify both the RWQCB and Alameda County of the TCE in groundwater. Under Prop 65, Grove will be required to monitor quarterly for one year. Alameda County would be the lead agency for this monitoring activity.

- If the property were to be sold, a case could be made to reduce the groundwater monitoring under closure regulations. The buyer would assume the environmental encumbrances.

- There are "weird" groundwater gradient effects in Emeryville. A report by the consultant Bill Dubrovsky, 3931 Luneman Rd., Placerville, CA presents the most comprehensive geological study of the Emeryville area to Mr. Burns' knowledge. Mr. Dubrovsky compiled all geological and geohydrologic studies performed in Emeryville to about 1989 to write this report.

RWQCB: Rich Hyatt, Environmental Specialist

Mr. Hyatt is the RWQCB staff person responsible for Emeryville water quality. His position on the TCE in groundwater is:

- "Emeryville has contamination, period. Solvents and heavy metals are ubiquitous. 1300 ug/l is not relatively high".

- With the reporting of the groundwater monitoring results, the Grove site would be placed on the North Bay Toxic Leak List. This is a long list with sites that have reported contamination.

- Once the site is put on the North Bay Toxic Leak List, it is a question of manpower whether or not the site is pursued by the RWQCB. Perhaps a staff person would make a visit. Probably Grove would be requested to monitor the wells quarterly.

- There is a section in the Water Code which could be interpreted that the groundwater monitoring results must be reported to the RWQCB.

EFD: Frank Alhino, Fire Marshal

Fire Marshal Alhino is reviewing the Hazardous Materials Management Plans (HMMP) submitted by local businesses which use or generate hazardous materials. He is also contacting local businesses to identify the types or names of solvents used, if any. The results of Fire Marshal Alhino's review and survey will be documented in another letter report to Grove as soon as they are available.

Results of Agency List Review

Several agency lists were reviewed to see if any sites had been added or deleted from those sites reported in the 1990 Canonie Environmental Services Corporation (Canonie) Level I environmental assessment. In addition, the section on agency lists in the Myers Container Corporation RI/FS Workplan (October 1990) was reviewed. Except for those firms noted above, i.e., Myers, Oliver Rubber, Bayox, and Emeryville Redevelopment Agency, no businesses were listed which had more than a leaking underground storage tank. Specifically, the lists reviewed with businesses cited were:

- <u>RWQCB North Bay Toxic Leaks List:</u> Myers and Oliver Rubber
- <u>RWQCB Fuel Leaks List:</u> Henry Horn & Sons, Emeryville Bay Front/U.S. Postal Service, Bay Center Project, Liquid Sugar, Inc., FABCO, and HFH Limited
- <u>RWQCB Chemical Release List:</u> Emeryville Redevelopment Agency
- <u>California State Bond Expenditure Sites (State Superfund):</u> Myers

Conclusions

The water level and literature survey was conducted to determine if, by measuring water levels in monitoring wells and comparing the levels to corrected tide tables, reviewing agency lists and files, and conducting interviews with knowledgeable persons, a case could be made that the TCE in groundwater found at the perimeter of the Grove property could be ascribed to an offsite source. Water level data indicated very little fluctuation, suggesting that tidal influence is negligible. Data available from the regulatory agencies are limited to only those sites known to the agencies undergoing environmental investigations. Interviews from knowledgeable persons indicate the possible (and even the probable) use of solvents by many neighboring businesses. Confirmation of neighbors' solvent use may be forthcoming from the EFD review of HMMP Plans and interviews with businesses.

Based on the data collected from the water level and literature survey at this point, the source of the TCE in groundwater at the perimeter of the Grove property is still unknown.

Limitations

This work was limited to available and published documents in the public domain and to interviews of staff representing the agencies cited above. Every opportunity to validate the data reviewed or received was made, yet no warranty as to the accuracy of the data reviewed or received is expressed or implied.

Woodward-Clyde Consultants appreciates the opportunity to have assisted Grove in this survey. If you have questions or comments on the content of this report please do not hesitate to call me at 874-1747.

Sincerely yours,

WOODWARD-CLYDE CONSULTANTS

Robin Spencer, CHMM, R.E.A.
Project Manager

RS:rs
Attachments:

Water Level Measurement Tables
List of Sites in the Vicinity of Grove Valve Submitted to Agency Review
Grove Valve Site Map
Water Level Measurement Graphs

TABLE 1 - WATER LEVEL MEASUREMENTS

RECORDED AT MONITORING WELLS MW-1, MW-2 AND MW-3

GROVE VALVE AND REGULATOR COMPANY

WELL NO.	SOUNDING DATE	SOUNDING TIME	D. to TOP G.W.	WELL NO.	SOUNDING DATE	SOUNDING TIME	D. To TOP G.W.
MONDAY				TUESDAY			
MW-1	4/6/92	6:00AM	5.52	MW-1	4/7/92	6:00AM	5.60
MW-2		6:15	6.30	MW-2		6:10	6.67
MW-3		6:30	8.54	MW-3		6:15	8.25
MW-1		9:50	5.58	MW-1		9:45	5.62
MW-2		10:00	6.50	MW-2		9:55	6.68
MW-3		10:00	8.34	MW-3		10:00	8.22
MW-1		12:45PM	5.66	MW-1		12:30PM	5.65
MW-2		1:00	6.72	MW-2		12:40	6.66
MW-3		1:15	8.22	MW-3		12:45	8.21
MW-1		3:00	5.67	MW-1		3:15	5.66
MW-2		3:15	6.68	MW-2		3:30	6.62
MW-3		3:30	8.21	MW-3		3:45	8.20
MW-1		6:00	5.60	MW-1		6:00	5.60
MW-2		6:15	6.64	MW-2		6:15	6.61
MW-3		6:25	8.20	MW-3		6:25	8.20

WELL NO.	SOUNDING DATE	SOUNDING TIME	D. to TOP G.W.	WELL NO.	SOUNDING DATE	SOUNDING TIME	D. to TOP G.W.
WEDNESDAY				THURSDAY			
MW-1	4/8/92	6:00AM	5.60	MW-1	4/9/92	6:00AM	5.64
MW-2		6:10	6.64	MW-2		6:10	6.65
MW-3		6:15	8.26	MW-3		6:15	8.25
MW-1		9:00	5.62	MW-1		9:00	5.64
MW-2		9:10	6.70	MW-2		9:10	6.70
MW-3		9:15	8.20	MW-3		9:15	8.21
MW-1		12:00PM	5.67	MW-1		12:00PM	5.68
MW-2		12:10	6.69	MW-2		12:10	6.73
MW-3		12:15	8.21	MW-3		12:15	8.21
MW-1		3:00	5.67	MW-1		3:00	5.67
MW-1		3:15	6.63	MW-2		3:15	6.70
MW-2		3:30	8.20	MW-3		3:30	8.21
MW-1		6:00	5.62	MW-1		6:00	5.68
MW-2		6:15	6.63	MW-2		6:15	6.73
MW-3		6:25	8.20	MW-3		6:25	8.22

TABLE 1 - WATER LEVEL MEASUREMENTS

RECORDED AT MONITORING WELLS MW-1, MW-2 AND MW-3

GROVE VALVE AND REGULATOR COMPANY

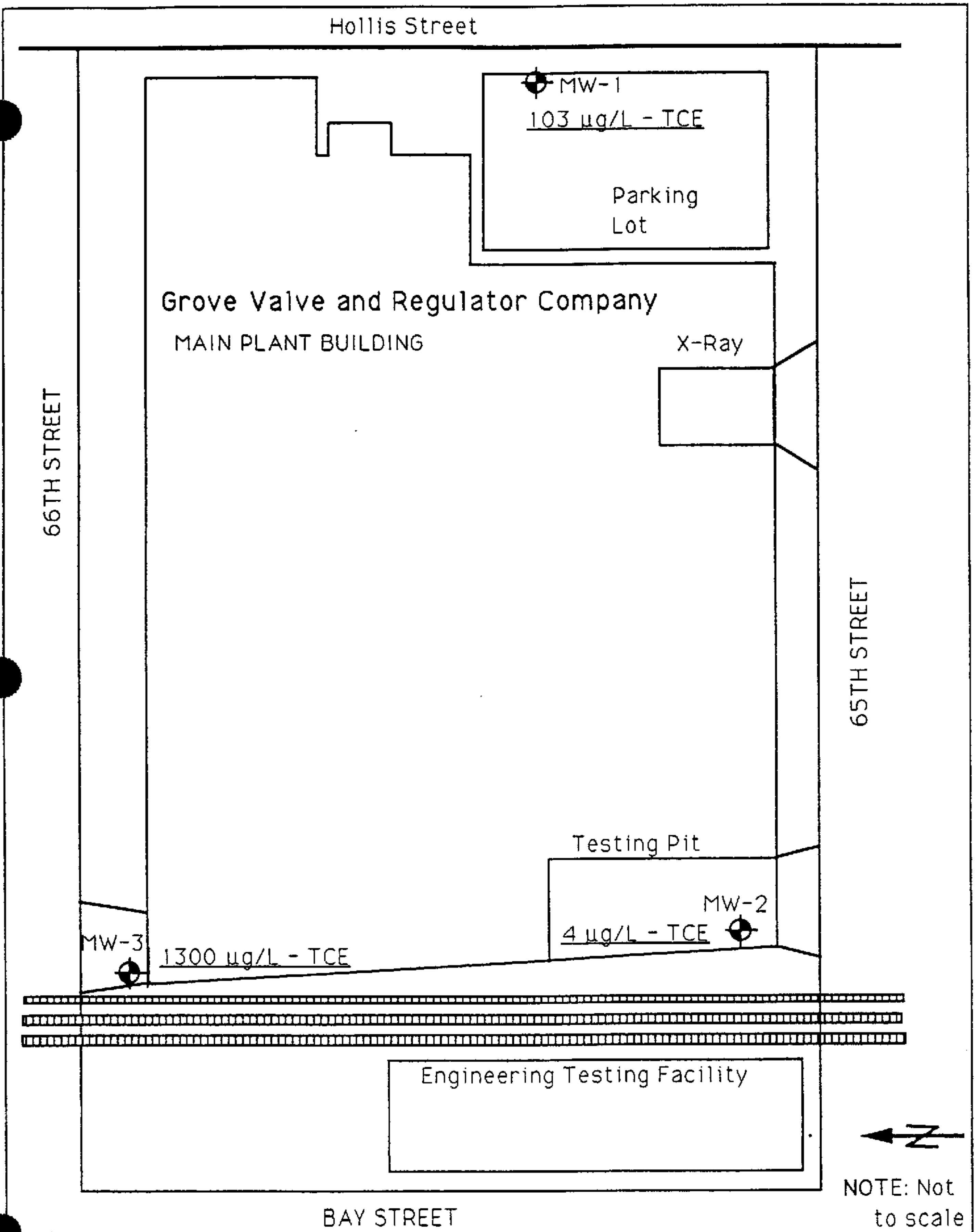
WELL NO.	SOUNDING DATE	SOUNDING TIME	D. to Top G.W.	WELL NO.	SOUNDING DATE	SOUNDING TIME	D. to TOP G.W.
FRIDAY				MONDAY			
MW-1	4/10/92	6:00AM	5.66	MW-1	4/13/92	6:30AM	5.65
MW-2		6:10	6.72	MW-2		6:40	6.66
MW-3		6:15	8.28	MW-3		6:45	8.52
MW-1		9:00	5.64	MW-1		10:00	5.70
MW-2		9:10	6.69	MW-2		10:10	6.76
MW-3		9:15	8.21	MW-3		10:15	8.22
MW-1		12:00PM	5.68	MW-1		1:00PM	5.74
MW-2		12:10	6.68	MW-2		1:10	6.76
MW-3		12:15	8.21	MW-3		1:15	8.22
MW-1		3:45	5.67				
MW-2		3:55	6.63				
MW-3		4:05	8.20				
MW-1		6:00	5.64				
MW-2		6:15	6.61				
MW-3		6:25	8.19				

TABLE 2. LIST OF SITES IN THE VICINITY OF GROVE VALVE SUBMITTED TO AGENCIES FOR REVIEW AND COMMENT

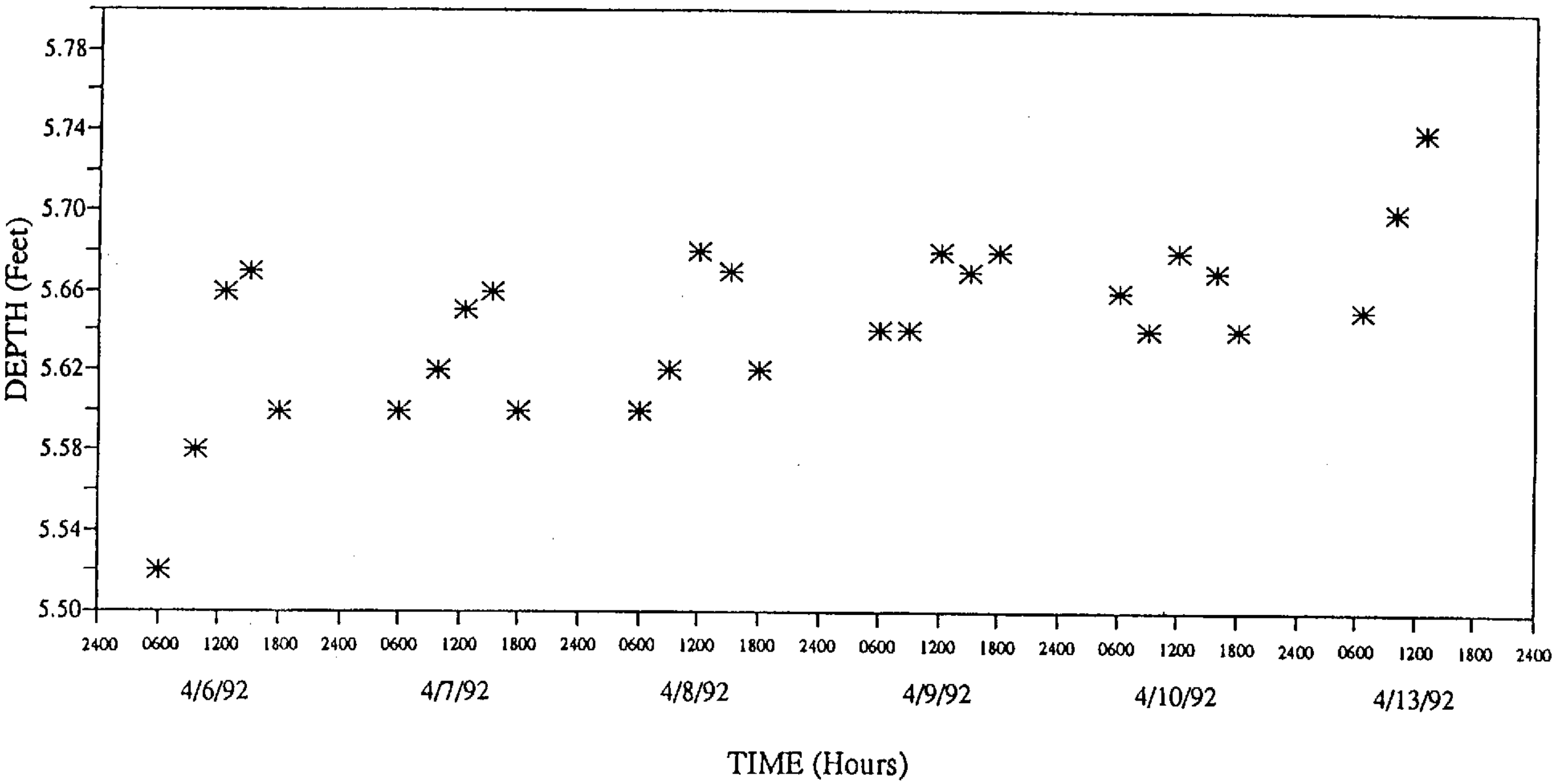
A.A. Johnson & Son, 1164 66th St. Oakland
Aalborg Ciserv of San Francisco, 1315 67th St., Emeryville
American Transit Supply, about 6450 Hollis St., Emeryville
Atlas Pacific Engineering, 1321 67th St., Emeryville ***
Autumn Press, 1280 65th St., Emeryville *
Bacchus Press, 1287 66th St., Emeryville *
Baker Metal Products, 1265 65th St., Emeryville *
Bayox, Marshal St. at Ocean, Emeryville
California Pacific, 6450 Bay St., Emeryville
Card House Distributing, 1303 66th St., Emeryville
Conversion Techniques, 1309 66th St., Emeryville
Copper & Brass Sales, Inc., 1295 67th St., Emeryville
Coulter Steel & Forge Co., 1494 67th St., Emeryville ***
E.E. Richter & Sons (may be under Richter), 6598 Hollis St., Emeryville *
Fabco Automotive Corp., 1249 67th St., Emeryville ***
General Auto, about 1300 66th St., Emeryville *
Geo. Martin & Sons (may be under Martin), 1250 67th St., Emeryville *
Grove Valve and Regulator Co., 6529 Hollis St., Emeryville ***
Knopp, Inc. 1307 66th St., Emeryville
Lawrence Berkeley Lab Storehouse, 64th St., Emeryville
LSI (Liquid Sugar Inc.), 1285 66th St., Emeryville ***
McGrath Steel, 6655 Hollis St., Emeryville ***
Meyers Containers Corp., 6549 San Pablo Ave., Oakland ***
Monarch Tool & Engineering, 1463 67th St., Emeryville ***
Oakland Diesel, about 1309 65th St., Emeryville
Oliver Rubber Co., 1200 65th St., Emeryville ***
Peet's Coffee, 1310 65th St., Emeryville
Qualimatrix, 1410 64th St., Emeryville *
Rix Industries, 6460 Hollis St., Emeryville ***
Roller Press, 6647 Hollis St., Emeryville ***
Ryerson Steel, 1465 65th St., Emeryville *
Rypins-Lipinski & Associates, 1490 66th St. and 1499 67th St., Emery. *
U.C. Berkeley Central Storehouse, 1180 67th St., Emeryville/Oakland *

NOTE:
The list is divided into three categories. Those with three "***" are the businesses which probably use or have used solvents; those with a single "*" are the businesses which possibly use or have used solvents; those with no "*" are businesses which might use or have used solvents.

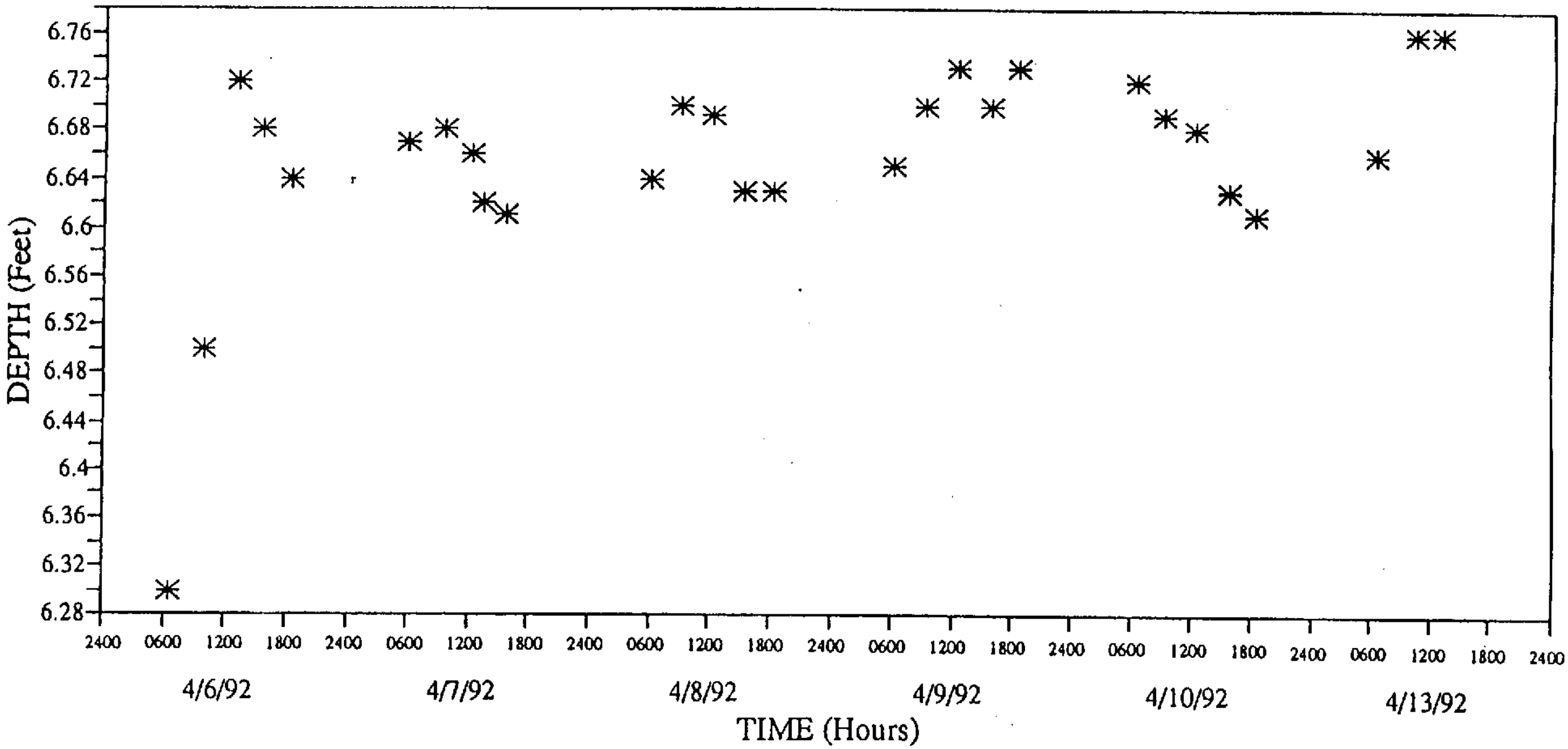
This list was sent to the Cal-EPA DTSC, Alameda County Health Department, and the Emeryville Fire Department for review and comment.



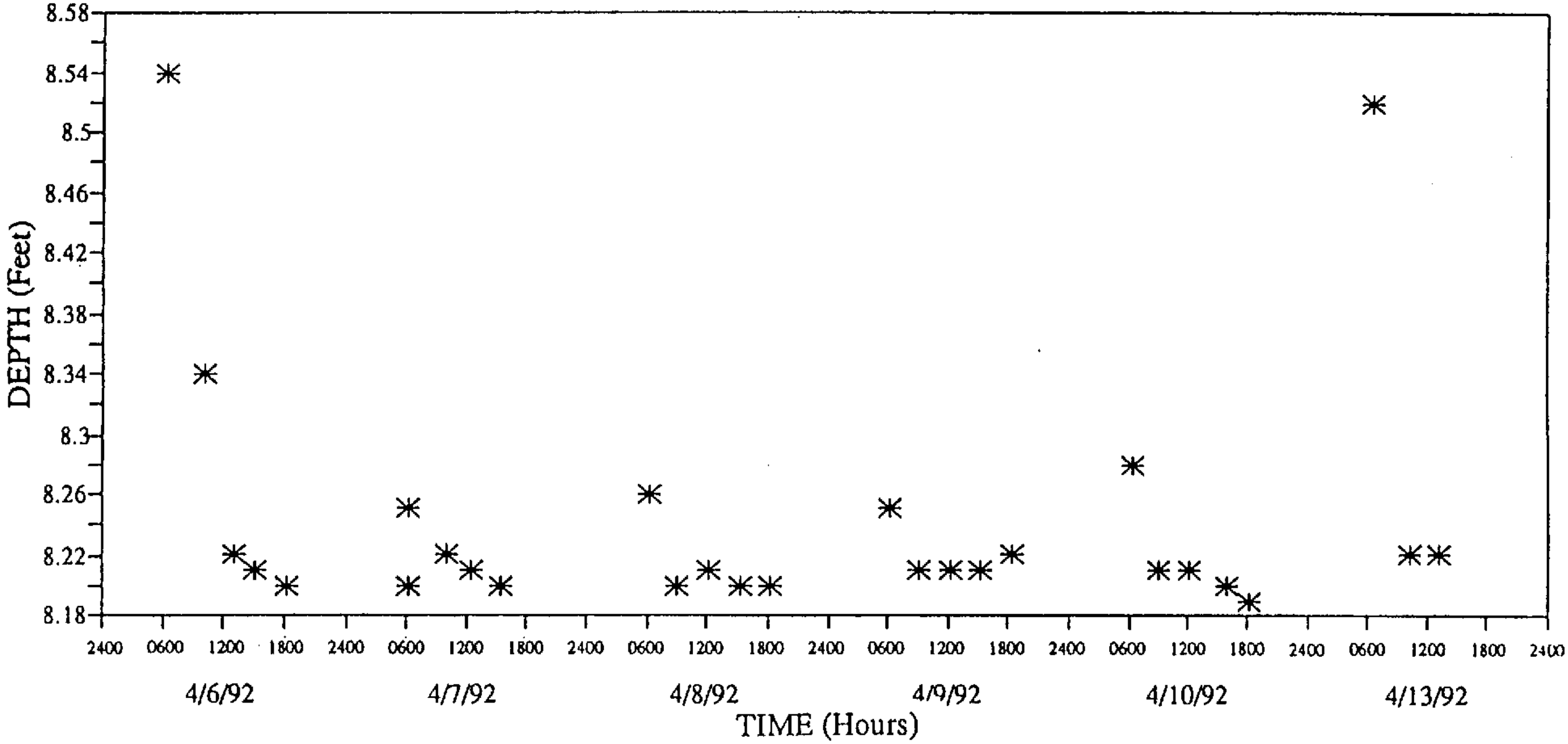
Project No. 92C091A	Grove Valve	Trichloroethene (TCE) in Groundwater March 2, 1992 Grove Valve and Regulator Company	Figure 1
Woodward-Clyde Consultants			



Project No. 92C091A	Grove Valve	Water Level Measurements Recorded at MW-1 April 6-13, 1992	Figure 2
Woodward-Clyde Consultants			



Project No. 92C091A	Grove Valve	**Water Level Measurements Recorded at MW-2 April 6-13, 1992**	**Figure 3**
Woodward-Clyde Consultants			



Project No. 92C091A	Grove Valve	Water Level Measurements Recorded at MW-3 April 6-13, 1992	Figure 4
Woodward-Clyde Consultants			

ATTACHMENT B

- Soil and Groundwater Analytical Data Tables for Investigation Conducted at Grove Valve

- Location Maps for Boreholes and Wells at Grove Valve

Table [illegible] SUMMARY OF ANALYSES FOR SOIL SAMPLES FROM GROVE VAL[illegible]ND REGULATOR COMPANY

BORING/ WELL NUMBER	Date	OIL & GREASE HYDROCARBONS STD Method 5520 E/F (mg/kg)	AROMATIC VOLATILE HYDROCARBONS EPA Method 8020: B-T-E-X (µg/kg)	Chlorobenzene (µg/kg)	1,*-Dichlorobenzene (µg/kg)	HALOGENATED VOLATILE ORGANICS EPA METHOD 8010**: Trichloroethene (µg/kg)	All other target compounds (µg/kg)	ORGANOCHLORINE PESTICIDES and PCBs EPA METHOD 8080** (µg/kg)
SB-1-6"	25-Feb-92	ND	ND	ND	ND	ND	ND	ND
SB-1-6"-A	25-Feb-92	20	ND	ND	ND	ND	ND	ND
SB-1-3'	25-Feb-92	20	ND	ND	ND	ND	ND	ND
SB-1-5'	25-Feb-92	ND	--	--	--	--	--	--
SB-2-6"	25-Feb-92	ND	ND	ND	ND	ND	ND	ND
SB-2-3'	25-Feb-92	ND	ND	ND	ND	ND	ND	ND
SB-3-6"	25-Feb-92	230	ND	ND	ND	ND	ND	ND
SB-3-3'	25-Feb-92	30	ND	ND	ND	ND	ND	ND
SB-3-5'	25-Feb-92	ND	--	--	--	--	--	--
SB-4-6"	25-Feb-92	230	ND	ND	ND	6	ND	ND
SB-4-3'	25-Feb-92	50	ND	ND	ND	ND	ND	ND
SB-4-5'	25-Feb-92	2500	ND	ND	ND	40	ND	--
SB-5-6"	25-Feb-92	40	ND	ND	ND	ND	ND	ND
SB-5-3'	25-Feb-92	ND	ND	ND	ND	ND	ND	ND
SB-5-5'	25-Feb-92	10	--	--	--	--	--	--
SB-6-6"	25-Feb-92	80	ND	ND	ND	ND	ND	ND
SB-6-3'	25-Feb-92	30	ND	ND	ND	ND	ND	ND
SB-6-5'	25-Feb-92	10	--	--	--	--	--	--
MW-1-6"	27-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-1-5'	27-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-1-15'	27-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-1-25'	27-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-2-6"	26-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-2-10'	26-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-2-20'	26-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-2-25'	26-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-3-6"	26-Feb-92	20	ND	ND	ND	ND	ND	ND
MW-3-5'	26-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-3-15'	26-Feb-92	ND	ND	ND	ND	ND	ND	ND
MW-3-25'	26-Feb-92	ND	ND	ND	ND	120	ND	ND
MW-3-25'-A	26-Feb-92	ND	ND	ND	ND	100	ND	ND
Detection Limits		10	5***	5	5	5	5	5***

GENERAL NOTES

"A" samples are laboratory prepared splits

"ND" denotes not detected above analytical detection limit.

"--" denotes sample was not analyzed for this constituent.

"B-T-E-X" denotes Benzene, Toluene, Ethylbenzene and Xylenes

SPECIFIC NOTES

* = total of 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, and 1,4-Dichlorobenzene

** = see lab sheets for complete list of method-specific target compounds.

*** = detection limits vary by individual constituents

Table [illegible] SUMMARY OF ANALYSES FOR GROUNDWATER SAMPLES FROM GR[illegible] VALVE AND REGULATOR COMPANY

WELL NUMBER	Date	OIL & GREASE HYDROCARBONS STD Method 5520 C/F (mg/L)	AROMATIC VOLATILE HYDROCARBONS EPA Method 8020 B-T-E-X (µg/L)	Chlorobenzene (µg/L)	1,*-Dichlorobenzene (µg/L)	Bromodichloromethane (µg/L)	HALOGENATED VOLATILE ORGANICS EPA Method 8010** Chloroform (µg/L)	1,1-Dichloroethane (µg/L)	1,1-Dichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	1,1,1-Trichloroethane (µg/L)	Trichloroethene (µg/L)	Vinyl Chloride (µg/L)	ORGANOCHLORINE PESTICIDES and PCBs EPA Method 8080** (µg/L)
MW-1	2-Mar-92	ND	ND	ND	ND		ND	ND	ND	33.0	12.0	ND	103.0	ND	ND
MW-2	2-Mar-92	ND	ND	ND	ND		ND	3.0	ND	2.0	ND	0.6	4.0	ND	ND
MW-2-DUP	2-Mar-92	ND	ND	ND	ND		ND	3.0	ND	2.0	ND	0.6	4.0	ND	ND
MW-3	2-Mar-92	ND	ND	ND	ND		0.5	0.6	2.0	16.0	ND	0.5	1300.0	5.0	ND
RINSATE	2-Mar-92	ND	ND	ND	ND	1.0	36.0	ND	ND	ND	ND	ND	ND	ND	ND
Detection Limits		0.5	0.5***	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.05***
REGULATORY STANDARDS															
EPA	MCL	--	5.0	--	75.0		100.0	--	7.0	70.0	100.0	200.0	5.0	2.0	
CA-STATE	MCL	--	1.0	--	5.0		--	5.0	6.0	6.0	10.0	200.0	5.0	0.5	

GENERAL NOTES

"ND" denotes not detected above analytical detection limit.

"--" denotes sample not regulated or no MCL established.

"B-T-E-X" denotes Benzene, Toluene, Ethylbenzene, and Xylenes.

SPECIFIC NOTES

* = total of 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, and 1,4-Dichlorobenzene

** = see lab sheets for complete list of method-specific target compounds.

*** = detection limits vary by individual constituents

SHADED = amount exceeds either EPA or CA State Maximum Contaminant Level (MCL)

Table 3. WATER LEVEL MEASUREMENTS RELATIVE TO MEAN SEA LEVEL (MSL), GROVE VALVE and REGULATOR COMPANY

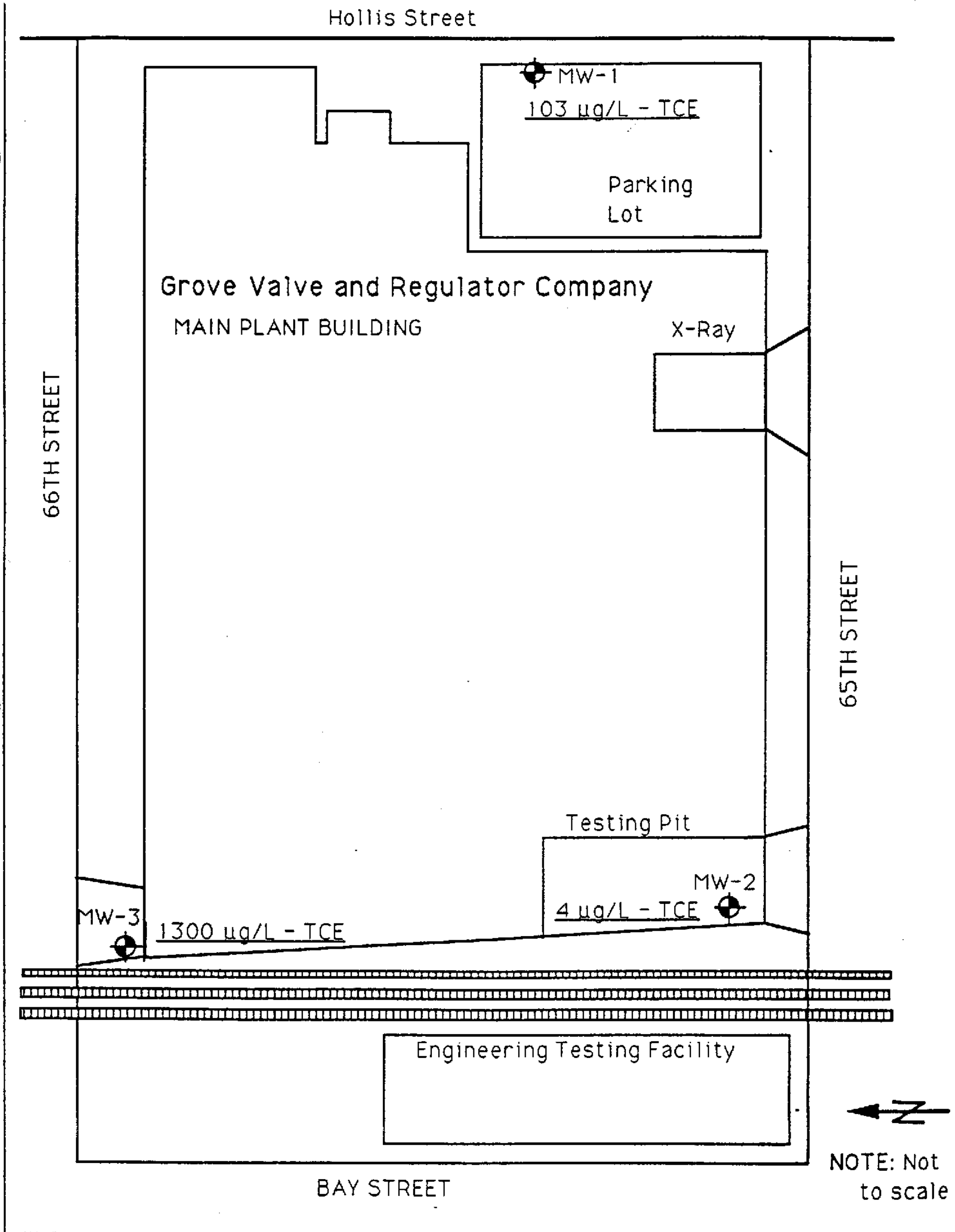
(All measurements are in feet)

Well Number	Adjacent Ground Elevation (Note 1)	Top of Well Casing Elevation (Note 1)	Sounding Date	Depth to Top of Groundwater (Note 2)	Groundwater Elevation (Note 1)
MW-1	20.89	20.72	3/2/92	4.28	16.44
			3/26/92	4.89	15.83
MW-2	16.28	15.95	3/2/92	7.90	8.05
			3/26/92	6.10	9.85
MW-3	17.47	16.98	3/2/92	9.22	7.76
			3/26/92	8.38	8.60

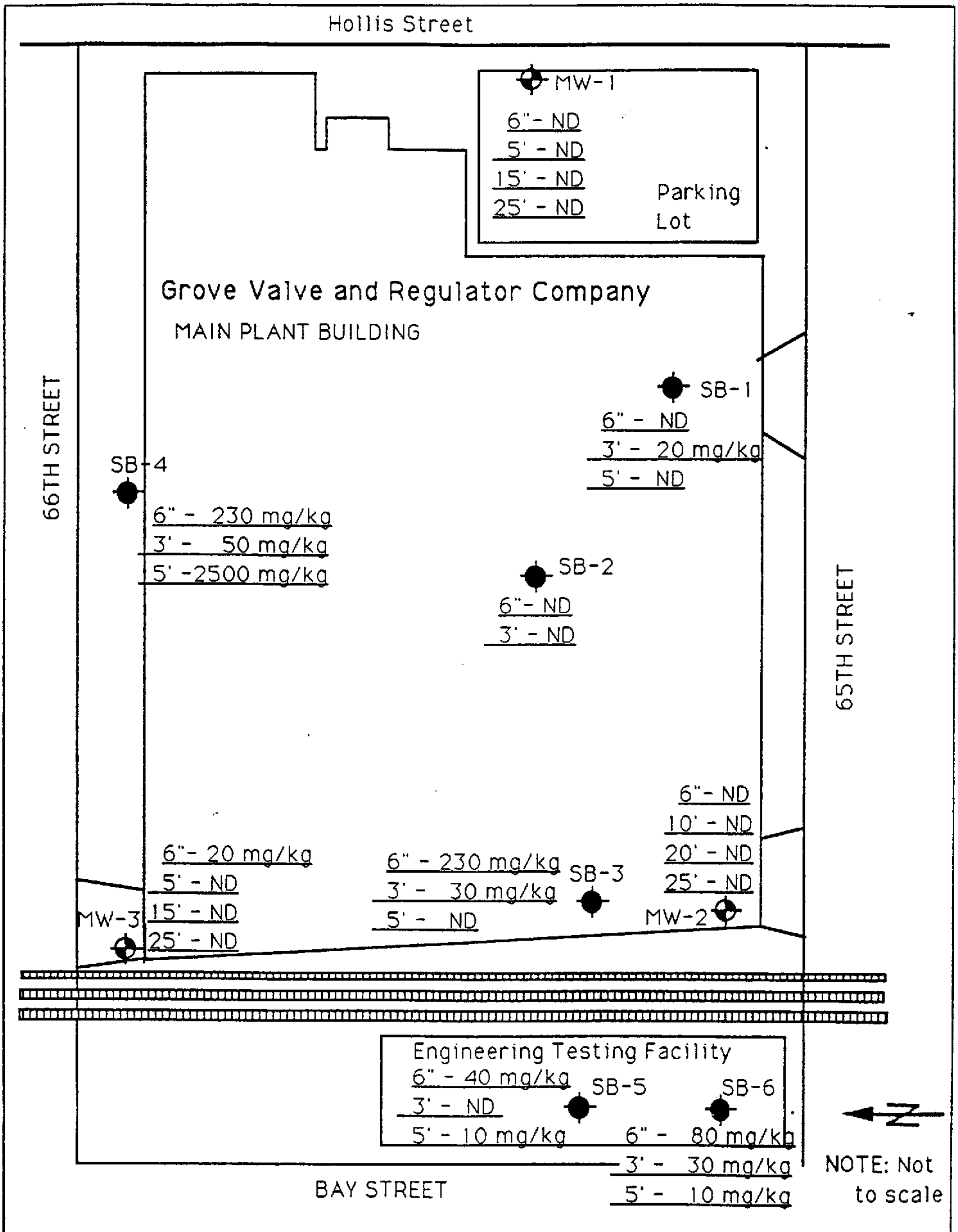
NOTES

1. Based upon USC and GS datum in feet relative to MSL; adjacent ground elevation refers to steel rim of Christy box reference mark.

2. Relative to top-of-well-casing



Project No. 92C091A	Grove Valve	Trichloroethene (TCE) in Groundwater March 2, 1992 Grove Valve and Regulator Company	Figure 3
Woodward-Clyde Consultants			



Project No. 92C091A	Grove Valve	Oil & Grease (Hydrocarbón) results in soil, Grove Valve and Regulator Company	Figure 2
Woodward-Clyde Consultants			

ATTACHMENT C

- February 26, 1993 letter to Mr. Brian Oliva and Mr. Lester Feldman Transmitting Groundwater Analytical Results

- Groundwater Gradient Contour Maps

- Groundwater Analytical Results for Samples Collected April 3, 1995 at Grove Valve

GROVE VALVE AND REGULATOR COMPANY
6529 HOLLIS STREET OAKLAND, CALIFORNIA 94608
(510) 655 7700 FAX (510) 420-2150

February 26, 1993

Mr. Lester Feldman
Environmental Specialist
Regional Water Quality Control Board
2101 Webster Street, Suite 500
Oakland, CA 94612

RE: Groundwater Monitoring Results for Grove Valve and Regulator Company 6529 Hollis Street, Oakland, CA 94608

Dear Mr. Feldman:

We have completed our second update of groundwater sampling and analysis at the three groundwater monitoring wells located at 6529 Hollis Street in Oakland.

The laboratory analysis shows the same Halogenated Volatile Organics and Aromatic Volatile Organics during this sampling as in samples taken in April and October 1992. Concentration levels of chemicals changed a little. The upgradient well MW-1 now showing trichloroethene at 53 ug/L is down from 99 ug/L and the downgradient well MW-3 showing 1200 ug/L is up from 1100 ug/L in October 1991 samples taken from MW-3 in April 1992 showed 1300 ug/L of trichloroethene.

We will continue to monitor the groundwater on a periodic basis and send copies of all laboratory analysis to you. Also, at the recommendation of Mr. Richard Hyatt, we will send copies of all past and future reports to Mr. Brian Oliva at the Alameda County Health Care Services, Department of Environmental Health.

If you have any questions or comments regarding this matter, please feel free to contact me.

Regards,

Bill Tallent
Plant Services Manager

BT/dmg

Enclosures

cc: Brian Oliva
Alameda County Health Care Services

GROVE VALVE AND REGULATOR COMPANY
6529 HOLLIS STREET OAKLAND, CALIFORNIA 94608
(510) 655 7700 FAX (510) 420-2150

February 26, 1993

Mr. Brian Oliva
Hazardous Materials Specialist
Alameda County Health Care Services
Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Suite 200
Oakland, CA 94621

RE: Groundwater Monitoring Results for Grove Valve and Regulator Company 6529 Hollis Street, Oakland, CA 94608

Dear Mr. Oliva:

Grove Valve and Regulator Company (Grove), with the assistance of its consultants, Woodward-Clyde, in April 1992 performed an investigation of environmental conditions at its facility located at 6529 Hollis Street in Oakland, California. The purpose was to establish a baseline characterization of soil conditions across the property and of groundwater conditions at or near the property boundary.

We sent reports and copies of analytical results to Mr. Lester Feldman at the Regional Water Quality Control Board (RWQCB) in June and November 1992. In a telephone conversation with Mr. Richard Hyatt of RWQCB in January 1993, he suggested I inform your office of our findings. Based on this data and to bring you up to date, we are sending you copies of reports sent to RWQCB in June and November 1992. Also included are copies of analytical results from water samples taken in February 1993.

Grove intends to continue to monitor the groundwater on a periodic basis. We will send the analytical results to you and to the RWQCB.

If you have any questions or comments regarding this matter, please feel free to contact me.

Regards,

Bill Tallent
Plant Services Manager

BT/dmg

Enclosures

Quanteq Laboratories
An Ecologics Company

Certificate of Analysis

DOHS CERTIFICATION NO. E772 AIHA ACCREDITATION NO. 332

GROVE VALVE & REGULATOR CO.
6529 HOLLIS STREET
EMERYVILLE, CA 94608

ATTN: BILL TALLENT

CLIENT PROJ. ID: MW1
P.O. NO: PB40198

REPORT DATE: 02/17/93

DATE SAMPLED: 02/04/93

DATE RECEIVED: 02/04/93

QUANTEQ JOB NO: 9302052

PROJECT SUMMARY:

On February 4, 1993, this laboratory received one (1) water sample.

Client requested sample be analyzed for Halogenated Volatile Organics by EPA Method 8010 and Aromatic Volatile Organics by EPA Method 8020. Sample identification, results and dates analyzed are summarized on the following pages of this report.

All laboratory quality control parameters were found to be within established limits. Batch QC data is included at the end of this report.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Larry Klein
Laboratory Manager

Results FAXed 02/16/93

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW 1
CLIENT PROJ. ID: MW1
DATE SAMPLED: 02/04/93
DATE RECEIVED: 02/04/93
REPORT DATE: 02/17/93

QUANTEQ LAB NO: 9302052-01A
QUANTEQ JOB NO: 9302052
DATE ANALYZED: 02/11/93
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	REPORTING LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-34-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	**156-59-2**	**15**	**0.5**
trans-1,2-Dichloroethene	**156-60-5**	**5**	**0.5**
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	**79-01-6**	**53**	**0.5**
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	0.5

ND = Not Detected

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW 1
CLIENT PROJ. ID: MW1
DATE SAMPLED: 02/04/93
DATE RECEIVED: 02/04/93
REPORT DATE: 02/17/93

QUANTEQ LAB NO: 9302052-01A
QUANTEQ JOB NO: 9302052
DATE ANALYZED: 02/11/93
INSTRUMENT: G

EPA METHOD 8020 (WATER MATRIX)
AROMATIC VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	REPORTING LIMIT (ug/L)
Benzene	71-43-2	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Toluene	108-88-3	ND	0.5
Xylenes, Total	1330-20-7	ND	2

ND = Not Detected

QUALITY CONTROL DATA

INSTRUMENT: G

QUANTEQ JOB NO: 9302052

CLIENT PROJ. ID: MW1

SURROGATE STANDARD RECOVERY SUMMARY

METHOD 8010/8020
(WATER MATRIX)

SAMPLE IDENTIFICATION			SURROGATE RECOVERY (PERCENT)		
Date Analyzed	Client Id.	Lab Id.	Bromochloro-methane	1-Bromo-2-chloro-propane	1-Chloro-2-fluoro-benzene
02/11/93	MW 1	01A	111.6	107.0	104.2

CURRENT QC LIMITS (Revised 06/22/92)

ANALYTE	PERCENT RECOVERY
Bromochloromethane	(65-138)
1-Bromo-2-chloropropane	(62-141)
1-Chloro-2-fluorobenzene	(74-124)

Quanteq Laboratories
An Ecologics Company

QUALITY CONTROL DATA

DATE ANALYZED: 02/11/93

CLIENT PROJ. ID: MW1

QUANTEQ JOB NO: 9302052
SAMPLE SPIKED: D.I. WATER
INSTRUMENT: G

MATRIX SPIKE RECOVERY SUMMARY

METHOD 8010/8020 (WATER MATRIX)

ANALYTE	Spike Conc. (ug/L)	Sample Result (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	Average Percent Recovery	RPD
1,1-Dichloroethene	50.0	ND	43.3	44.1	87.4	1.8
Trichloroethene	50.0	ND	42.9	45.1	88.0	5.0
Benzene	50.0	ND	48.3	49.4	97.7	2.2
Toluene	50.0	ND	48.4	49.6	98.0	2.4
Chlorobenzene	50.0	ND	41.6	42.8	84.4	2.8

CURRENT QC LIMITS (Revised 06/22/92)

Analyte	Percent Recovery	RPD
1,1-Dichloroethene	(52-116)	6
Trichloroethene	(68-123)	8
Benzene	(79-112)	5
Toluene	(77-113)	5
Chlorobenzene	(62-104)	6

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

QUANTEQ Laboratories
ANALYTICAL REQUEST/CHAIN OF CUSTODY FORM
(Complete Information on Opposite Side)

Page of

Date: 2-4-93
SAMPLER(S):

CLIENT GROVE VALVE
CLIENT JOB REF.: MW 1
LAB PROJECT NO: 9302052
(lab use only)

ANALYSES

CLIENT SAMPLE IDENTIFICATION	DATE Taken	Lab Number (lab use only)	AIR VOLUME (Liters)	NO. CONT.	SAMPLE TYPE *	8010/8020	COMMENTS/ INTERFERENCES
MW 1 WATER	2-4-93	01AB		2	7	X	

DATE RESULTS REQUIRED: Standard T.A.T.

	Date	Time		Date	Time
Relinquished by: (Signature) [signature]	2-4-93	3:50 PM	Received by: (Signature) [signature]	2-4-93	15:50
Relinquished by: (Signature) [signature]	2-4-93	17:05	Received by: (Signature)		
Dispatched by: (Signature)			Received for lab by: (Signature) Gini Gillispie	2-4-93	1705
Method of Shipment:			Lab Comments:		

*SAMPLE TYPE (SPECIFY): (1) 37 mm 0.8 um MCEF; 2) 25 mm 0.8 um MCEF; (3) 25 mm 0.4 um polycarb. filter; (4) PVC filter, diam. pore size ; (5) Charcoal tube; (6) Silica gel tube (7) Water; (8) Soil; (9) Bulk Sample;

QuanteQ Laboratories

An Ecologics Company

Certificate of Analysis

DOHS CERTIFICATION NO. E772 AIHA ACCREDITATION NO. 332

GROVE VALVE & REGULATOR CO.
6529 HOLLIS STREET
EMERYVILLE, CA 94608

ATTN: BILL TALLENT

CLIENT PROJ. ID: MW2
P.O. NO: PB40198

REPORT DATE: 02/17/93

DATE SAMPLED: 02/04/93

DATE RECEIVED: 02/04/93

QUANTEQ JOB NO: 9302053

PROJECT SUMMARY:

On February 4, 1993, this laboratory received one (1) water sample.

Client requested sample be analyzed for Halogenated Volatile Organics by EPA Method 8010 and Aromatic Volatile Organics by EPA Method 8020. Sample identification, results and dates analyzed are summarized on the following pages of this report.

All laboratory quality control parameters were found to be within established limits. Batch QC data is included at the end of this report.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Manager

Results FAXed 02/16/93

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW 2
CLIENT PROJ. ID: MW2
DATE SAMPLED: 02/04/93
DATE RECEIVED: 02/04/93
REPORT DATE: 02/17/93

QUANTEQ LAB NO: 9302053-01A
QUANTEQ JOB NO: 9302053
DATE ANALYZED: 02/12/93
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	REPORTING LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	**75-34-3**	**2**	**0.5**
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	**156-59-2**	**2**	**0.5**
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	3	0.5
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	0.5

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW 2
CLIENT PROJ. ID: MW2
DATE SAMPLED: 02/04/93
DATE RECEIVED: 02/04/93
REPORT DATE: 02/17/93

QUANTEQ LAB NO: 9302053-01A
QUANTEQ JOB NO: 9302053
DATE ANALYZED: 02/12/93
INSTRUMENT: G

EPA METHOD 8020 (WATER MATRIX)
AROMATIC VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	REPORTING LIMIT (ug/L)
Benzene	71-43-2	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Toluene	108-88-3	ND	0.5
Xylenes, Total	1330-20-7	ND	2

ND = Not Detected

QUALITY CONTROL DATA

INSTRUMENT: G

QUANTEQ JOB NO: 9302053

CLIENT PROJ. ID: MW2

SURROGATE STANDARD RECOVERY SUMMARY

METHOD 8010/8020
(WATER MATRIX)

SAMPLE IDENTIFICATION			SURROGATE RECOVERY (PERCENT)		
Date Analyzed	Client Id.	Lab Id.	Bromochloro-methane	1-Bromo-2-chloro-propane	1-Chloro-2-fluoro-benzene
02/12/93	MW 2	01A	104.5	105.6	100.8

CURRENT QC LIMITS (Revised 06/22/92)

ANALYTE	PERCENT RECOVERY
Bromochloromethane	(65-138)
1-Bromo-2-chloropropane	(62-141)
1-Chloro-2-fluorobenzene	(74-124)

QUALITY CONTROL DATA

DATE ANALYZED: 02/11/93

CLIENT PROJ. ID: MW2

QUANTEQ JOB NO: 9302053
SAMPLE SPIKED: D.I. WATER
INSTRUMENT: G

MATRIX SPIKE RECOVERY SUMMARY

METHOD 8010/8020
(WATER MATRIX)

ANALYTE	Spike Conc. (ug/L)	Sample Result (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	Average Percent Recovery	RPD
1,1-Dichloroethene	50.0	ND	43.3	44.1	87.4	1.8
Trichloroethene	50.0	ND	42.9	45.1	88.0	5.0
Benzene	50.0	ND	48.3	49.4	97.7	2.2
Toluene	50.0	ND	48.4	49.6	98.0	2.4
Chlorobenzene	50.0	ND	41.6	42.8	84.4	2.8

CURRENT QC LIMITS (Revised 06/22/92)

Analyte	Percent Recovery	RPD
1,1-Dichloroethene	(52-116)	6
Trichloroethene	(68-123)	8
Benzene -	(79-112)	5
Toluene	(77-113)	5
Chlorobenzene	(62-104)	6

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

QUANTEQ Laboratories

ANALYTICAL REQUEST/CHAIN OF CUSTODY FORM

(Complete Information on Opposite Side)

Page ___ of ___

Date: 2-4-93

SAMPLER(S):

CLIENT GROVE VALVE

CLIENT JOB REF.: MW2

LAB PROJECT NO: 9302053 (lab use only)

CLIENT SAMPLE IDENTIFICATION	DATE Taken	Lab Number (lab use only)	AIR VOLUME (Liters)	NO. CONT.	SAMPLE TYPE *	ANALYSES: 8010/8020											COMMENTS/ INTERFERENCES
MW2 WATER	2-4-93	01AB		2	7	X											

DATE RESULTS REQUIRED: STANDARD TAT.

	Date	Time		Date	Time
Relinquished by: (Signature) [signature]	2-4-93	3:50PM	Received by: (Signature) [signature]	2-4-93	15:50
Relinquished by: (Signature) [signature]	2-4-93	17:09	Received by: (Signature)		
Dispatched by: (Signature)			Received for lab by: (Signature) Gina Gillespie	2-4-93	1705
Method of Shipment:			Lab Comments:		

*SAMPLE TYPE (SPECIFY): (1) 37 mm 0.8 um MCEF;2) 25 mm 0.8 um MCEF; (3) 25 mm 0.4 um polycarb. filter; (4) PVC filter, diam. pore size ; (5) Charcoal tube; (6) Silica gel tube (7) Water; (8) Soil; (9) Bulk Sample;

Quanteq Laboratories

An Ecologics Company

Certificate of Analysis

DOHS CERTIFICATION NO. E772 AIHA ACCREDITATION NO. 332

GROVE VALVE & REGULATOR CO.
6529 HOLLIS STREET
EMERYVILLE, CA 94608

ATTN: BILL TALLENT

CLIENT PROJ. ID: MW3
P.O. NO: PB40198

REPORT DATE: 02/19/93

DATE SAMPLED: 02/04/93

DATE RECEIVED: 02/04/93

QUANTEQ JOB NO: 9302054

PROJECT SUMMARY:

On February 4, 1993, this laboratory received one (1) water sample.

Client requested sample be analyzed for Halogenated Volatile Organics by EPA Method 8010 and Aromatic Volatile Organics by EPA Method 8020. Sample identification, results and dates analyzed are summarized on the following pages of this report.

All laboratory quality control parameters were found to be within established limits. Batch QC data is included at the end of this report.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Manager

Results FAXed 02/16/93

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW 3
CLIENT PROJ. ID: MW3
DATE SAMPLED: 02/04/93
DATE RECEIVED: 02/04/93
REPORT DATE: 02/19/93

QUANTEQ LAB NO: 9302054-01A
QUANTEQ JOB NO: 9302054
DATE ANALYZED: 02/12-15/93
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	REPORTING LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-34-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	**75-35-4**	**1**	0.5
cis-1,2-Dichloroethene	**156-59-2**	**13**	0.5
trans-1,2-Dichloroethene	**156-60-5**	**1**	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	**79-01-6**	**1,200**	0.5
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	**75-01-4**	**3**	0.5

ND = Not Detected

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW 3
CLIENT PROJ. ID: MW3
DATE SAMPLED: 02/04/93
DATE RECEIVED: 02/04/93
REPORT DATE: 02/19/93

QUANTEQ LAB NO: 9302054-01A
QUANTEQ JOB NO: 9302054
DATE ANALYZED: 02/12-15/93
INSTRUMENT: G

EPA METHOD 8020 (WATER MATRIX)
AROMATIC VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	REPORTING LIMIT (ug/L)
Benzene	71-43-2	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Toluene	108-88-3	ND	0.5
Xylenes, Total	1330-20-7	ND	2

ND = Not Detected

QUALITY CONTROL DATA

INSTRUMENT: G

QUANTEQ JOB NO: 9302054

CLIENT PROJ. ID: MW3

SURROGATE STANDARD RECOVERY SUMMARY

METHOD 8010/8020
(WATER MATRIX)

SAMPLE IDENTIFICATION			SURROGATE RECOVERY (PERCENT)		
Date Analyzed	Client Id.	Lab Id.	Bromochloro-methane	1-Bromo-2-chloro-propane	1-Chloro-2-fluoro-benzene
02/12/93	MW 3	01A	128.3	129.3	106.4

CURRENT QC LIMITS (Revised 06/22/92)

ANALYTE	PERCENT RECOVERY
Bromochloromethane	(65-138)
1-Bromo-2-chloropropane	(62-141)
1-Chloro-2-fluorobenzene	(74-124)

QUALITY CONTROL DATA

DATE ANALYZED: 02/12/93

CLIENT PROJ. ID: MW3

QUANTEQ JOB NO: 9302054
SAMPLE SPIKED: D.I. WATER
INSTRUMENT: G

MATRIX SPIKE RECOVERY SUMMARY

METHOD 8010/8020
(WATER MATRIX)

ANALYTE	Spike Conc. (ug/L)	Sample Result (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	Average Percent Recovery	RPD
1,1-Dichloroethene	50.0	ND	43.5	45.0	88.5	3.4
Trichloroethene	50.0	ND	44.6	46.9	91.5	5.0
Benzene	50.0	ND	46.5	48.3	94.8	3.8
Toluene	50.0	ND	46.6	47.8	94.4	2.5
Chlorobenzene	50.0	ND	45.5	48.0	93.5	5.3

CURRENT QC LIMITS (Revised 06/22/92)

Analyte	Percent Recovery	RPD
1,1-Dichloroethene	(52-116)	6
Trichloroethene	(68-123)	8
Benzene	(79-112)	5
Toluene	(77-113)	5
Chlorobenzene	(62-104)	6

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

QUANTEQ [illegible]oratories

ANALYTICAL REQUEST/CHAIN OF CUSTODY FORM

(Complete Information on Opposite Side)

Page [illegible] of ___

Date: 2-4-93

SAMPLER(S): ___

CLIENT Grove

CLIENT JOB REF.: MW3

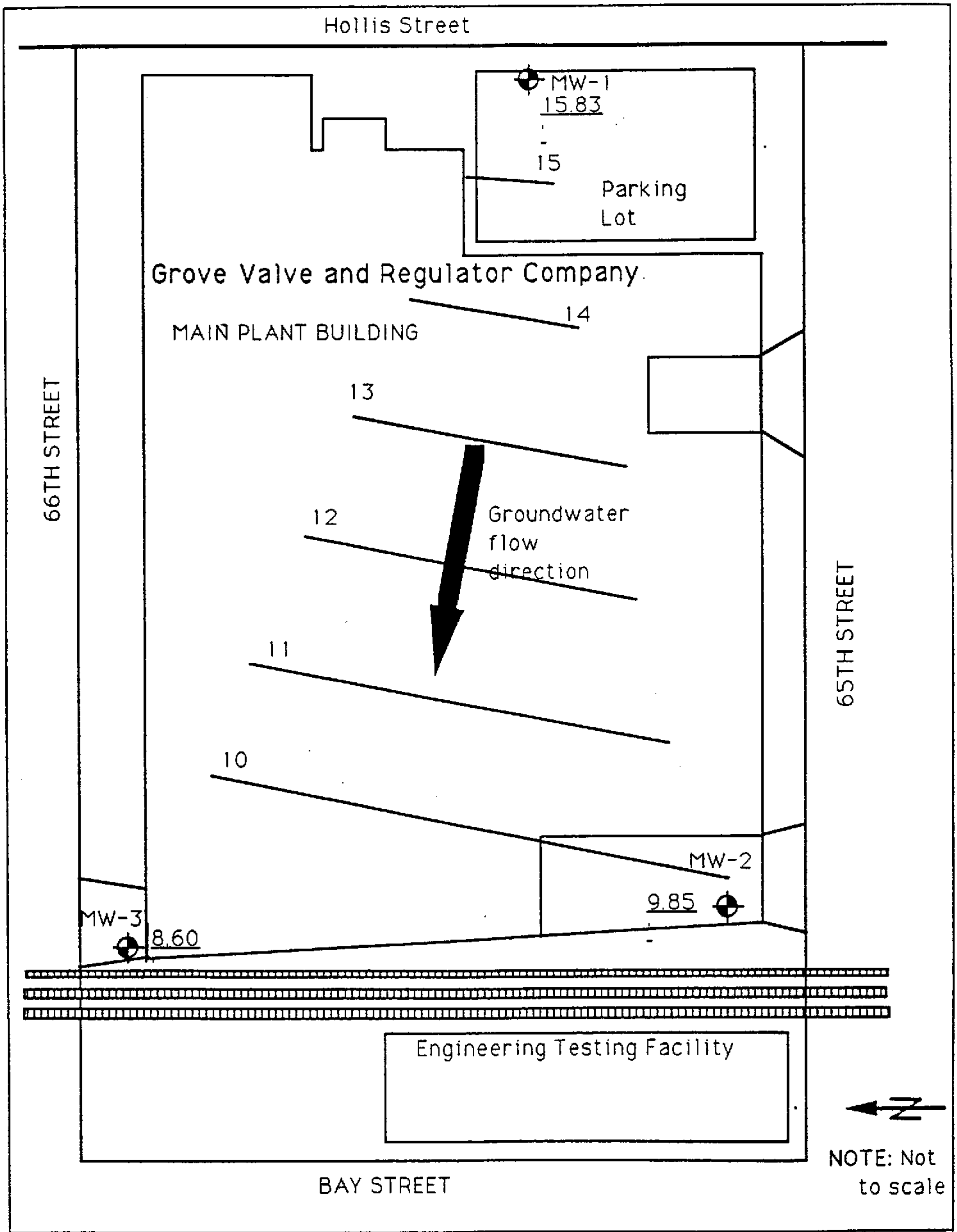
LAB PROJECT NO: 9302054
(lab use only)

CLIENT SAMPLE IDENTIFICATION	DATE Taken	Lab Number (lab use only)	AIR VOLUME (Liters)	NO. CONT.	SAMPLE TYPE *	ANALYSES: 8010/8020											COMMENTS/ INTERFERENCES
MW3	2-4-93	01AB		2	7	X											
water																	

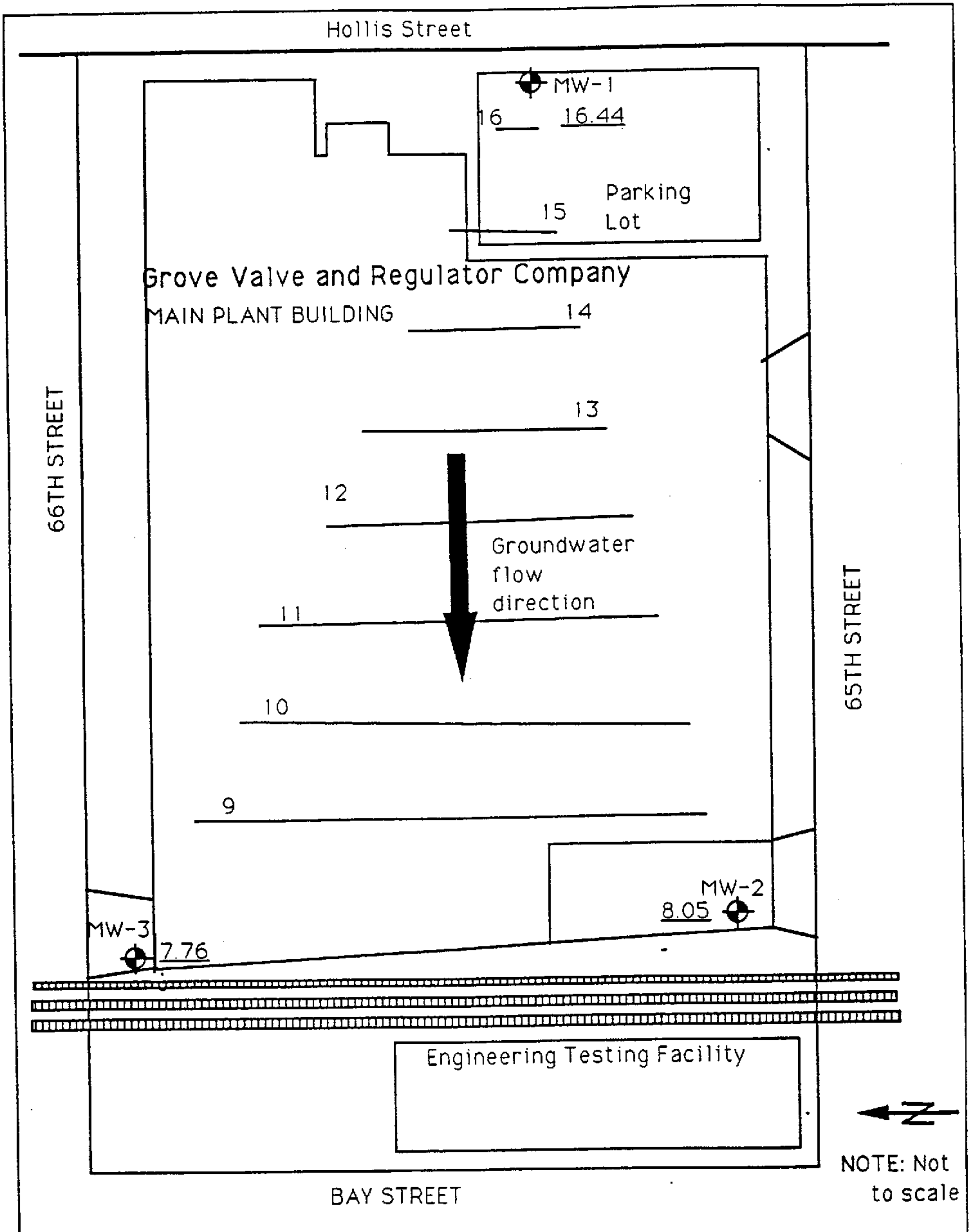
DATE RESULTS REQUIRED: Standard T.A.T.

	Date	Time		Date	Time
Relinquished by: (Signature) [signature]	2-4-93	3:50 PM	Received by: (Signature) [signature]	2-4-93	15:50
Relinquished by: (Signature) [signature]	2-4-93	1705	Received by: (Signature)		
Dispatched by: (Signature)			Received for lab by: (Signature) Gina Gillespie	2-4-93	1705
Method of Shipment:			Lab Comments:		

*SAMPLE TYPE (SPECIFY): (1) 37 mm 0.8 um MCEF; 2) 25 mm 0.8 um MCEF; (3) 25 mm 0.4 um polycarb. filter; (4) PVC filter, diam. _____ pore size _____; (5) Charcoal tube; (6) Silica gel tube (7) Water; (8) Soil; (9) Bulk Sample;
(10) Other (11) Other



Project No. 92C091A	Grove Valve	Groundwater elevation in feet above MSL March 2, 1992 Grove Valve and Regulator Company	Figure 4
Woodward-Clyde Consultants			



Project No. 92C091A	Grove Valve	Groundwater elevation in feet above MSL March 26, 1992 Grove Valve and Regulator Company	Figure 5
Woodward-Clyde Consultants			

GROVE VALVE AND REGULATOR COMPANY
6529 HOLLIS STREET OAKLAND, CALIFORNIA 94608
(510) 655-7700 FAX (510) 420-2150

November 30, 1992

Mr. Lester Feldman
Environmental Specialist
Regional Water Quality Control Board
2101 Webster Street, Suite 500
Oakland, California 94612

Subject: <u>Grove Valve and Regulator Company</u>
<u>6529 Hollis Street, Emeryville, CA 94608</u>

Dear Mr. Feldman:

Pursuant to our letter to you dated June 24, 1992 (copy enclosed) we have completed our first update of the groundwater chemical analysis at the three groundwater monitoring wells located at 6529 Hollis Street, Emeryville, CA. The update was performed by our consultants, Woodward-Clyde, based on a new round of sampling taken on October 15, 1992.

The chemical-analysis of the groundwater showed the same chemicals to be present during this sampling round as during the earlier sampling round. However, the concentrations of chemicals declined from the earlier sampling, with the upgradient well now showing a concentration of 99 hg/L trichloroethene and the downgradient well showing 1100 hg/L trichloroethene. Readings at the third well continued to be below detection or present MCL standards.

Based on this data, Grove intends to continue to monitor the groundwater on a periodic basis to confirm that the contamination is localized and not the result of on-site sources. We will send the analytical results to you and to other appropriate agencies. If you have any comments or questions on this matter, please do not hesitate to call Mr. Bill Talent, Plant Services Manager, at 655-7700.

Very truly yours,

GROVE VALVE AND REGULATOR COMPANY

John P. Tescher

John P. Tescher
President and Chief Operating Officer

JPT:sdb
Enclosure

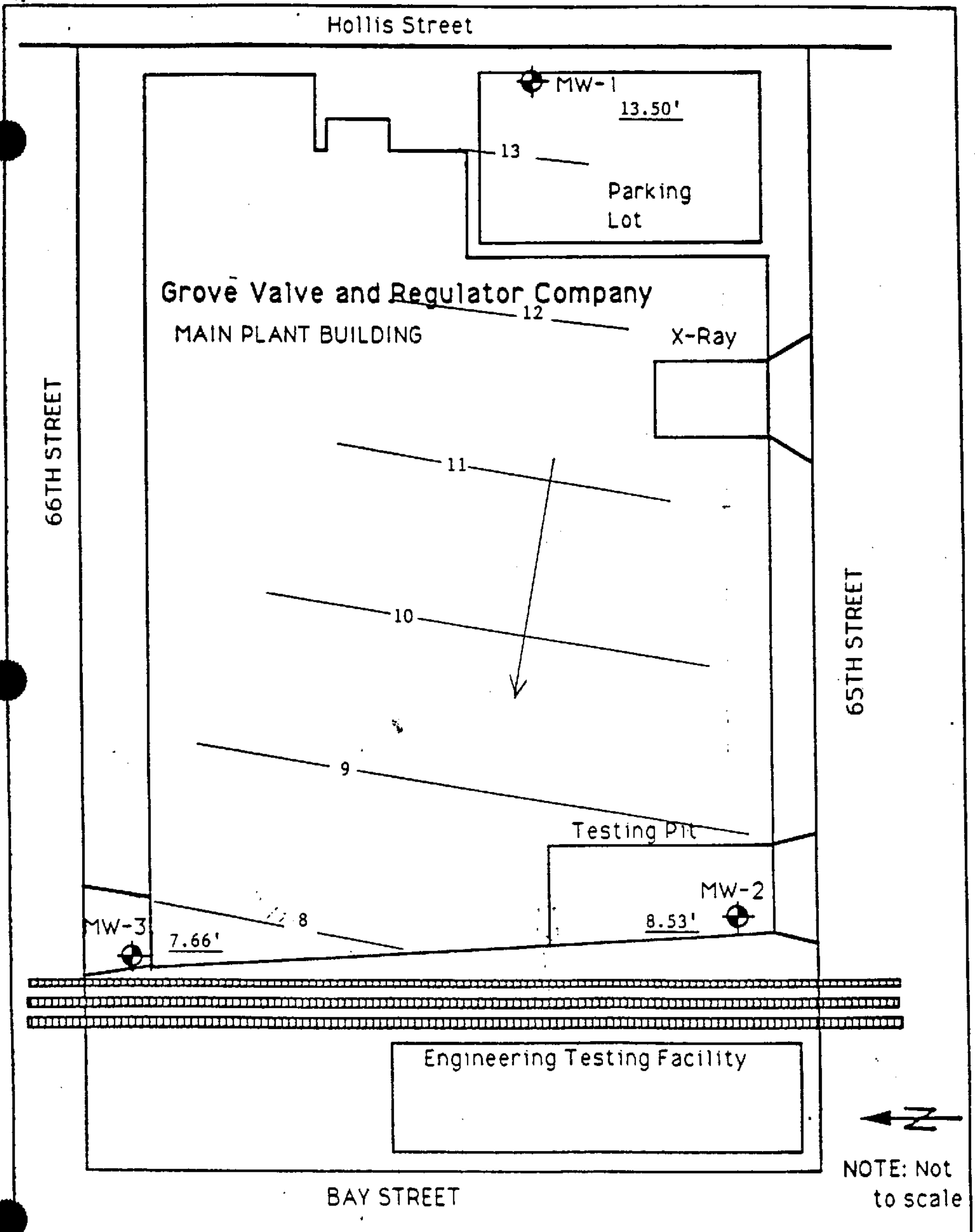
TABLE 1

SUMMARY OF ANALYSES FOR GROUNDWATER SAMPLES FROM GROVE VALVE AND REGULATOR COMPANY

Well Number	Date	HALOGENATED VOLATILE ORGANICS EPA Method 8010* Chloroform (µg/L)	1,1-Dichloroethane (µg/L)	1,1-Dichloroethene (µg/L)	cis-1,2-Dichloroethene (µg/L)	trans-1,2-Dichloroethene (µg/L)	1,1,1-Trichloroethane (µg/L)	Trichloroethene (µg/L)	Vinyl Chloride (µg/L)
MW-1	15 Oct 1992	ND	ND	ND	24.0	8.0	ND	99.0	ND
MW-1 Dup	15 Oct 1992	ND	ND	ND	24.0	8.0	ND	98.0	ND
MW-2	15 Oct 1992	ND	2.0	ND	1.0	ND	0.8	3.0	ND
MW-3	15 Oct 1992	ND	0.7	1.0	13.0	ND	0.7	1100.0	2.0
Detection Limits		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
EPA	MCL	100.0	--	7.0	70.0	100.0	200.0	5.0	2.0
CA-STATE	MCL	--	5.0	6.0	6.0	10.0	200.0	5.0	0.5

General Notes
"ND" denotes not detected above analytical detection limit
"--" denotes sample not regulated or no MCL established

Specific Notes
* = see lab sheets for complete list of method-specific target compounds
Shaded area = amount exceeds either EPA or CA State Maximum Contaminant Level (MCL)



Project No. 92C091A	Grove Valve	Groundwater Elevation in Feet Above MSL October 15, 1992 Grove Valve and Regulator Company	Figure 1
Woodward-Clyde Consultants			

Quanteq Laboratories

An Ecologics Company

FORMERLY MED-TOX

Certificate of Analysis

DOHS CERTIFICATION NO. E--2

AIHA ACCREDITATION NO. 332

WOODWARD-CLYDE CONSULTANTS
500 12TH STREET
SUITE 100
OAKLAND, CA 94607-4014
ATTN: GEORGE CHANG

CLIENT PROJECT ID: 92C0544-1000
PROJ. NAME: GROVE VALVE

REPORT DATE: 10/27/92

DATE SAMPLED: 10/15/92

DATE RECEIVED: 10/15/92

QUANTEQ JOB NO: 9210113

PROJECT SUMMARY:

On October 15, 1992, this laboratory received five (5) water samples. Samples were received cold and in appropriate preserved containers.

Client requested samples be analyzed for Halogenated Volatile Organics by EPA Method 8010.

Sample identification, methodologies, results and dates analyzed are summarized on the following pages.

All laboratory quality control parameters were found to be within established limits. Batch QC data is included at the end of this report.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein

Larry Klein
Laboratory Manager

Results FAXed 10/26/92

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

SAMPLE ID: MW-1
CLIENT PROJ. ID: 92C0544-1000 GROVE VALVE
DATE SAMPLED: 10/15/92
DATE RECEIVED: 10/15/92
REPORT DATE: 10/27/92

QUANTEQ LAB NO: 9210113-01A
QUANTEQ JOB NO: 9210113
DATE ANALYZED: 10/16/92
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-34-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	**156-59-2**	**24**	0.5
trans-1,2-Dichloroethene	**156-60-5**	**8**	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	99	0.5
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	0.5

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

SAMPLE ID: MW-2
CLIENT PROJ. ID: 92C0544-1000 GROVE VALVE
DATE SAMPLED: 10/15/92
DATE RECEIVED: 10/15/92
REPORT DATE: 10/27/92

QUANTEQ LAB NO: 9210113-02A
QUANTEQ JOB NO: 9210113
DATE ANALYZED: 10/16/92
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-34-3	2	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	156-59-2	1	0.5
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	0.8	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	3	0.5
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	0.5

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

SAMPLE ID: MW-3
CLIENT PROJ. ID: 92C0544-1000 GROVE VALVE
DATE SAMPLED: 10/15/92
DATE RECEIVED: 10/15/92
REPORT DATE: 10/27/92

QUANTEQ LAB NO: 9210113-03A
QUANTEQ JOB NO: 9210113
DATE ANALYZED: 10/16-19/92
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-34-3	0.7	0.5
1,2-Dichloroethane	107-06-2	0.6	0.5
1,1-Dichloroethene	75-35-4	1	0.5
cis-1,2-Dichloroethene	156-59-2	13	0.5
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	0.7	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	1,100	5
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	2	0.5

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

WOODWARD-CLYDE CONSULTANTS

SAMPLE ID: MW-4
CLIENT PROJ. ID: 92C0544-1000 GROVE VALVE
DATE SAMPLED: 10/15/92
DATE RECEIVED: 10/15/92
REPORT DATE: 10/27/92

QUANTEQ LAB NO: 9210113-04A
QUANTEQ JOB NO: 9210113
DATE ANALYZED: 10/16-19/92
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-34-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	156-59-2	24	0.5
trans-1,2-Dichloroethene	156-60-5	8	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	98	0.5
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	0.5

ND = Not Detected

WOODWARD-CLYDE CONSULTANTS

SAMPLE ID: TRIP BLANK
CLIENT PROJ. ID: 92C0544-1000 GROVE VALVE
DATE SAMPLED: 10/15/92
DATE RECEIVED: 10/15/92
REPORT DATE: 10/27/92

QUANTEQ LAB NO: 9210113-05A
QUANTEQ JOB NO: 9210113
DATE ANALYZED: 10/16/92
INSTRUMENT: G

EPA METHOD 8010 (WATER MATRIX)
HALOGENATED VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-34-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	156-59-2	ND	0.5
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	ND	0.5
Trichlorofluoromethane	75-69-4	ND	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	0.5

ND = Not Detected

Quanteq Laboratories
An Ecologics Company

QUALITY CONTROL DATA

INSTRUMEMT: G

QUANTEQ JOB NO: 9210113

CLIENT PROJ. ID: 92C0544-1000

SURROGATE STANDARD RECOVERY SUMMARY

METHOD 8010/8020
(WATER MATRIX)

SAMPLE IDENTIFICATION			SURROGATE RECOVERY (PERCENT)		
Date Analyzed	Client Id.	Lab No.	Bromochloro-methane	1-Bromo-2-chloro-propane	1-Chloro-2-fluoro-benzene
10/16/92	MW-1	01A	103.1	93.2	93.5
10/16/92	MW-2	02A	96.1	91.0	94.1
10/16/92	MW-3	03A	101.3	96.2	95.9
10/16/92	MW-4	04A	103.5	87.4	93.6
10/16/92	TRIP BLANK	05A	94.1	87.1	96.8

CURRENT QC LIMITS (Revised 01/06/92)

ANALYTE	PERCENT RECOVERY
Bromochloromethane	(70-127)
1-Bromo-2-chloropropane	(71-128)
1-Chloro-2-fluorobenzene	(76-124)

QUALITY CONTROL DATA

DATE ANALYZED: 10/16/92

QUANTEQ JOB NO: 9210113

INSTRUMENT: G

CLIENT PROJ. ID: 92C0544-1000

MATRIX SPIKE RECOVERY SUMMARY

METHOD 8010/8020
(WATER MATRIX)

ANALYTE	Spike Conc. (ug/L)	Sample Result (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	Average Percent Recovery	RPD
1,1-Dichloroethene	50.0	ND	38.8	39.9	78.7	2.8
Trichloroethene	50.0	ND	44.6	45.9	90.5	2.9
Benzene	50.0	ND	47.5	47.2	94.7	0.6
Toluene	50.0	ND	46.7	46.8	93.5	0.2
Chlorobenzene	50.0	ND	36.9	39.0	75.9	5.5

CURRENT QC LIMITS (Revised 06/22/92)

Analyte	Percent Recovery	RPD
1,1-Dichloroethene	(52-116)	5.6
Trichloroethene	(68-123)	5.8
Benzene	(79-112)	5.0
Toluene	(77-113)	5.0
Chlorobenzene	(62-104)	5.5

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

R-3,5-2. QUANTEQ Lab

Woodward-Clyde Consultants
500 12th Street, Suite 100, Oakland, CA 94607-4014
(510) 893-3600

9210113
Chain of Custody Record

PROJECT NO. GROVE-VALUE 92C0544-1000

SAMPLERS: (Signature) Bill [signature]

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method 8010	EPA Method	EPA Method	EPA Method	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
10/5/92	1150	MW-1 01AB	W	X				2	All 40ml voa's preserved w/ HCl by lab for EPA 8010
10/5/92	1435	MW-2 02AB	W	X				2	
10/5/92	1555	MW-3 03AB	W	X				2	
10/5/92	1250	MW-4 04AB	W	X				2	
10/5/92		trip blank 05AB	W	X				2	

Standard TAT

Send Results to George Chang @ (510) 874-3287 WCC-Oakland

TOTAL NUMBER OF CONTAINERS: 10

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	10/15/92 1705				

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
Hand Delivery			Denise Harrington	10/15/92 1705

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 | AIHA Accreditation: 11134

GROVE VALVE & REGULATOR CO.
6529 HOLLIS STREET
EMERYVILLE, CA 94608

REPORT DATE: 04/13/95

DATE(S) SAMPLED: 04/03/95

DATE RECEIVED: 04/03/95

AEN WORK ORDER: 9504009

ATTN: BILL TALLENT
CLIENT PROJ. ID: -

P.O. NUMBER: PB40198

PROJECT SUMMARY:

On April 3, 1995, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW1
AEN LAB NO: 9504009-01
AEN WORK ORDER: 9504009
CLIENT PROJ. ID: -

DATE SAMPLED: 04/03/95
DATE RECEIVED: 04/03/95
REPORT DATE: 04/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8010 - Water matrix	EPA 8010				
Bromodichloromethane	75-27-4	ND	0.5	ug/L	04/08/95
Bromoform	75-25-2	ND	0.5	ug/L	04/08/95
Bromomethane	74-83-9	ND	2	ug/L	04/08/95
Carbon Tetrachloride	56-23-5	ND	0.5	ug/L	04/08/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	04/08/95
Chloroethane	75-00-3	ND	2	ug/L	04/08/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5	ug/L	04/08/95
Chloroform	67-66-3	ND	0.5	ug/L	04/08/95
Chloromethane	74-87-3	ND	2	ug/L	04/08/95
Dibromochloromethane	124-48-1	ND	0.5	ug/L	04/08/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	04/08/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	04/08/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	04/08/95
Dichlorodifluoromethane	75-71-8	ND	2	ug/L	04/08/95
1,1-Dichloroethane	75-34-3	ND	0.5	ug/L	04/08/95
1,2-Dichloroethane	107-06-2	ND	0.5	ug/L	04/08/95
1,1-Dichloroethene	75-35-4	ND	0.5	ug/L	04/08/95
cis-1,2-Dichloroethene	156-59-2	20 *	0.5	ug/L	04/08/95
trans-1,2-Dichloroethene	156-60-5	7 *	0.5	ug/L	04/08/95
1,2-Dichloropropane	78-87-5	ND	0.5	ug/L	04/08/95
cis-1,3-Dichloropropene	10061-01-5	ND	0.5	ug/L	04/08/95
trans-1,3-Dichloropropene	10061-02-6	ND	0.5	ug/L	04/08/95
Methylene Chloride	75-09-2	ND	2	ug/L	04/08/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5	ug/L	04/08/95
Tetrachloroethene	127-18-4	ND	0.5	ug/L	04/08/95
1,1,1-Trichloroethane	71-55-6	ND	0.5	ug/L	04/08/95
1,1,2-Trichloroethane	79-00-5	ND	0.5	ug/L	04/08/95
Trichloroethene	79-01-6	79 *	0.5	ug/L	04/08/95
Trichlorofluoromethane	75-69-4	ND	2	ug/L	04/08/95
1,1,2Trichlorotrifluoroethane	76-13-1	ND	0.5	ug/L	04/08/95
Vinyl Chloride	75-01-4	ND	2	ug/L	04/08/95
EPA 8020 - Water matrix	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	04/08/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	04/08/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	04/08/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	04/08/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	04/08/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	04/08/95
Toluene	108-88-3	ND	0.5	ug/L	04/08/95
Xylenes, total	1330-20-7	ND	2	ug/L	04/08/95

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW1
AEN LAB NO: 9504009-01
AEN WORK ORDER: 9504009
CLIENT PROJ. ID: -

DATE SAMPLED: 04/03/95
DATE RECEIVED: 04/03/95
REPORT DATE: 04/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW2
AEN LAB NO: 9504009-02
AEN WORK ORDER: 9504009
CLIENT PROJ. ID: -

DATE SAMPLED: 04/03/95
DATE RECEIVED: 04/03/95
REPORT DATE: 04/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8010 - Water matrix	EPA 8010				
Bromodichloromethane	75-27-4	ND	0.5	ug/L	04/08/95
Bromoform	75-25-2	ND	0.5	ug/L	04/08/95
Bromomethane	74-83-9	ND	2	ug/L	04/08/95
Carbon Tetrachloride	56-23-5	ND	0.5	ug/L	04/08/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	04/08/95
Chloroethane	75-00-3	ND	2	ug/L	04/08/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5	ug/L	04/08/95
Chloroform	67-66-3	ND	0.5	ug/L	04/08/95
Chloromethane	74-87-3	ND	2	ug/L	04/08/95
Dibromochloromethane	124-48-1	ND	0.5	ug/L	04/08/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	04/08/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	04/08/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	04/08/95
Dichlorodifluoromethane	75-71-8	ND	2	ug/L	04/08/95
1,1-Dichloroethane	75-34-3	2 *	0.5	ug/L	04/08/95
1,2-Dichloroethane	107-06-2	ND	0.5	ug/L	04/08/95
1,1-Dichloroethene	75-35-4	ND	0.5	ug/L	04/08/95
cis-1,2-Dichloroethene	156-59-2	0.9 *	0.5	ug/L	04/08/95
trans-1,2-Dichloroethene	156-60-5	ND	0.5	ug/L	04/08/95
1,2-Dichloropropane	78-87-5	ND	0.5	ug/L	04/08/95
cis-1,3-Dichloropropene	10061-01-5	ND	0.5	ug/L	04/08/95
trans-1,3-Dichloropropene	10061-02-6	ND	0.5	ug/L	04/08/95
Methylene Chloride	75-09-2	ND	2	ug/L	04/08/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5	ug/L	04/08/95
Tetrachloroethene	127-18-4	ND	0.5	ug/L	04/08/95
1,1,1-Trichloroethane	71-55-6	ND	0.5	ug/L	04/08/95
1,1,2-Trichloroethane	79-00-5	ND	0.5	ug/L	04/08/95
Trichloroethene	79-01-6	5 *	0.5	ug/L	04/08/95
Trichlorofluoromethane	75-69-4	ND	2	ug/L	04/08/95
1,1,2Trichlorotrifluoroethane	76-13-1	ND	0.5	ug/L	04/08/95
Vinyl Chloride	75-01-4	ND	2	ug/L	04/08/95
EPA 8020 - Water matrix	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	04/08/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	04/08/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	04/08/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	04/08/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	04/08/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	04/08/95
Toluene	108-88-3	ND	0.5	ug/L	04/08/95
Xylenes, total	1330-20-7	ND	2	ug/L	04/08/95

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW2
AEN LAB NO: 9504009-02
AEN WORK ORDER: 9504009
CLIENT PROJ. ID: -

DATE SAMPLED: 04/03/95
DATE RECEIVED: 04/03/95
REPORT DATE: 04/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW3
AEN LAB NO: 9504009-03
AEN WORK ORDER: 9504009
CLIENT PROJ. ID: -

DATE SAMPLED: 04/03/95
DATE RECEIVED: 04/03/95
REPORT DATE: 04/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8010 - Water matrix	EPA 8010				
Bromodichloromethane	75-27-4	ND	0.5	ug/L	04/08/95
Bromoform	75-25-2	ND	0.5	ug/L	04/08/95
Bromomethane	74-83-9	ND	2	ug/L	04/08/95
Carbon Tetrachloride	56-23-5	ND	0.5	ug/L	04/08/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	04/08/95
Chloroethane	75-00-3	ND	2	ug/L	04/08/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5	ug/L	04/08/95
Chloroform	67-66-3	ND	0.5	ug/L	04/08/95
Chloromethane	74-87-3	ND	2	ug/L	04/08/95
Dibromochloromethane	124-48-1	ND	0.5	ug/L	04/08/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	04/08/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	04/08/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	04/08/95
Dichlorodifluoromethane	75-71-8	ND	2	ug/L	04/08/95
1,1-Dichloroethane	75-34-3	ND	0.5	ug/L	04/08/95
1,2-Dichloroethane	107-06-2	ND	0.5	ug/L	04/08/95
1,1-Dichloroethene	75-35-4	1 *	0.5	ug/L	04/08/95
cis-1,2-Dichloroethene	156-59-2	28 *	0.5	ug/L	04/08/95
trans-1,2-Dichloroethene	156-60-5	1 *	0.5	ug/L	04/08/95
1,2-Dichloropropane	78-87-5	ND	0.5	ug/L	04/08/95
cis-1,3-Dichloropropene	10061-01-5	ND	0.5	ug/L	04/08/95
trans-1,3-Dichloropropene	10061-02-6	ND	0.5	ug/L	04/08/95
Methylene Chloride	75-09-2	ND	2	ug/L	04/08/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5	ug/L	04/08/95
Tetrachloroethene	127-18-4	2 *	0.5	ug/L	04/08/95
1,1,1-Trichloroethane	71-55-6	ND	0.5	ug/L	04/08/95
1,1,2-Trichloroethane	79-00-5	ND	0.5	ug/L	04/08/95
Trichloroethene	79-01-6	800 *	0.5	ug/L	04/10/95
Trichlorofluoromethane	75-69-4	ND	2	ug/L	04/08/95
1,1,2Trichlorotrifluoroethane	76-13-1	ND	0.5	ug/L	04/08/95
Vinyl Chloride	75-01-4	9 *	2	ug/L	04/08/95
EPA 8020 - Water matrix	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	04/08/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	04/08/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	04/08/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	04/08/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	04/08/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	04/08/95
Toluene	108-88-3	ND	0.5	ug/L	04/08/95
Xylenes, total	1330-20-7	ND	2	ug/L	04/08/95

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW3
AEN LAB NO: 9504009-03
AEN WORK ORDER: 9504009
CLIENT PROJ. ID: -

DATE SAMPLED: 04/03/95
DATE RECEIVED: 04/03/95
REPORT DATE: 04/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9504009

CLIENT PROJECT ID: -

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 8010/8020

AEN JOB NO: 9504009
INSTRUMENT: G
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery: Bromochloro-methane	Percent Recovery: 1-Bromo-3-chloro-propane	Percent Recovery: 1-Chloro-2-fluoro-benzene
04/08/95	MW1	01	102	103	95
04/08/95	MW2	02	93	101	94
04/08/95	MW3	03	103	103	97
Limits			70-130	70-130	70-130

DATE ANALYZED: 04/08/95
SAMPLE SPIKED: 9504052-03
INSTRUMENT: G

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits: Percent Recovery	QC Limits: RPD
1,1-Dichloroethene	50	105	4	37-156	20
Trichloroethene	50	108	2	54-122	20
Benzene	50	101	1	65-122	20
Toluene	50	99	1	68-124	20
Chlorobenzene	50	94	1	54-141	20

Daily method blanks for all associated analytical runs showed no contamination over the reporting limit.

*** END OF REPORT ***

P-3,5-3

American Environmental [redacted]etwork

3440 Vincent Road, Pleasant Hill, [redacted]523
Phone (510) 930-9090
FAX (510) 930-0256

AEN

Page [redacted] of ______

REQUEST FOR ANALYSIS / CHA[redacted]F CUSTODY

Reporting Information:

1. Client: [redacted]ROVE VALVE
   Address: [redacted]29 Hollis St.
   EMERYVILLE CA 94608
   Contact: Bill TALLENT
   Alt. Contact:

Lab Job Number: 9504009
Lab Destination:
Date Samples Shipped: 7:30/935 AM 4-3-95
Lab Contact: ROBIN
Date Results Required: STANDARD T.A.T.
Date Report Required: " "
Client Phone No.: 510-655-9700 PAGE 510-304-4048
Client FAX No.: 510-304-4048

Address Report To:
2. SAME

Send Invoice To:
3. SAME

Send Report To: 1 or 2 (Circle one)

Client P.O. No.: PB40198 Client Project I.D. No.:

Sample Team Member (s)

Lab Number	Client Sample Identification	Air Volume	Date/ Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	ANALYSIS: 8010/8020										Comments / Hazards
01A-C	MW1		7:30 AM 4-3-95	7	HCL	3		✓										
02A-C	MW2		8:30 AM 4-3-95	7	HCL	3		✓										
03A-C	MW3		9:35 AM 4-3-95	7	HCL	3		✓										

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
[signature]	4-3-95	11:55	Michael E Ve Kulla	4/3/95	12:00
Michael E Ve Kulla	4/3/95	12:35	Gina Gillespie	4-3-95	1235

Method of Shipment

Lab Comments

*Sample type (Specify): 1) 37mm 0.8 µm MCEF 2) 25mm 0.8 µm MCEF 3) 25mm 0.4 µm polycarb. filter
4) PVC filter, diam. _____ pore size _____ 5) Charcoal tube 6) Silica gel tube 7) Water 8) Soil 9) Bulk Sample
10) Other ______________ 11) Other ______________

COPIES: WHITE - JOB FILE YELLOW - PROJECT FILE PINK - CLIENT

ATTACHMENT D

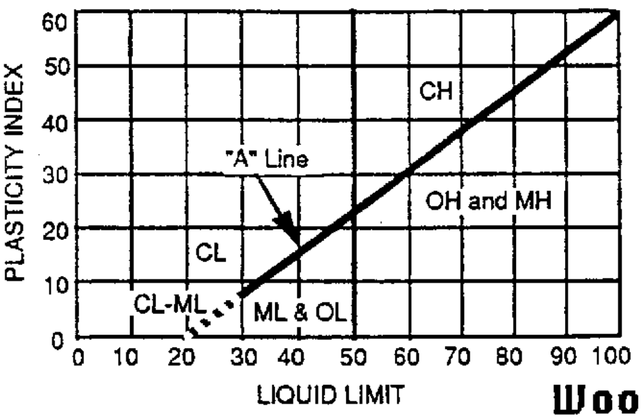
- Groundwater Well Completion Diagrams and Soil Boring Logs, Grove Valve

SAMPLE CLASSIFICATION CHART

UNIFIED SOIL CLASSIFICATION SCHEME				
MAJOR DIVISIONS		SYMBOLS	GRAPHIC COLUMN	TYPICAL NAMES
	GRAVELS (More than 1/2 of coarse fraction > no. 4 sieve size)	GW		Well-graded gravels and gravel-sand mixtures, little or no fines
		GP		Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM		Silty gravels, gravel-sand-silt mixtures
		GC		Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 1/2 of coarse fraction < no. 4 sieve size)	SW		Well-graded sands or gravelly sands, little or no fines
		SP		Poorly-graded sands or gravelly sands, little or no fines
		SM		Silty sands, sand-silt mixtures
		SC		Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (More than 1/2 of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL		Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL > 50	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH		Inorganic clays of high plasticity, fat clays
		OH		Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt		Peat and other highly organic soils

CLASSIFICATION MODIFIERS	
TRACE	0 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
AND	35 - 50%
± MODIFIERS	

PLASTICITY CHART



GRAIN SIZE CLASSIFICATION		
CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
coarse (c)	3" to 3/4"	76.2 to 19.1
fine (f)	3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.074
coarse (c)	No. 4 to No. 10	4.76 to 2.00
medium (m)	No. 10 to No. 40	2.00 to 0.420
fine (f)	No. 40 to No 200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

Woodward-Clyde Consultants

SAMPLE CLASSIFICATION CHART

MOISTURE CONTENT

DRY	- LITTLE/NO PERCEPTIBLE MOISTURE
DAMP	- SOME PERCEPTIBLE MOISTURE, NOT COMPACTABLE
MOIST	- COMPACTABLE
WET	- ABOVE COMPACTABLE RANGE
SATURATED	- PORES, VOIDS FILLED WITH WATER
▼	- WATER TABLE (AT TIME OF DRILLING)

SORTING (So = P_{75}/P_{25})

	So
EXTREMELY WELL	1.0-1.1
VERY WELL	1.1-1.2
WELL	1.2-1.4
MODERATELY	1.4-2.0
POORLY	2.0-2.7
VERY POORLY	2.7-5.0

SOIL CONSISTANCY

SILT, SAND and GRAVEL	BLOWS/FT 2 1/2 in. O.D. SAMPLER	CLAY	BLOWS/FT 2 1/2 in. O.D. SAMPLER	THUMB PENETRATION
Very loose	< 6	Very Soft	< 3	Very easily - inches
Loose	6 - 16	Soft	3 - 6	Easily - inches
Medium Dense	16 - 47	Medium (firm)	6 - 13	Moderate effort - inches
Dense	47 - 78	Stiff	13 - 23	Indented easily
Very Dense	> 78	Very Stiff	23 - 47	Indented by nail
		Hard	> 47	Difficult by nail

SOIL BORING AND WELL CONSTRUCTION LEGEND

MODIFIED CALIFORNIA SAMPLE RECOVERY

WATER LEVEL OBSERVED IN BORING

STATIC WATER LEVEL MEASURED IN WELL

BLANK CASING

SCREENED CASING

CEMENT GROUT

BENTONITE

SAND PACK

NOTE: BLOW COUNT (BLOWS/FT) REPRESENTS THE NUMBER OF BLOWS OF A 140 - POUND HAMMER FALLING 30 INCHES PER BLOW REQUIRED TO DRIVE A SAMPLER THROUGH THE LAST 12 INCHES OF AN 18 - INCH PENETRATION

NOTE: THE LINE SEPARATING STRATA ON THE LOGS REPRESENTS APPROXIMATE BOUNDARIES ONLY. THE ACTUAL TRANSITION MAY BE GRADUAL. NO WARRANTY IS PROVIDED AS TO THE CONTINUITY OF SOIL STRATA BETWEEN BORINGS. LOGS REPRESENT THE SOIL SECTION OBSERVED AT THE BORING LOCATION ON THE DATE OF DRILLING ONLY.

Woodward-Clyde Consultants

PROJECT NAME Grove Valve NO. 92C0091A/2000

BORING LOCATION	SB-1, on loading ramp, near X-ray pit	ELEVATION AND DATUM	Not surveyed
DRILLING AGENCY	Woodward-Clyde Consultants / DRILLER: K. Guyer & J. Haus	DATE STARTED 2/25/92 DATE FINISHED 2/25/92	
DRILLING EQUIPMENT	Hand Auger	COMPLETION DEPTH 5' 6"	SAMPLER Slide-weight drive Sampler
DRILLING METHOD	3-inch Solid stem auger	NO. OF SAMPLES: DIST. 3	UNDIST.
LOGGED BY:	K. Guyer	WATER LEVEL: FIRST	COMPL. — 24 HRS. —
CHECKED BY:	R. Spencer		

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Moisture Content	Dry Density pcf
			Cement			
1	A		SILTY SANDY GRAVEL (FILL) Tan, fine sand, gravel to 1 1/2", subrounded, trace clay, damp (may be due to cement coring) H Nu = 2 ppm	GM		
2			SANDY CLAY tan, coarse sand, moist.	SC		
3	B		CLAYEY SAND reddish brown, similar to above but with less clay. H Nu = 7 ppm	SC		
4			SILTY CLAY tan, some fine sand and few pebbles, moist	CL		
5	C		H Nu = 10 ppm			
			Total Depth 5' 6"			
6						

Woodward-Clyde Consultants

PROJECT NAME Grove Valve NO. 92C0091A/2000

BORING LOCATION SB-2, Center of Main Plant building, near previous S4 boring		ELEVATION AND DATUM Not surveyed	
DRILLING AGENCY Woodward-Clyde Consultants	DRILLER K. Guyer & J. Haus	DATE STARTED 2/25/92 DATE FINISHED 2/25/92	
DRILLING EQUIPMENT Hand Auger		COMPLETION DEPTH 3' 6"	SAMPLER Slide-weight drive Sampler
DRILLING METHOD 3-inch Solid stem auger		NO. OF SAMPLES DIST. 2	UNDIST.
LOGGED BY: K. Guyer		WATER LEVEL FIRST	COMPL. — 24 HRS. —
CHECKED BY: R. Spencer			

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Moisture Content	Dry Density pcf
			Cement			
	A	8	SILTY SAND (FILL) H Nu = 0 ppm reddish light brown, coarse sand, trace gravel to 1/2", dry	SM		
1						
2						
3			H Nu = 7 ppm			
	B	50				
			REFUSAL, possibly hit old pavement			
4						
5						
6						

Woodward-Clyde Consultants

PROJECT NAME Grove Valve NO. 92C0091A/2000

BORING LOCATION	SB-3, Southwest end of Main Plant building, in test pit	ELEVATION AND DATUM	Not surveyed
DRILLING AGENCY	Woodward-Clyde Consultants; DRILLER K. Guyer & J. Haus	DATE STARTED 2/25/92 DATE FINISHED 2/25/92	
DRILLING EQUIPMENT	Hand Auger	COMPLETION DEPTH 5' 6"	SAMPLER Slide-weight drive Sampler
DRILLING METHOD	3-inch Solid stem auger	NO. OF SAMPLES: DIST. 3	UNDIST.
LOGGED BY:	K. Guyer	WATER LEVEL: FIRST	COMPL. — 24 HRS. —
CHECKED BY:	R. Spencer		

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Moisture Content	Dry Density pcf
			Cement			
	A	26	SILTY SANDY GRAVEL (FILL) — H Nu = 0 ppm light brown, fine sand, gravel to 1", subrounded, damp	GM		
1						
			SILTY CLAY — H Nu = 0 ppm tan, highly plastic, some medium to coarse sand, damp.			
2				CL		
3	B	50				
4						
			More sand with minor iron staining			
5	C	22	H Nu = 1 ppm			
			Total Depth 5' 6"			
6						

Woodward-Clyde Consultants

PROJECT NAME Grove Valve NO. 92C0091A/2000

BORING LOCATION	SB-4, Between fence and north side of building, near previous S1 boring	ELEVATION AND DATUM	Not surveyed
DRILLING AGENCY	Woodward-Clyde Consultants — DRILLER K. Guyer & J. Haus	DATE STARTED 2/25/92 DATE FINISHED 2/25/92	
DRILLING EQUIPMENT	Hand Auger	COMPLETION DEPTH 5' 6"	SAMPLER Slide-weight drive Sampler
DRILLING METHOD	3-inch Solid stem auger	NO. OF SAMPLES — DIST. 3	UNDIST.
LOGGED BY:	K. Guyer	WATER LEVEL — FIRST	COMPL. — 24 HRS. —
CHECKED BY:	R. Spencer		

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Moisture Content	Dry Density pcf
			Cement			
	A	30	SANDY GRAVEL (FILL) reddish brown, fine sand, gravel to 1", trace silt size, dry (damp to wet at 2') H Nu = 1 ppm	GM		
1						
2			CLAY blue gray, highly plastic, few 1/4" pebbles, moist. H Nu = 3 ppm	CH		
3	B	20	CLAYEY SAND reddish brown, similar to above but with less clay. H Nu = 7 ppm	SC		
4			SANDY GRAVEL reddish brown, poorly sorted, trace silt size, damp. H Nu = 11 ppm	GM		
5	C	30				
			Total Depth 5' 6"			
6						

Woodward-Clyde Consultants

PROJECT NAME Grove Valve NO. 92C0091A/2000

BORING LOCATION	SB-5, Inside Engineering Test Facility building, west center	ELEVATION AND DATUM	Not surveyed
DRILLING AGENCY	Woodward-Clyde Consultants; DRILLER K. Guyer & J. Haus	DATE STARTED 2/25/92 DATE FINISHED 2/25/92	
DRILLING EQUIPMENT	Hand Auger	COMPLETION DEPTH 5' 6"	SAMPLER Slide-weight drive Sampler
DRILLING METHOD	3-inch Solid stem auger	NO. OF SAMPLES: DIST. 3	UNDIST.
LOGGED BY:	K. Guyer	WATER LEVEL: FIRST	COMPL. — 24 HRS. —
CHECKED BY:	R. Spencer		

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Moisture Content	Dry Density pcf
			Cement			
	A	8	SANDY GRAVEL (FILL) brown, loose, fine sand, gravel to 1", dry — H Nu = 0 ppm	GM		
1			SANDY CLAY dark brown, some red brick chips, few 1/4" angular pebbles, moist.	SC		
2						
3	B	4	CLAYEY GRAVEL brown, poorly sorted, some sand in lenses, damp. — H Nu = 0ppm	GC		
4			H Nu = 0 ppm			
5	C	30				
			Total Depth 5' 6"			
6						

Woodward-Clyde Consultants

PROJECT NAME Grove Valve NO. 92C0091A/2000

BORING LOCATION	SB-6, Inside Engineering Test Facility building, south end	ELEVATION AND DATUM	Not Surveyed
DRILLING AGENCY	Woodward-Clyde Consultants; DRILLER K. Guyer & J. Haus	DATE STARTED 2/25/92 DATE FINISHED 2/25/92	
DRILLING EQUIPMENT	Hand Auger	COMPLETION DEPTH 5' 6"	SAMPLER Slide-weight drive Sampler
DRILLING METHOD	3-inch Solid stem auger	NO. OF SAMPLES DIST. 3	UNDIST.
LOGGED BY:	K. Guyer	WATER LEVEL FIRST	COMPL. 24 HRS.
CHECKED BY:	R. Spencer		

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Moisture Content	Dry Density pcf
			Cement			
	A	6	SILTY SAND (FILL) brown, loose, fine sand, gravel to 1", trace clay, dry to damp — H Nu = 0 ppm	SM		
1						
2			CLAYEY SANDY GRAVEL dark brown, gravel to 1", moist	GC		
3	B	5	H Nu = 0ppm			
4			H Nu = 0 ppm			
5	C	8				
			Total Depth 5' 6"			
6						

Woodward-Clyde Consultants PROJECT NAME GROVE VALVE NO. 91C0091A/2000

MONITORING WELL LOCATION	Grove Valve and Regulator, 6529 Hollis Street, Emeryville, CA — MW-1 Southeast parking lot	ELEVATION AND DATUM	20.72' MSL
DRILLING AGENCY	Kvilhaug Well Drilling — DRILLER: Rodney Furlow	DATE STARTED / DATE FINISHED	2/27/92
DRILLING EQUIPMENT	Mobile Drill B-61	COMPLETION DEPTH	25 — SAMPLER: 2" split spoon
DRILLING METHOD	Hollow stem auger — DRILL BIT:	NO. OF SAMPLES	DIST. -- — UNDIST. 6
SIZE AND TYPE OF CASING	4" Schedule 40 PVC — FROM 0.0 TO 10.0 FT.	WATER LEVEL	FIRST -7.52 — COMPL. -- — 24 HRS. 15.62
TYPE OF PERFORATION	0.020" Slot — FROM 10.0 TO 25.0 FT.	LOGGED BY: K. O. Guyer	CHECKED BY: R. Ely
SIZE AND TYPE OF PACK	#2/12 Monterey sand — FROM 8.0 TO 25.0 FT.		
TYPE OF SEAL NO. 1	1/4" Bentonite pellets — FROM 7.0 TO 8.0 FT.		
TYPE OF SEAL NO. 2	Neat cement grout — FROM surface TO 7.0 FT.		

Depth (feet)	Blows	MATERIAL DESCRIPTION	USCS
0	4	Cement Pavement	
	2, 2	FILL - Silty Sand tan, coarse sand with silt, loose, moist	ML
		SILTY CLAY dark brown, some fine sand, soft, medium plastic, damp HNu= 0 ppm	CL
5	10, 15, 22	SILTY SAND light brown, medium grained with silt, some clay, medium dense, dry	SM
10	4, 5, 12	HNu= 0 ppm Increase in clay	
		Increase in moisture	
15	5, 7, 10	HNu= 0 ppm	
		SILTY CLAY tan, some 1/8" pebbles, stiff, slightly moist	CL
20	3, 5, 8	HNu= 0 ppm NOTE: Lenses of medium to coarse sand, about 2" thick, saturated	(SP)
25	2, 3, 7	HNu= 0 ppm	
		Total Depth = 25 feet	
30			
35			

LOG OF MONITORING WELL NO. MW-1 SHEET 1 OF 1

Woodward-Clyde Consultants

PROJECT NAME GROVE VALVE NO. 91C0091A/2000

MONITORING WELL LOCATION	Grove Valve and Regulator 6529 Hollis Street, Emeryville, CA — MW-2 Southwest corner of Main Plant building	ELEVATION AND DATUM	15.95' MSL
DRILLING AGENCY	Kvilhaug Well Drilling — DRILLER Rodney Furlow	DATE STARTED / DATE FINISHED	2/26/92
DRILLING EQUIPMENT	Mobile Drill B-61	COMPLETION DEPTH	25 — SAMPLER 2" split spoon
DRILLING METHOD	Hollow stem auger — DRILL BIT	NO. OF SAMPLES	DIST. — UNDIST. 6
SIZE AND TYPE OF CASING	4" Schedule 40 PVC — FROM 0.0 TO 10.0 FT.	WATER LEVEL	FIRST -7.35 — COMPL. -- — 24 HRS. 9.1
TYPE OF PERFORATION	0.020" Slot — FROM 10.0 TO 25.0 FT.	LOGGED BY:	CHECKED BY:
SIZE AND TYPE OF PACK	#2/12 Monterey sand — FROM 8.0 TO 25.0 FT.	K. O. Guyer	R. Ely
TYPE OF SEAL NO. 1	1/4" Bentonite pellets — FROM 7.0 TO 8.0 FT.		
TYPE OF SEAL NO. 2	Neat cement grout — FROM surface TO 7.0 FT.		

Depth (feet)	Blows	MATERIAL DESCRIPTION	USCS
0	15, 22, 28	Cement Pavement, 7" thick	
		FILL - Silty Sandy Gravel greenish tan, gravel to 1", angular, coarse sand with silt, loose, moist	GM
		Cobbles to 3"	
5	3, 6, 8	Increase in moisture to wet — HNu= 0 ppm	
		SANDY SILT tan, medium stiff, dry, lenses of sand, black, medium grained loose and damp to wet — HNu= 0 ppm	MH
10	18, 22, 25		
		CLAYEY SILT light brown, low plasticity, damp to dry — HNu= 0 ppm	OL
15	6, 10, 15		
		SANDY SILT light brown, fine sand, trace clay, medium stiff, damp — HNu= 0 ppm	MH
20	8, 15, 25		
		SILTY CLAY mottled gray and tan, medium stiff to stiff, damp to wet — HNu= 0 ppm	OL
25	6, 8, 13	Total Depth = 25 feet	
30			
35			

Woodward-Clyde Consultants

PROJECT NAME GROVE VALVE NO. 91C0091A/2000

MONITORING WELL LOCATION	Grove Valve and Regulator 6529 Hollis Street, Emeryville, CA	MW-3 Northwest corner outside of Main Plant bldg.		ELEVATION AND DATUM	16.98' MSL	
DRILLING AGENCY	Kvilhaug Well Drilling	DRILLER	Rodney Furlow	DATE STARTED / DATE FINISHED	2/26/92	
DRILLING EQUIPMENT	Mobile Drill B-61			COMPLETION DEPTH	25	SAMPLER 2" split spoon
DRILLING METHOD	Hollow stem auger	DRILL BIT		NO. OF SAMPLES	DIST.	UNDIST. 6
SIZE AND TYPE OF CASING	4" Schedule 40 PVC	FROM 0.0 TO 10.0 FT.		WATER LEVEL	FIRST -6.02	COMPL. -- 24 HRS. 8.38
TYPE OF PERFORATION	0.020" Slot	FROM 10.0 TO 25.0 FT.		LOGGED BY: K. O. Guyer		CHECKED BY: R. Ely
SIZE AND TYPE OF PACK	#2/12 Monterey sand	FROM 8.0 TO 25.0 FT.				
TYPE OF SEAL NO. 1	1/4" Bentonite pellets	FROM 7.0 TO 8.0 FT.				
TYPE OF SEAL NO. 2	Neat cement grout	FROM surface TO 7.0 FT.				

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION		USCS	Well Construction
0	■	8, 7, 15	Asphalt Pavement			
			FILL/ROAD BASE - Sandy Gravel gray to tan, gravel to 1", some fines, poorly sorted, angular, gravel to 1 1/2", well compacted, damp Cobles to 3"		GM	
			SILTY CLAY	HNu= 0 ppm	CL	
5	■	4, 8, 12	CLAY gray , soft, plastic, some pebbles to 1/4", dry		OL	
10	■	4, 8, 10	Same as above but with sand lenses, black, 2-3" thick, medium to coarse sand, wet	HNu= 0 ppm	(SP)	
			SILTY CLAY mottled gray and tan, some to few 1/4" pebbles, medium stiff, dry		CL	
15	■	8, 7, 10		HNu= 0 ppm		
20	■	7, 10, 12		HNu= 0 ppm		
			SILTY SAND light brown,medium sand with silt, moderate sorting, loose, wet	HNu= 0 ppm	SM	
25	■	10, 18, 45	Total Depth = 25 feet			
30						
35						

LOG OF MONITORING WELL MW-3 SHEET 1 OF 1

ATTACHMENT 7 – Groundwater Sampling Analytical Results for August and September 1995 Sampling Events

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

GROVE VALVE & REGULATOR CO.
6529 HOLLIS STREET
EMERYVILLE, CA 94608

REPORT DATE: 09/06/95

DATE(S) SAMPLED: 08/18/95

DATE RECEIVED: 08/18/95

AEN WORK ORDER: 9508245

ATTN: BILL TALLENT
CLIENT PROJ. ID: -

P.O. NUMBER: PB55786

PROJECT SUMMARY:

On August 18, 1995, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein

Larry Klein
Laboratory Director

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW-1
AEN LAB NO: 9508245-01
AEN WORK ORDER: 9508245
CLIENT PROJ. ID: -

DATE SAMPLED: 08/18/95
DATE RECEIVED: 08/18/95
REPORT DATE: 09/06/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
VOCs in Water by 8240	EPA 8240				
Acetone	67-64-1	ND	100	ug/L	08/23/95
Benzene	71-43-2	ND	5	ug/L	08/23/95
Bromodichloromethane	75-27-4	ND	5	ug/L	08/23/95
Bromoform	75-25-2	ND	5	ug/L	08/23/95
Bromomethane	74-83-9	ND	10	ug/L	08/23/95
2-Butanone	78-93-3	ND	100	ug/L	08/23/95
Carbon Disulfide	75-15-0	ND	10	ug/L	08/23/95
Carbon Tetrachloride	56-23-5	ND	5	ug/L	08/23/95
Chlorobenzene	108-90-7	ND	5	ug/L	08/23/95
Chloroethane	75-00-3	ND	10	ug/L	08/23/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	10	ug/L	08/23/95
Chloroform	67-66-3	ND	5	ug/L	08/23/95
Chloromethane	74-87-3	ND	10	ug/L	08/23/95
Dibromochloromethane	124-48-1	ND	5	ug/L	08/23/95
1,1-Dichloroethane	75-34-3	ND	5	ug/L	08/23/95
1,2-Dichloroethane	107-06-2	ND	5	ug/L	08/23/95
1,1-Dichloroethene	75-35-4	ND	5	ug/L	08/23/95
cis-1,2-Dichloroethene	156-59-2	12 *	5	ug/L	08/23/95
trans-1,2-Dichloroethene	156-60-5	ND	5	ug/L	08/23/95
1,2-Dichloropropane	78-87-5	ND	5	ug/L	08/23/95
cis-1,3-Dichloropropene	10061-01-5	ND	5	ug/L	08/23/95
trans-1,3-Dichloropropene	10061-02-6	ND	5	ug/L	08/23/95
Ethylbenzene	100-41-4	ND	5	ug/L	08/23/95
2-Hexanone	591-78-6	ND	50	ug/L	08/23/95
Methylene Chloride	75-09-2	ND	20	ug/L	08/23/95
4-Methyl-2-pentanone	108-10-1	ND	50	ug/L	08/23/95
Styrene	100-42-5	ND	5	ug/L	08/23/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	5	ug/L	08/23/95
Tetrachloroethene	127-18-4	ND	5	ug/L	08/23/95
Toluene	108-88-3	ND	5	ug/L	08/23/95
1,1,1-Trichloroethane	71-55-6	ND	5	ug/L	08/23/95
1,1,2-Trichloroethane	79-00-5	ND	5	ug/L	08/23/95
Trichloroethene	79-01-6	46 *	5	ug/L	08/23/95
Vinyl Acetate	108-05-4	ND	50	ug/L	08/23/95
Vinyl Chloride	75-01-4	ND	10	ug/L	08/23/95
Xylenes, Total	1330-20-7	ND	10	ug/L	08/23/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW-2
AEN LAB NO: 9508245-02
AEN WORK ORDER: 9508245
CLIENT PROJ. ID: -

DATE SAMPLED: 08/18/95
DATE RECEIVED: 08/18/95
REPORT DATE: 09/06/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
VOCs in Water by 8240	EPA 8240				
Acetone	67-64-1	ND	100	ug/L	08/23/95
Benzene	71-43-2	ND	5	ug/L	08/23/95
Bromodichloromethane	75-27-4	ND	5	ug/L	08/23/95
Bromoform	75-25-2	ND	5	ug/L	08/23/95
Bromomethane	74-83-9	ND	10	ug/L	08/23/95
2-Butanone	78-93-3	ND	100	ug/L	08/23/95
Carbon Disulfide	75-15-0	ND	10	ug/L	08/23/95
Carbon Tetrachloride	56-23-5	ND	5	ug/L	08/23/95
Chlorobenzene	108-90-7	ND	5	ug/L	08/23/95
Chloroethane	75-00-3	ND	10	ug/L	08/23/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	10	ug/L	08/23/95
Chloroform	67-66-3	ND	5	ug/L	08/23/95
Chloromethane	74-87-3	ND	10	ug/L	08/23/95
Dibromochloromethane	124-48-1	ND	5	ug/L	08/23/95
1,1-Dichloroethane	75-34-3	ND	5	ug/L	08/23/95
1,2-Dichloroethane	107-06-2	ND	5	ug/L	08/23/95
1,1-Dichloroethene	75-35-4	ND	5	ug/L	08/23/95
cis-1,2-Dichloroethene	156-59-2	ND	5	ug/L	08/23/95
trans-1,2-Dichloroethene	156-60-5	ND	5	ug/L	08/23/95
1,2-Dichloropropane	78-87-5	ND	5	ug/L	08/23/95
cis-1,3-Dichloropropene	10061-01-5	ND	5	ug/L	08/23/95
trans-1,3-Dichloropropene	10061-02-6	ND	5	ug/L	08/23/95
Ethylbenzene	100-41-4	ND	5	ug/L	08/23/95
2-Hexanone	591-78-6	ND	50	ug/L	08/23/95
Methylene Chloride	75-09-2	ND	20	ug/L	08/23/95
4-Methyl-2-pentanone	108-10-1	ND	50	ug/L	08/23/95
Styrene	100-42-5	ND	5	ug/L	08/23/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	5	ug/L	08/23/95
Tetrachloroethene	127-18-4	ND	5	ug/L	08/23/95
Toluene	108-88-3	ND	5	ug/L	08/23/95
1,1,1-Trichloroethane	71-55-6	ND	5	ug/L	08/23/95
1,1,2-Trichloroethane	79-00-5	ND	5	ug/L	08/23/95
Trichloroethene	79-01-6	ND	5	ug/L	08/23/95
Vinyl Acetate	108-05-4	ND	50	ug/L	08/23/95
Vinyl Chloride	75-01-4	ND	10	ug/L	08/23/95
Xylenes, Total	1330-20-7	ND	10	ug/L	08/23/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW-3
AEN LAB NO: 9508245-03
AEN WORK ORDER: 9508245
CLIENT PROJ. ID: -

DATE SAMPLED: 08/18/95
DATE RECEIVED: 08/18/95
REPORT DATE: 09/06/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
VOCs in Water by 8240	EPA 8240				
Acetone	67-64-1	ND	100	ug/L	08/23/95
Benzene	71-43-2	ND	5	ug/L	08/23/95
Bromodichloromethane	75-27-4	ND	5	ug/L	08/23/95
Bromoform	75-25-2	ND	5	ug/L	08/23/95
Bromomethane	74-83-9	ND	10	ug/L	08/23/95
2-Butanone	78-93-3	ND	100	ug/L	08/23/95
Carbon Disulfide	75-15-0	ND	10	ug/L	08/23/95
Carbon Tetrachloride	56-23-5	ND	5	ug/L	08/23/95
Chlorobenzene	108-90-7	ND	5	ug/L	08/23/95
Chloroethane	75-00-3	ND	10	ug/L	08/23/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	10	ug/L	08/23/95
Chloroform	67-66-3	ND	5	ug/L	08/23/95
Chloromethane	74-87-3	ND	10	ug/L	08/23/95
Dibromochloromethane	124-48-1	ND	5	ug/L	08/23/95
1,1-Dichloroethane	75-34-3	ND	5	ug/L	08/23/95
1,2-Dichloroethane	107-06-2	ND	5	ug/L	08/23/95
1,1-Dichloroethene	75-35-4	ND	5	ug/L	08/23/95
cis-1,2-Dichloroethene	156-59-2	19 *	5	ug/L	08/23/95
trans-1,2-Dichloroethene	156-60-5	ND	5	ug/L	08/23/95
1,2-Dichloropropane	78-87-5	ND	5	ug/L	08/23/95
cis-1,3-Dichloropropene	10061-01-5	ND	5	ug/L	08/23/95
trans-1,3-Dichloropropene	10061-02-6	ND	5	ug/L	08/23/95
Ethylbenzene	100-41-4	ND	5	ug/L	08/23/95
2-Hexanone	591-78-6	ND	50	ug/L	08/23/95
Methylene Chloride	75-09-2	ND	20	ug/L	08/23/95
4-Methyl-2-pentanone	108-10-1	ND	50	ug/L	08/23/95
Styrene	100-42-5	ND	5	ug/L	08/23/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	5	ug/L	08/23/95
Tetrachloroethene	127-18-4	ND	5	ug/L	08/23/95
Toluene	108-88-3	ND	5	ug/L	08/23/95
1,1,1-Trichloroethane	71-55-6	ND	5	ug/L	08/23/95
1,1,2-Trichloroethane	79-00-5	ND	5	ug/L	08/23/95
Trichloroethene	79-01-6	1,400 *	5	ug/L	08/25/95
Vinyl Acetate	108-05-4	ND	50	ug/L	08/23/95
Vinyl Chloride	75-01-4	ND	10	ug/L	08/23/95
Xylenes, Total	1330-20-7	ND	10	ug/L	08/23/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9508245

CLIENT PROJECT ID: -

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 8240

AEN JOB NO: 9508245
INSTRUMENT: 13
MATRIX: WATER

Surrogate Standard Recovery Summary

			Percent Recovery		
Date Analyzed	Client Id.	Lab Id.	1,2-Dichloro-ethane-d_4	Toluene-d_8	p-Bromofluoro-benzene
08/23/95	MW-1	01	77	102	94
08/23/95	MW-2	02	80	101	95
08/23/95	MW-3	03	83	98	95
QC Limits:			76-114	88-110	86-115

DATE ANALYZED: 08/23/95
SAMPLE SPIKED: 9508149-04
INSTRUMENT: 13

Matrix Spike Recovery Summary

				QC Limits	
Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	Percent Recovery	RPD
1,1-Dichloroethene	50	84	10	59-155	25
Trichloroethene	50	96	6	71-157	25
Benzene	50	94	2	37-151	25
Toluene	50	95	<1	47-150	25
Chlorobenzene	50	103	5	37-160	25

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

Reporting Information

American Environmental Network

AEN

3440 Vincent Road, Pleasant Hill, CA
Phone (510) 930-9090
FAX (510) 930-0256

Page 1 of 1

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY

1. Client: ~~Tallent~~ Grove Valve
Address: 6529 Hollis St.
Emeryville, CA 94608
Contact: Bill Tallent
Alt. Contact:

Lab Job Number: 9508245
Lab Destination: AEN, Pleasant Hill
Date Samples Shipped: 8-19-95
Lab Contact: Robin
Date Results Required: 8-22-95 (See/call Bill Tallent)
Date Report Required: Call Bill Tallent (510) 655-7700 x214
Client Phone No.: 510-655-7700
Client FAX No.: 510-308-4048

Address Report To:
2. Bill Talent
Grove Valve + Regulator Co.
6529 Hollis St.
Emeryville, CA 94608

Send Invoice To:
3. Same

Send Report To: 1 or 2 (Circle one)

Client P.O. No.: Client Project I.D. No.:

Sample Team Member (s) Jacki Lee

ANALYSIS: 624/8240

Lab Number	Client Sample Identification	Air Volume	Date/ Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	624/8240									Comments / Hazards
01AB	MW-1		8/18/95: 1130	W(7)	HCl	2	VOC	X									
02AB	MW-2		8/18/95: 1235	W(7)	HCl	2	VOC	X									
03AB	MW-3		8/18/95: 1320	W(7)	HCl	2	VOC	X									
			8/18/95														

Comments / Hazards: 8240 at Pest Chem - Not 624 R.
[illegible]

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
[signature]	8/18/95	1345	Michael E. [signature]	8/18/95	15:30
Michael E. [signature]	8/18/95	16:25	Lori L. Pruett	8-18-95	1625

Method of Shipment: AEN COURIER

Lab Comments

*Sample type (Specify): 1) 37mm 0.8 µm MCEF 2) 25mm 0.8 µm MCEF 3) 25mm 0.4 µm polycarb. filter
4) PVC filter, diam. ____ pore size ____ 5) Charcoal tube 6) Silica gel tube 7) Water 8) Soil 9) Bulk Sample
10) Other ____ 11) Other ____

COPIES: WHITE - JOB FILE YELLOW - PROJECT FILE PINK - CLIENT

RUSH

AMERICAN ENVIRONMENTAL NETWORK (AEN)

RUSH

FAX TRANSMISSION COVER

AMERICAN ENVIRONMENTAL NETWORK
3440 VINCENT ROAD
PLEASANT HILL, CA 94523

FAX NO: (510) 930-0256

PHONE NO: (510) 930-9090

DATE: 8/23/95 # OF PAGES (Including cover) 5

REPLY REQUESTED: (circle request) NO YES URGENT FAX REPLY PHONE REPLY FYI

TO: Bill Tallent
Grove Valve

FROM: Client Services

AEN PROJ NO: 9508245

CLIENT PROJ NO: NA

✓ FINAL RESULTS

___ PARTIAL RESULTS

✓ PRELIMINARY RESULTS Q3 ★

COMMENTS: Being rerun to get Trichloroethene on scale

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW-1
AEN LAB NO: 9508245-01
AEN WORK ORDER: 9508245
CLIENT PROJ. ID: -

DATE SAMPLED: 08/18/95
DATE RECEIVED: 08/18/95
REPORT DATE: 08/23/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
VOCs in Water by 8240	EPA 8240				
Acetone	67-64-1	ND	100	ug/L	08/23/95
Benzene	71-43-2	ND	5	ug/L	08/23/95
Bromodichloromethane	75-27-4	ND	5	ug/L	08/23/95
Bromoform	75-25-2	ND	5	ug/L	08/23/95
Bromomethane	74-83-9	ND	10	ug/L	08/23/95
2-Butanone	78-93-3	ND	100	ug/L	08/23/95
Carbon Disulfide	75-15-0	ND	10	ug/L	08/23/95
Carbon Tetrachloride	56-23-5	ND	5	ug/L	08/23/95
Chlorobenzene	108-90-7	ND	5	ug/L	08/23/95
Chloroethane	75-00-3	ND	10	ug/L	08/23/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	10	ug/L	08/23/95
Chloroform	67-66-3	ND	5	ug/L	08/23/95
Chloromethane	74-87-3	ND	10	ug/L	08/23/95
Dibromochloromethane	124-48-1	ND	5	ug/L	08/23/95
1,1-Dichloroethane	75-34-3	ND	5	ug/L	08/23/95
1,2-Dichloroethane	107-06-2	ND	5	ug/L	08/23/95
1,1-Dichloroethene	75-35-4	ND	5	ug/L	08/23/95
cis-1,2-Dichloroethene	156-59-2	12 *	5	ug/L	08/23/95
trans-1,2-Dichloroethene	156-60-5	ND	5	ug/L	08/23/95
1,2-Dichloropropane	78-87-5	ND	5	ug/L	08/23/95
cis-1,3-Dichloropropene	10061-01-5	ND	5	ug/L	08/23/95
trans-1,3-Dichloropropene	10061-02-6	ND	5	ug/L	08/23/95
Ethylbenzene	100-41-4	ND	5	ug/L	08/23/95
2-Hexanone	591-78-6	ND	50	ug/L	08/23/95
Methylene Chloride	75-09-2	ND	20	ug/L	08/23/95
4-Methyl-2-pentanone	108-10-1	ND	50	ug/L	08/23/95
Styrene	100-42-5	ND	5	ug/L	08/23/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	5	ug/L	08/23/95
Tetrachloroethene	127-18-4	ND	5	ug/L	08/23/95
Toluene	108-88-3	ND	5	ug/L	08/23/95
1,1,1-Trichloroethane	71-55-6	ND	5	ug/L	08/23/95
1,1,2-Trichloroethane	79-00-5	ND	5	ug/L	08/23/95
Trichloroethene	79-01-6	46 *	5	ug/L	08/23/95
Vinyl Acetate	108-05-4	ND	50	ug/L	08/23/95
Vinyl Chloride	75-01-4	ND	10	ug/L	08/23/95
Xylenes, Total	1330-20-7	ND	10	ug/L	08/23/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW-2
AEN LAB NO: 9508245-02
AEN WORK ORDER: 9508245
CLIENT PROJ. ID: -

DATE SAMPLED: 08/18/95
DATE RECEIVED: 08/18/95
REPORT DATE: 08/23/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
VOCs in Water by 8240	EPA 8240				
Acetone	67-64-1	ND	100	ug/L	08/23/95
Benzene	71-43-2	ND	5	ug/L	08/23/95
Bromodichloromethane	75-27-4	ND	5	ug/L	08/23/95
Bromoform	75-25-2	ND	5	ug/L	08/23/95
Bromomethane	74-83-9	ND	10	ug/L	08/23/95
2-Butanone	78-93-3	ND	100	ug/L	08/23/95
Carbon Disulfide	75-15-0	ND	10	ug/L	08/23/95
Carbon Tetrachloride	56-23-5	ND	5	ug/L	08/23/95
Chlorobenzene	108-90-7	ND	5	ug/L	08/23/95
Chloroethane	75-00-3	ND	10	ug/L	08/23/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	10	ug/L	08/23/95
Chloroform	67-66-3	ND	5	ug/L	08/23/95
Chloromethane	74-87-3	ND	10	ug/L	08/23/95
Dibromochloromethane	124-48-1	ND	5	ug/L	08/23/95
1,1-Dichloroethane	75-34-3	ND	5	ug/L	08/23/95
1,2-Dichloroethane	107-06-2	ND	5	ug/L	08/23/95
1,1-Dichloroethene	75-35-4	ND	5	ug/L	08/23/95
cis-1,2-Dichloroethene	156-59-2	ND	5	ug/L	08/23/95
trans-1,2-Dichloroethene	156-60-5	ND	5	ug/L	08/23/95
1,2-Dichloropropane	78-87-5	ND	5	ug/L	08/23/95
cis-1,3-Dichloropropene	10061-01-5	ND	5	ug/L	08/23/95
trans-1,3-Dichloropropene	10061-02-6	ND	5	ug/L	08/23/95
Ethylbenzene	100-41-4	ND	5	ug/L	08/23/95
2-Hexanone	591-78-6	ND	50	ug/L	08/23/95
Methylene Chloride	75-09-2	ND	20	ug/L	08/23/95
4-Methyl-2-pentanone	108-10-1	ND	50	ug/L	08/23/95
Styrene	100-42-5	ND	5	ug/L	08/23/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	5	ug/L	08/23/95
Tetrachloroethene	127-18-4	ND	5	ug/L	08/23/95
Toluene	108-88-3	ND	5	ug/L	08/23/95
1,1,1-Trichloroethane	71-55-6	ND	5	ug/L	08/23/95
1,1,2-Trichloroethane	79-00-5	ND	5	ug/L	08/23/95
Trichloroethene	79-01-6	ND	5	ug/L	08/23/95
Vinyl Acetate	108-05-4	ND	50	ug/L	08/23/95
Vinyl Chloride	75-01-4	ND	10	ug/L	08/23/95
Xylenes, Total	1330-20-7	ND	10	ug/L	08/23/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW-3	DATE SAMPLED: 08/18/95
AEN LAB NO: 9508245-03	DATE RECEIVED: 08/18/95
AEN WORK ORDER: 9508245	REPORT DATE: 08/23/95
CLIENT PROJ. ID. -	

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
VOCs in Water by 8240	EPA 8240				
Acetone	67-64-1	ND	100	ug/L	08/23/95
Benzene	71-43-2	ND	5	ug/L	08/23/95
Bromodichloromethane	75-27-4	ND	5	ug/L	08/23/95
Bromoform	75-25-2	ND	5	ug/L	08/23/95
Bromomethane	74-83-9	ND	10	ug/L	08/23/95
2-Butanone	78-93-3	ND	100	ug/L	08/23/95
Carbon Disulfide	75-15-0	ND	10	ug/L	08/23/95
Carbon Tetrachloride	56-23-5	ND	5	ug/L	08/22/95
Chlorobenzene	108-90-7	ND	5	ug/L	08/23/95
Chloroethane	75-00-3	ND	10	ug/L	08/23/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	10	ug/L	08/23/95
Chloroform	67-66-3	ND	5	ug/L	08/23/95
Chloromethane	74-87-3	ND	10	ug/L	08/23/95
Dibromochloromethane	124-48-1	ND	5	ug/L	08/23/95
1,1-Dichloroethane	75 34-3	ND	5	ug/L	08/22/95
1,2-Dichloroethane	107-06-2	ND	5	ug/L	08/23/95
1,1-Dichloroethene	75-35-4	ND	5	ug/L	08/23/95
cis-1,2-Dichloroethene	156-59-2	19 *	5	ug/L	08/23/95
trans-1,2-Dichloroethene	156-60-5	ND	5	ug/L	08/23/95
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
cis-1,3-Dichloropropene	10061-01-5	ND	5	ug/L	08/23/95
trans-1,3-Dichloropropene	10061-02-6	ND	5	ug/L	08/23/95
Ethylbenzene	100-41-4	ND	5	ug/L	08/23/95
2-Hexanone	591-78-6	ND	50	ug/L	08/23/95
Methylene Chloride	75-09-2	ND	20	ug/L	08/23/95
4-methyl-2-pentanone	108-10-1	ND	50	ug/L	08/23/95
Styrene	100-42-5	ND	5	ug/L	08/23/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	5	ug/L	08/23/95
Tetrachloroethene	127-18-4	ND	5	ug/L	08/23/95
Toluene	108-88-3	ND	5	ug/L	08/23/95
1,1,1-Trichloroethane	71-55-6	ND	5	ug/L	08/23/95
1,1,2-Trichloroethane	79-00-5	ND	5	ug/L	08/23/95
Trichloroethene	79-01-6	(640) *	5	ug/L	08/23/95
Vinyl Acetate	108-05-4	ND	50	ug/L	08/23/95
Vinyl Chloride	75-01-4	ND	10	ug/L	08/23/95
Xylenes, Total	1330-20-7	ND	10	ug/L	08/23/95

ND - Not detected at or above the reporting limit
* = Value at or above reporting limit

AUG-23-95 WED 17:05 AEN CALIFORNIA FAX NO. 5109300256 P. 05/05

GROVE VALVE HOUSTON TEL: 713-568-8791

AEN

American Environmental Network
3440 Vincent Road, Pleasant Hill, CA 94523
Phone (510) 930-9090
FAX (510) 930-0256

Page 1 of 1

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY

Reporting Information:
Client: Grove Valve
Address: 6529 Hollis St.
Emeryville, CA 94608
Contact: Bill Tallent
Alt. Contact:

Lab Job Number: 9508245
Lab Destination: AEN, Pleasant Hill
Date Samples Shipped: 8-18-95
Lab Contact: Robin
Date Results Required: 8-22-95 (See/call Bill Tallent)
Date Report Required: Call Bill Tallent (510) 655-7700 x214
Client Phone No.: 510-655-7700
Client FAX No.: 510-308-4048

Address Report To:
Bill Talent
Grove Valve + Regulator Co.
6529 Hollis St.
Emeryville, CA 94608

Send Invoice To:
3. Same

Send Report To: 1 or 2 (Circle one)

Client P.O. No.: Client Project I.D. No.:

Sample Team Member (s) Jacki Lee

ANALYSIS: 8240 624/8240 RB 8/18/95

Lab Number	Client Sample Identification	Air Volume	Date/ Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	8240									Comments / Hazards
01AB	MW-1		8/18/95/1130	w(7)	HCl	2	voc	X									Client notified but TAT available is Wednesday afternoon. R. Rojas
02AB	MW-2		8/18/95: 1235	w(7)	HCl	2	voc	X									
03AB	MW-3		8/18/95: 1320	w(7)	HCl	2	voc	X									
			8/18/95														8240 per past history - Not 624 R. Rojas
																	Samples Taken 8/18/95 per B. Tallent

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
[signature]	8/18/95	1345	Michael E. Kittle	8/18/95	15:20
Michael E. Kittle	8/18/95	16:25	Lori L. Pruett	8-18-95	1625

Method of Shipment: AEN COURIER

Lab Comments:

*Sample Type (Specify): 1) 37mm 0.8 µm MCEF 2) 25mm 0.8 µm MCEF 3) 25 mm 0.4 µm polycarb. filter 4) PVC filter, diam. ____ pore size ____ 5) Charcoal tube 6) Silica gel tube 7) Water 8) Soil 9) Bulk Sample 10) Other ____ 11) Other ____

COPIES: WHITE - JOB FILE YELLOW - PROJECT FILE PINK - CLIENT

GROVE VALVE & REGULATOR CO.
6529 HOLLIS STREET
EMERYVILLE, CA 94608

ATTN: BILL TALLENT
CLIENT PROJ. ID: -

REPORT DATE: 09/26/95

DATE(S) SAMPLED: 09/14/95

DATE RECEIVED: 09/14/95

AEN WORK ORDER: 9509203

P.O. NUMBER: PB55786

PROJECT SUMMARY:

On September 14, 1995, this laboratory received 5 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW-1
AEN LAB NO: 9509203-01
AEN WORK ORDER: 9509203
CLIENT PROJ. ID: -

DATE SAMPLED: 09/14/95
DATE RECEIVED: 09/14/95
REPORT DATE: 09/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
Volatile Organic Compounds	EPA 8240				
Acetone	67-64-1	ND	100	ug/L	09/21/95
Benzene	71-43-2	ND	5	ug/L	09/21/95
Bromodichloromethane	75-27-4	ND	5	ug/L	09/21/95
Bromoform	75-25-2	ND	5	ug/L	09/21/95
Bromomethane	74-83-9	ND	10	ug/L	09/21/95
2-Butanone	78-93-3	ND	100	ug/L	09/21/95
Carbon Disulfide	75-15-0	ND	10	ug/L	09/21/95
Carbon Tetrachloride	56-23-5	ND	5	ug/L	09/21/95
Chlorobenzene	108-90-7	ND	5	ug/L	09/21/95
Chloroethane	75-00-3	ND	10	ug/L	09/21/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	10	ug/L	09/21/95
Chloroform	67-66-3	ND	5	ug/L	09/21/95
Chloromethane	74-87-3	ND	10	ug/L	09/21/95
Dibromochloromethane	124-48-1	ND	5	ug/L	09/21/95
1,1-Dichloroethane	75-34-3	ND	5	ug/L	09/21/95
1,2-Dichloroethane	107-06-2	ND	5	ug/L	09/21/95
1,1-Dichloroethene	75-35-4	ND	5	ug/L	09/21/95
cis-1,2-Dichloroethene	156-59-2	18 *	5	ug/L	09/21/95
trans-1,2-Dichloroethene	156-60-5	7 *	5	ug/L	09/21/95
1,2-Dichloropropane	78-87-5	ND	5	ug/L	09/21/95
cis-1,3-Dichloropropene	10061-01-5	ND	5	ug/L	09/21/95
trans-1,3-Dichloropropene	10061-02-6	ND	5	ug/L	09/21/95
Ethylbenzene	100-41-4	ND	5	ug/L	09/21/95
2-Hexanone	591-78-6	ND	50	ug/L	09/21/95
Methylene Chloride	75-09-2	ND	20	ug/L	09/21/95
4-Methyl-2-pentanone	108-10-1	ND	50	ug/L	09/21/95
Styrene	100-42-5	ND	5	ug/L	09/21/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	5	ug/L	09/21/95
Tetrachloroethene	127-18-4	ND	5	ug/L	09/21/95
Toluene	108-88-3	ND	5	ug/L	09/21/95
1,1,1-Trichloroethane	71-55-6	ND	5	ug/L	09/21/95
1,1,2-Trichloroethane	79-00-5	ND	5	ug/L	09/21/95
Trichloroethene	79-01-6	54 *	5	ug/L	09/21/95
Vinyl Acetate	108-05-4	ND	50	ug/L	09/21/95
Vinyl Chloride	75-01-4	ND	10	ug/L	09/21/95
Xylenes, Total	1330-20-7	ND	10	ug/L	09/21/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW-2
AEN LAB NO: 9509203-02
AEN WORK ORDER: 9509203
CLIENT PROJ. ID: -

DATE SAMPLED: 09/14/95
DATE RECEIVED: 09/14/95
REPORT DATE: 09/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
Volatile Organic Compounds	EPA 8240				
Acetone	67-64-1	ND	100	ug/L	09/21/95
Benzene	71-43-2	ND	5	ug/L	09/21/95
Bromodichloromethane	75-27-4	ND	5	ug/L	09/21/95
Bromoform	75-25-2	ND	5	ug/L	09/21/95
Bromomethane	74-83-9	ND	10	ug/L	09/21/95
2-Butanone	78-93-3	ND	100	ug/L	09/21/95
Carbon Disulfide	75-15-0	ND	10	ug/L	09/21/95
Carbon Tetrachloride	56-23-5	ND	5	ug/L	09/21/95
Chlorobenzene	108-90-7	ND	5	ug/L	09/21/95
Chloroethane	75-00-3	ND	10	ug/L	09/21/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	10	ug/L	09/21/95
Chloroform	67-66-3	ND	5	ug/L	09/21/95
Chloromethane	74-87-3	ND	10	ug/L	09/21/95
Dibromochloromethane	124-48-1	ND	5	ug/L	09/21/95
1,1-Dichloroethane	75-34-3	ND	5	ug/L	09/21/95
1,2-Dichloroethane	107-06-2	ND	5	ug/L	09/21/95
1,1-Dichloroethene	75-35-4	ND	5	ug/L	09/21/95
cis-1,2-Dichloroethene	156-59-2	ND	5	ug/L	09/21/95
trans-1,2-Dichloroethene	156-60-5	ND	5	ug/L	09/21/95
1,2-Dichloropropane	78-87-5	ND	5	ug/L	09/21/95
cis-1,3-Dichloropropene	10061-01-5	ND	5	ug/L	09/21/95
trans-1,3-Dichloropropene	10061-02-6	ND	5	ug/L	09/21/95
Ethylbenzene	100-41-4	ND	5	ug/L	09/21/95
2-Hexanone	591-78-6	ND	50	ug/L	09/21/95
Methylene Chloride	75-09-2	ND	20	ug/L	09/21/95
4-Methyl-2-pentanone	108-10-1	ND	50	ug/L	09/21/95
Styrene	100-42-5	ND	5	ug/L	09/21/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	5	ug/L	09/21/95
Tetrachloroethene	127-18-4	ND	5	ug/L	09/21/95
Toluene	108-88-3	ND	5	ug/L	09/21/95
1,1,1-Trichloroethane	71-55-6	ND	5	ug/L	09/21/95
1,1,2-Trichloroethane	79-00-5	ND	5	ug/L	09/21/95
Trichloroethene	79-01-6	ND	5	ug/L	09/21/95
Vinyl Acetate	108-05-4	ND	50	ug/L	09/21/95
Vinyl Chloride	75-01-4	ND	10	ug/L	09/21/95
Xylenes, Total	1330-20-7	ND	10	ug/L	09/21/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW-3
AEN LAB NO: 9509203-03
AEN WORK ORDER: 9509203
CLIENT PROJ. ID: -

DATE SAMPLED: 09/14/95
DATE RECEIVED: 09/14/95
REPORT DATE: 09/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
Volatile Organic Compounds	EPA 8240				09/21/95
Acetone	67-64-1	ND	1000	ug/L	09/21/95
Benzene	71-43-2	ND	50	ug/L	09/21/95
Bromodichloromethane	75-27-4	ND	50	ug/L	09/21/95
Bromoform	75-25-2	ND	50	ug/L	09/21/95
Bromomethane	74-83-9	ND	100	ug/L	09/21/95
2-Butanone	78-93-3	ND	1000	ug/L	09/21/95
Carbon Disulfide	75-15-0	ND	100	ug/L	09/21/95
Carbon Tetrachloride	56-23-5	ND	50	ug/L	09/21/95
Chlorobenzene	108-90-7	ND	50	ug/L	09/21/95
Chloroethane	75-00-3	ND	100	ug/L	09/21/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	100	ug/L	09/21/95
Chloroform	67-66-3	ND	50	ug/L	09/21/95
Chloromethane	74-87-3	ND	100	ug/L	09/21/95
Dibromochloromethane	124-48-1	ND	50	ug/L	09/21/95
1,1-Dichloroethane	75-34-3	ND	50	ug/L	09/21/95
1,2-Dichloroethane	107-06-2	ND	50	ug/L	09/21/95
1,1-Dichloroethene	75-35-4	ND	50	ug/L	09/21/95
cis-1,2-Dichloroethene	156-59-2	ND	50	ug/L	09/21/95
trans-1,2-Dichloroethene	156-60-5	ND	50	ug/L	09/21/95
1,2-Dichloropropane	78-87-5	ND	50	ug/L	09/21/95
cis-1,3-Dichloropropene	10061-01-5	ND	50	ug/L	09/21/95
trans-1,3-Dichloropropene	10061-02-6	ND	50	ug/L	09/21/95
Ethylbenzene	100-41-4	ND	50	ug/L	09/21/95
2-Hexanone	591-78-6	ND	500	ug/L	09/21/95
Methylene Chloride	75-09-2	ND	200	ug/L	09/21/95
4-Methyl-2-pentanone	108-10-1	ND	500	ug/L	09/21/95
Styrene	100-42-5	ND	50	ug/L	09/21/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	50	ug/L	09/21/95
Tetrachloroethene	127-18-4	ND	50	ug/L	09/21/95
Toluene	108-88-3	ND	50	ug/L	09/21/95
1,1,1-Trichloroethane	71-55-6	ND	50	ug/L	09/21/95
1,1,2-Trichloroethane	79-00-5	ND	50	ug/L	09/21/95
Trichloroethene	79-01-6	1,200 *	50	ug/L	09/21/95
Vinyl Acetate	108-05-4	ND	500	ug/L	09/21/95
Vinyl Chloride	75-01-4	ND	100	ug/L	09/21/95
Xylenes, Total	1330-20-7	ND	100	ug/L	

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW-3
AEN LAB NO: 9509203-03
AEN WORK ORDER: 9509203
CLIENT PROJ. ID: -

DATE SAMPLED: 09/14/95
DATE RECEIVED: 09/14/95
REPORT DATE: 09/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW-3-DUP
AEN LAB NO: 9509203-04
AEN WORK ORDER: 9509203
CLIENT PROJ. ID: -

DATE SAMPLED: 09/14/95
DATE RECEIVED: 09/14/95
REPORT DATE: 09/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
Volatile Organic Compounds	EPA 8240				
Acetone	67-64-1	ND	1000	ug/L	09/21/95
Benzene	71-43-2	ND	50	ug/L	09/21/95
Bromodichloromethane	75-27-4	ND	50	ug/L	09/21/95
Bromoform	75-25-2	ND	50	ug/L	09/21/95
Bromomethane	74-83-9	ND	100	ug/L	09/21/95
2-Butanone	78-93-3	ND	1000	ug/L	09/21/95
Carbon Disulfide	75-15-0	ND	100	ug/L	09/21/95
Carbon Tetrachloride	56-23-5	ND	50	ug/L	09/21/95
Chlorobenzene	108-90-7	ND	50	ug/L	09/21/95
Chloroethane	75-00-3	ND	100	ug/L	09/21/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	100	ug/L	09/21/95
Chloroform	67-66-3	ND	50	ug/L	09/21/95
Chloromethane	74-87-3	ND	100	ug/L	09/21/95
Dibromochloromethane	124-48-1	ND	50	ug/L	09/21/95
1,1-Dichloroethane	75-34-3	ND	50	ug/L	09/21/95
1,2-Dichloroethane	107-06-2	ND	50	ug/L	09/21/95
1,1-Dichloroethene	75-35-4	ND	50	ug/L	09/21/95
cis-1,2-Dichloroethene	156-59-2	ND	50	ug/L	09/21/95
trans-1,2-Dichloroethene	156-60-5	ND	50	ug/L	09/21/95
1,2-Dichloropropane	78-87-5	ND	50	ug/L	09/21/95
cis-1,3-Dichloropropene	10061-01-5	ND	50	ug/L	09/21/95
trans-1,3-Dichloropropene	10061-02-6	ND	50	ug/L	09/21/95
Ethylbenzene	100-41-4	ND	50	ug/L	09/21/95
2-Hexanone	591-78-6	ND	500	ug/L	09/21/95
Methylene Chloride	75-09-2	ND	200	ug/L	09/21/95
4-Methyl-2-pentanone	108-10-1	ND	500	ug/L	09/21/95
Styrene	100-42-5	ND	50	ug/L	09/21/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	50	ug/L	09/21/95
Tetrachloroethene	127-18-4	ND	50	ug/L	09/21/95
Toluene	108-88-3	ND	50	ug/L	09/21/95
1,1,1-Trichloroethane	71-55-6	ND	50	ug/L	09/21/95
1,1,2-Trichloroethane	79-00-5	ND	50	ug/L	09/21/95
Trichloroethene	79-01-6	1,200 *	50	ug/L	09/21/95
Vinyl Acetate	108-05-4	ND	500	ug/L	09/21/95
Vinyl Chloride	75-01-4	ND	100	ug/L	09/21/95
Xylenes, Total	1330-20-7	ND	100	ug/L	09/21/95

GROVE VALVE & REGULATOR CO.

SAMPLE ID: MW-3-DUP
AEN LAB NO: 9509203-04
AEN WORK ORDER: 9509203
CLIENT PROJ. ID: -

DATE SAMPLED: 09/14/95
DATE RECEIVED: 09/14/95
REPORT DATE: 09/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

GROVE VALVE & REGULATOR CO.

SAMPLE ID: TRIP BLANK
AEN LAB NO: 9509203-05
AEN WORK ORDER: 9509203
CLIENT PROJ. ID: -

DATE SAMPLED: 09/14/95
DATE RECEIVED: 09/14/95
REPORT DATE: 09/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
Volatile Organic Compounds	EPA 8240				
Acetone	67-64-1	ND	100	ug/L	09/21/95
Benzene	71-43-2	ND	5	ug/L	09/21/95
Bromodichloromethane	75-27-4	ND	5	ug/L	09/21/95
Bromoform	75-25-2	ND	5	ug/L	09/21/95
Bromomethane	74-83-9	ND	10	ug/L	09/21/95
2-Butanone	78-93-3	ND	100	ug/L	09/21/95
Carbon Disulfide	75-15-0	ND	10	ug/L	09/21/95
Carbon Tetrachloride	56-23-5	ND	5	ug/L	09/21/95
Chlorobenzene	108-90-7	ND	5	ug/L	09/21/95
Chloroethane	75-00-3	ND	10	ug/L	09/21/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	10	ug/L	09/21/95
Chloroform	67-66-3	ND	5	ug/L	09/21/95
Chloromethane	74-87-3	ND	10	ug/L	09/21/95
Dibromochloromethane	124-48-1	ND	5	ug/L	09/21/95
1,1-Dichloroethane	75-34-3	ND	5	ug/L	09/21/95
1,2-Dichloroethane	107-06-2	ND	5	ug/L	09/21/95
1,1-Dichloroethene	75-35-4	ND	5	ug/L	09/21/95
cis-1,2-Dichloroethene	156-59-2	ND	5	ug/L	09/21/95
trans-1,2-Dichloroethene	156-60-5	ND	5	ug/L	09/21/95
1,2-Dichloropropane	78-87-5	ND	5	ug/L	09/21/95
cis-1,3-Dichloropropene	10061-01-5	ND	5	ug/L	09/21/95
trans-1,3-Dichloropropene	10061-02-6	ND	5	ug/L	09/21/95
Ethylbenzene	100-41-4	ND	5	ug/L	09/21/95
2-Hexanone	591-78-6	ND	50	ug/L	09/21/95
Methylene Chloride	75-09-2	ND	20	ug/L	09/21/95
4-Methyl-2-pentanone	108-10-1	ND	50	ug/L	09/21/95
Styrene	100-42-5	ND	5	ug/L	09/21/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	5	ug/L	09/21/95
Tetrachloroethene	127-18-4	ND	5	ug/L	09/21/95
Toluene	108-88-3	ND	5	ug/L	09/21/95
1,1,1-Trichloroethane	71-55-6	ND	5	ug/L	09/21/95
1,1,2-Trichloroethane	79-00-5	ND	5	ug/L	09/21/95
Trichloroethene	79-01-6	ND	5	ug/L	09/21/95
Vinyl Acetate	108-05-4	ND	50	ug/L	09/21/95
Vinyl Chloride	75-01-4	ND	10	ug/L	09/21/95
Xylenes, Total	1330-20-7	ND	10	ug/L	09/21/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9509203

CLIENT PROJECT ID: -

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 8240

AEN JOB NO: 9509203
INSTRUMENT: 13
MATRIX: WATER

Surrogate Standard Recovery Summary

			Percent Recovery		
Date Analyzed	Client Id.	Lab Id.	1,2-Dichloro-ethane-d_4	Toluene-d_8	p-Bromofluoro-benzene
09/21/95	MW-1	01	112	92	90
09/21/95	MW-2	02	113	95	94
09/21/95	MW-3	03	108	94	92
09/21/95	MW-3 DUP	04	112	92	91
09/21/95	TRIP BLANK	05	114	93	93
QC Limits:			76-114	88-110	86-115

DATE ANALYZED: 09/19/95
SAMPLE SPIKED: 9509150-02
INSTRUMENT: 13

Matrix Spike Recovery Summary

				QC Limits	
Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	Percent Recovery	RPD
1,1-Dichloroethene	50	104	<1	59-155	25
Trichloroethene	50	101	8	71-157	25
Benzene	50	95	6	37-151	25
Toluene	50	97	6	47-150	25
Chlorobenzene	50	93	5	37-160	25

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

Reporting Inform

1. Client: Orive Valve + Regulator
Address: 6529 Hollis St
Emeryville, CA 94608
Contact: Bill Tallent
Alt. Contact:

American Environmental Network
3440 Vincent Road, Pleasant Hill, CA 94523
Phone (510) 930-9090
FAX (510) 930-0256

AEN 10-2-5

Page 1 of 1

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY

Lab Job Number: 9509203
Lab Destination:
Date Samples Shipped: 9-14-95
Lab Contact:
Date Results Required: Normal Turnaround
Date Report Required:
Client Phone No.:
Client FAX No.:

Address Report To:
2. same as above

Send Invoice To:
3. same as above

Send Report To: 1 or 2 (Circle one)

Client P.O. No.: Client Project I.D. No.:

Sample Team Member (s)

Lab Number	Client Sample Identification	Air Volume	Date/Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	ANALYSIS: EPA 8240									Comments / Hazards
01A-C	MW-1		9/14/95	wtr.	HCL	3	VOC	X									
02A-C	MW-2		↓	↓	↓	3	"	X									
03A-C	MW-3		↓	↓	↓	3	"	X									
04A-C	MW-3 DUP		↓	↓	↓	3	"	X									
05A-B	TRIP BLANK		↓	↓	↓	2	"	X									

Relinquished by: (Signature) [signature] DATE 9/14/95 TIME 1555
Received by: (Signature) [signature] DATE 9/14/95 TIME 1555

Relinquished by: (Signature) DATE TIME
Received by: (Signature) DATE TIME

Relinquished by: (Signature) DATE TIME
Received by: (Signature)

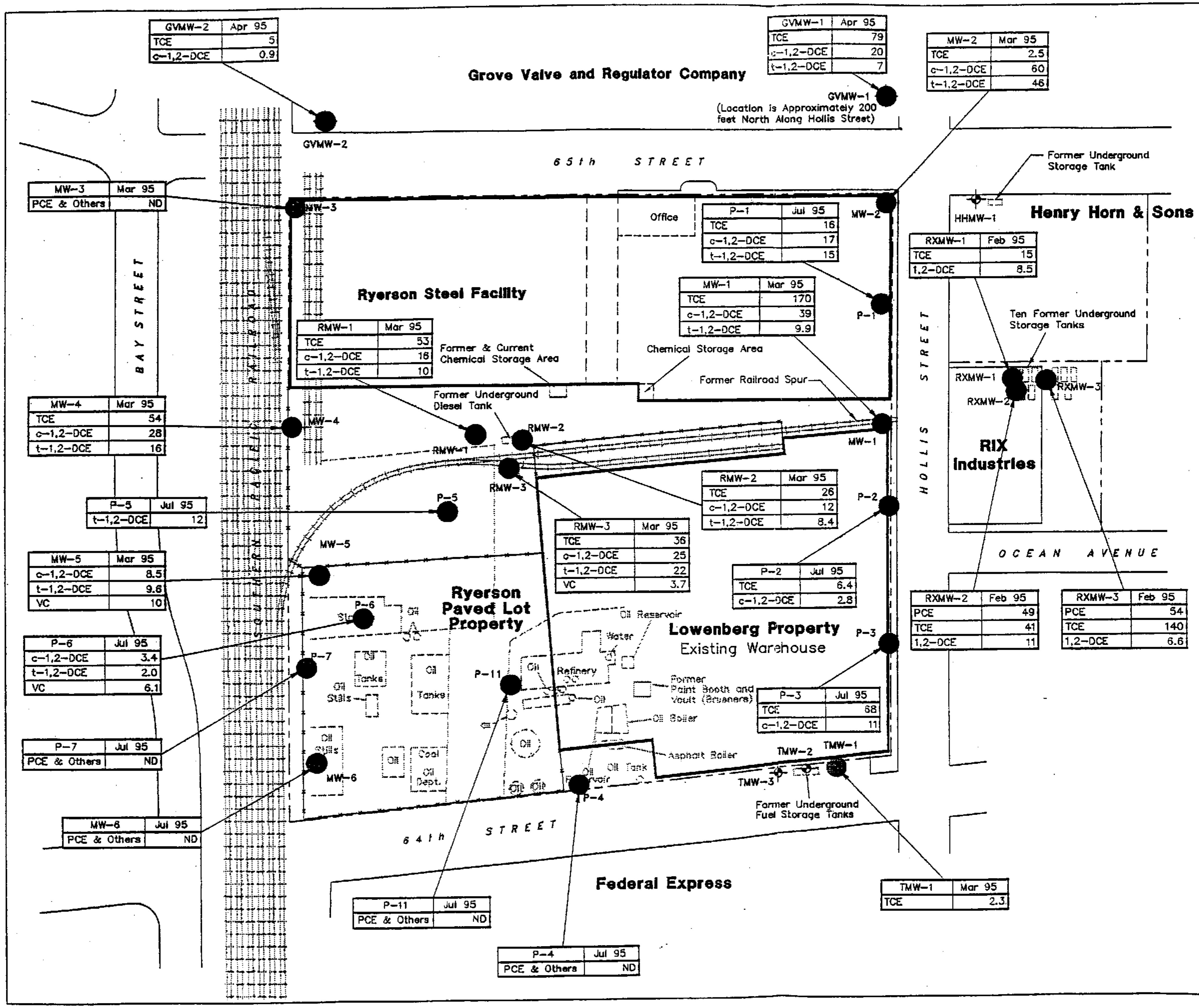
Method of Shipment: Hand Delivered

Lab Comments

*Sample type (Specify): 1) 37mm 0.8 μm MCEF 2) 25mm 0.8 μm MCEF 3) 25mm 0.4 μm polycarb. filter 4) PVC filter, diam. ___ pore size ___ 5) Charcoal tube 6) Silica gel tube 7) Water 8) Soil 9) Bulk Sample 10) Other ___ 11) Other ___

COPIES: WHITE - LOB FILE YELLOW - PROJECT FILE PINK - CLIENT

ATTACHMENT 8 – Map Showing Relative Locations of Grove, RIX Industries and Sybase, Inc. and Monitoring Well Locations (Erler & Kalinowski, Inc.)



N

0 120 240

(Approximate Scale in Feet)

LEGEND

Railroad Tracks

Approximate Property Boundary

Historical Site Features (1911 Sanborn Map)

Monitoring Well Installed by EKI

Monitoring Well Installed by Others

Grab Groundwater Sampling Location Collected by EKI, July 1995

PCE & Others — Includes PCE, TCE, c-1,2-DCE, t-1,2-DCE, and VC

		MCL (ug/L)
PCE	Tetrachloroethene	5
TCE	Trichloroethene	5
c-1,2-DCE	cis-1,2-Dichloroethene	6
t-1,2-DCE	trans-1,2-Dichloroethene	10
1,2-DCE	Total 1,2-Dichloroethene	6
VC	Vinyl Chloride	0.5

PCE & Others Concentrations in ug/L

Not Detected (ND)

>ND to <MCL

≥MCL

Notes:

1. All locations are approximate.
2. Basemap taken from Sanborn maps dated 1911 and 1967.
3. MCL is the Maximum Contaminant Level.

Erler & Kalinowski, Inc.

Concentrations of PCE, TCE and their Breakdown Products Detected in Groundwater
64th & 65th Street Properties
Emeryville, CA
August 1995
EKI 940018.08

DRAFT

Figure 9

ATTACHMENT 9 – Table Summarizing Quarterly Groundwater Sampling Data from RIX Monitoring Wells (Hageman-Aguiar, Inc.)

TABLE 3.

Shallow Groundwater Sampling Results

Well	Date	TPH as Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)
MW-1	07-07-92	680	3.8	ND	38	3.4
	08-11-94	ND	ND	ND	ND	ND
	11-11-94	440	ND	0.8	2.6	6.2
	02-13-95	630	ND	0.5	1.2	3.6
	06-06-95	620	0.5	ND	2.2	9.6
MW-2	07-07-92	1,400	ND	12	69	530
	08-11-94	4,800	ND	1.2	5.6	18
	11-11-94	810	ND	1.2	4.3	11
	02-13-95	1,000	ND	0.9	3.2	6.4
	06-06-95	780	0.9	ND	3.0	13
MW-3	07-07-92	9,300	ND	3,600	ND	700
	08-11-94	4,300	ND	10	2.6	10
	11-11-94	920	ND	3.7	3.2	16
	02-13-95	410	ND	1.7	0.5	2.5
	06-06-95	1,100	0.9	0.8	11	26
Detection Limit		50	0.5	0.5	0.5	0.5

ND = Not Detected

TABLE 4.

Shallow Groundwater Sampling Results

Well	Date	TPH as Kerosene (ug/L)	TPH as Diesel (ug/L)	TPH as Mineral Spirits (ug/L)	Oil & Grease (ug/L)
MW-1	07-07-92	6,100	6,100	6,400	14
	08-11-94	960	590	ND	—
	11-11-94	ND	1,000	190	—
	02-13-95	ND	1,400	310	—
	06-06-95	ND	1,600	58	—
MW-2	07-07-92	17,000	17,000	20,000	19
	08-11-94	490	320	ND	—
	11-11-94	ND	620	160	—
	02-13-95	ND	810	350	—
	06-06-95	ND	960	ND	—
MW-3	07-07-92	20,000	20,000	21,000	28
	08-11-94	470	310	ND	—
	11-11-94	ND	ND	ND	—
	02-13-95	ND	900	370	—
	06-06-95	ND	1,200	ND	—
Detection Limit		50	50	50	50

ND = Not Detected

TABLE 5.

Shallow Groundwater Sampling Results
Alcohols & Ketones

Monitoring Well	Date	Acetone (ug/L)	Iso-Propanol (ug/L)	Methyl Ethyl Ketone (ug/L)	Methyl Isobutyl Ketone (ug/L)	Sec-Butanol (ug/L)
MW-1	07-07-92	ND	ND	ND	ND	ND
	08-11-94	**210**	**9,100**	**230**	**180**	**710**
	11-11-94	**2,700**	**17,000**	**1,500**	**420**	ND
	02-13-95	**610**	**6,400**	**1,300**	**600**	ND
	06-06-95	**76**	ND	**97,000**	ND	ND
MW-2	07-07-92	ND	ND	ND	ND	ND
	08-11-94	ND	**410**	ND	ND	**90**
	11-11-94	**1,100**	**4,600**	**18,000**	**360**	ND
	02-13-95	**2,500**	**4,900**	**22,000**	ND	ND
	06-06-95	ND	ND	**59,000**	ND	ND
Detection Limit		50 to 400	100 to 1,000	50 to 1,000	50 to 500	50 to 500

ND = Not Detected

TABLE 5. (Continued)

Shallow Groundwater Sampling Results
Alcohols & Ketones

Monitoring Well	Date	Acetone (ug/L)	Iso-Propanol (ug/L)	Methyl Ethyl Ketone (ug/L)	Methyl Isobutyl Ketone (ug/L)	Sec-Butanol (ug/L)
MW-3	07-07-92	ND	ND	ND	ND	ND
	08-11-94	ND	**9,400**	**370**	**250**	**820**
	11-11-94	**810**	**6,700**	**40,000**	**22,000**	ND
	02-13-95	**1,300**	**5,800**	**19,000**	**4,500**	ND
	06-06-95	**160**	ND	**32,000**	ND	ND
Detection Limit		50 to 400	100 to 1,000	50 to 1,000	50 to 500	50 to 500

ND = Not Detected

TABLE 6.

Shallow Groundwater Sampling Results
Volatile Organic Compounds

Well	Date	EPA Method	Trichloro-fluoromethane (ug/L)	1,1-Dichloro-ethane (ug/L)	1,1-Dichloro-ethene (ug/L)	(Total) 1,2-Dichloro-ethene (ug/L)	1,2-Dichloro-ethane (ug/L)
MW-1	07-08-92	601	ND	**36**	ND	ND	ND
	11-11-94	8240	--	**33**	ND	ND	ND
	02-13-95	601	**9.8**	**32**	**1.0**	**8.5**	**1.1**
	06-06-95	601	**4.9**	**12**	ND	**2.7**	ND
MW-2	07-08-92	601	ND	**22**	ND	**99**	ND
	11-11-94	8240	--	**17**	ND	**45**	ND
	02-13-95	601	**3.6**	**9.6**	**2.0**	**11**	**3.2**
	06-06-95	601	**2.7**	**8.0**	ND	**6.9**	ND
MW-3	07-08-92	601	ND	**30**	ND	**630**	ND
	11-11-94	8240	--	**47**	**29**	**327**	ND
	02-13-95	601	**30**	**52**	**48**	**6.6**	**8.5**
	06-06-95	601	**17**	**16**	**26**	**4.9**	ND
Detection Limit			0.5	1.0 to 5.0	1.0 to 5.0	0.5 to 5.0	0.5 to 5.0

ND = Not Detected

TABLE 6. (Continued)

Shallow Groundwater Sampling Results
Volatile Organic Compounds

Well	Date	EPA Method	Tetrachloro-ethene (ug/L)	1,1,1-Trichloro-ethane (ug/L)	Trichloroethene (ug/L)	Vinyl Chloride (ug/L)	Chloroform (ug/L)
MW-1	07-08-92	601	ND	ND	ND	ND	ND
	11-11-94	8240	ND	ND	ND	ND	ND
	02-13-95	601	ND	0.7	15	ND	1.8
	06-06-95	601	ND	ND	4.6	ND	1.5
MW-2	07-08-92	601	52	ND	21	46	ND
	11-11-94	8240	34	ND	20	ND	ND
	02-13-95	601	49	4.8	41	ND	2.7
	06-06-95	601	20	ND	33	ND	4.9
MW-3	07-08-92	601	2,200	81	300	ND	ND
	11-11-94	8240	110	12	290	67	ND
	02-13-95	601	54	28	140	ND	4.3
	06-06-95	601	34	ND	63	ND	3.8
Detection Limit			1.0 to 5.0	1.0 to 5.0	1.0 to 5.0	1.0 to 10	0.5 to 5.0

ND = Not Detected

ATTACHMENT 10 -- Table Summarizing Groundwater Sampling Data for Sybase Monitoring Wells

DRAFT

Table 8
Results of Groundwater Sample Analyses for Non-BTEX VOCs in the Final Site Investigation
Sybase, Inc.
64th and 65th Street Properties, Emeryville, California
(EKI 940018.08)

Sample ID	Date Sampled	Non-BTEX VOCs EPA Method 8240 (a)								
		acetone (ug/L)	chloro-ethane (ug/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-DCE (ug/L)	trans-1,2-DCE (ug/L)	TCA (ug/L)	TCE (ug/L)	vinyl chloride (ug/L)
P-1	7/5/95	<10 (b)	<2	<2	<2	**17 (c)**	**15**	<2	**16**	<2
P-2	7/6/95	**10**	<2	**4**	**42**	**2.8**	<2	**7.4**	**6.4**	<2
P-3	7/6/95	<10	<2	<2	<2	**11**	<2	<2	**68**	<2
P-4	7/6/95	<20	<4	<4	<4	<4	<4	<4	<4	<4
P-5	7/5/95	<20	<4	**44**	<4	<4	**12**	<4	<4	<4
P-6	7/5/95	<10	**34**	**5.6**	<2	**3.4**	**2**	<2	<2	**6.1**
P-7	7/5/95	**23**	<4	<4	<4	<4	<4	<4	<4	<4
P-8	7/7/95	NA (d)	NA	NA	NA	NA	NA	NA	NA	NA
P-9	7/7/95	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-10	7/7/95	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-11	7/6/95	<25	<5	<5	<5	<5	<5	<5	<5	<5
P-Dup	7/6/95	<25	<5	<5	<5	<5	<5	<5	<5	<5

NOTES:

(a) Only compounds detected in groundwater samples are included in table.
(b) Less than symbol ("<") denotes that compound was not present above the laboratory detection limit indicated.
(c) Concentrations indicated in bold were present at levels that exceeded its respective detection limit.
(d) "NA" indicates that the sample was not analyzed by EPA Method 8240.

ABBREVIATIONS:

VOCs = Volatile Organic Compounds
1,1-DCA = 1,1-Dichloroethane
1,1-DCE = 1,1-Dichloroethene
cis-1,2-DCE = cis-1,2-Dichloroethene
trans-1,2-DCE = trans-1,2-Dichloroethene
TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene

DRAFT

Table 13
Results of Groundwater Samples Analyses for Halogenated VOCs, PAHs, and Industrial Solvents
in the Initial Site Investigation
Sybase, Inc.
64th and 65th Street Properties, Emeryville, California
(EKI 940018.08)

Sample ID	Date Sampled	VOCs EPA Method 8010 (a)									PAHs	Industrial
		chloro-ethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-DCE (ug/L)	trans-1,2-DCE (ug/L)	TCE (ug/L)	vinyl chloride (ug/L)	Freon 113 (ug/L)	Method 8100 (ug/L)	Solvents (ug/L)
MW-1	3/23/95	<5 (b)	<2.5	<2.5	<2.5	**39 (c)**	**9.9**	**170**	<5	**9**	ND (d)	ND
MW-2	3/23/95	<2.5	<1.2	<1.2	<1.2	**60**	**46**	**2.5**	<2.5	<2.5	ND	ND
MW-3	3/23/95	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	ND	ND
MW-4	3/23/95	<2.5	<1.2	<1.2	<1.2	**28**	**16**	**54**	<2.5	<2.5	ND	ND
MW-5	3/27/95	**18**	**5.8**	<0.5	<0.5	**8.5**	**9.6**	<0.5	**10**	<1	ND	**(e)**
MW-6	3/27/95	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	ND	ND
M-6Dup	3/27/95	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	ND	ND
RMW-1	3/24/95	<2.5	<1.2	**1.4**	<1.2	**16**	**10**	**53**	<2.5	<2.5	ND	ND
R-1Dup	3/24/95	<2.5	<1.2	**1.3**	<1.2	**15**	**9.7**	**51**	<2.5	<2.5	NA (f)	NA
RMW-2	3/24/95	<1	<0.5	**0.96**	<0.5	**12**	**8.4**	**26**	<1	<1	ND	ND
RMW-3	3/27/95	<1	**11**	<0.5	**1.4**	**25**	**22**	**36**	**3.7**	<1	ND	ND
TMW-1	3/28/95	<1	<0.5	<0.5	<0.5	<0.5	<0.5	**2.3**	<1	<1	ND	ND

NOTES:
(a) Only compounds detected in groundwater samples are included in table.
(b) Less than symbol ("<") denotes that compound was not present above the laboratory detection limit indicated.
(c) Compounds indicated in bold were present at concentrations that exceeded its respective laboratory detection limits.
(d) "ND" indicates that none of the compounds analyzed by the method listed were present above laboratory detection limits.
(e) Compounds reported in this sample include: carbon tetrachloride ("CT") =260 ug/L, 1,2-DCA=380 ug/L, ethyl acetate=830 ug/L, ethylbenzene=100 ug/L, tetrachloroethene ("PCE") =200 ug/L, toluene=22 ug/L, and o-xylene=220 ug/L. However, the laboratory indicated that the detection of CT, 1,2-DCA, ethylbenzene, PCE, toluene, and o-xylene is likely attributed to false positive recovery of these compounds in the Industrial Solvent analysis. These compounds were not detected on the EPA 8010 and BTEX

DRAFT

Table 9
Summary of Well Construction Details and Water Levels
Sybase, Inc.
64th and 65th Street Properties, Emeryville, California
(EKI 940018.08)

Well ID	Date Well Installed	Depth of Well (ft bgs)	Screen Interval (ft bgs)	Sand Pack Interval (ft bgs)	Top of Casing Elevation (ft msl)	24 March 1995		7 July 1995	
						Depth to Water (ft bgs)	Groundwater Elevation (ft msl)	Depth to Water (ft bgs)	Groundwater Elevation (ft msl)
MW-1	3/6/95	20	5 - 20	4 - 20	18.24	2.97	15.27	3.81	14.43
MW-2	3/8/95	15.5	5.5 - 15.5	4 - 15.5	19.45	3.03	16.42	4.20	15.25
MW-3	3/7/95	19	4 - 19	3 - 19	15.24	2.72	12.52	6.22	9.02
MW-4	3/6/95	20	5 - 20	4 - 20	14.02	4.57	9.45	5.77	8.25
MW-5	3/7/95	15	5 - 15	4 - 15	12.99	5.75	7.24	6.06	6.93
MW-6	3/6/95	14	4 - 14	3 - 14	12.66	2.55	10.11	5.01	7.65
RMW-1	8/6/93	15.5	4.5 - 15.5	4 - 15.5	14.38	3.61	10.77	4.45	9.93
RMW-2	8/6/93	15.5	4.5 - 15.5	4 - 15.5	14.55	3.35	11.2	4.18	10.37
RMW-3	8/6/93	15.5	4.5 - 15.5	4 - 15.5	14.15	2.95	11.2	3.70 (a)	10.45
TMW-1	4/12/90	15	5 - 15	4 -15	16.31	2.59	13.72	3.27	13.04
TMW-2	4/12/90	15.5	5 - 15	4 -15	15.57	NM	-	NM	-
TMW-3	4/12/90	15.5	5 - 15	4 -15	15.15	1.65	13.5	2.28	12.87

NOTES:

(a) Free-phase hydrocarbons present at a thickness of less than 0.01 foot.

ABBREVIATIONS:

ft bgs = feet below ground surface
ft msl = feet relative to mean sea level
NM = not measured, well obstructed by dirt

DRAFT

Table 4
Summary of Soil and Groundwater Sampling Depths and Analyses
in the Final Site Investigation
Sybase, Inc.
64th and 65th Street Properties, Emeryville, California
(EKI 940018.08)

Sample ID	Sample Location	Sample Depth Interval (ft bgs) (a)	Date Sample Collected	TEPH (EPA 8015m)	VOCs (EPA 8240)	Arsenic (EPA 7060)	Priority Metals (b)	PAHs (EPA 8100)	Total Organic Carbon
Soil									
P-5-2.5	P-5	2-2.5	7/5/95		X		X		
P-6-2.5	P-6	2.5-3	7/5/95		X		X		
P-7-2.5	P-7	2.5-3	7/5/95	X	X				
P-7-11	P-7	11-11.5	7/5/95						X
P-8-5.5	P-8	5.5-6	7/7/95	X					
P-8-18	P-8	18-18.5	7/7/95						X
P-9-6	P-9	6-6.5	7/7/95	X					
P-9-12	P-9	12-12.5	7/7/95						X
P-10-2.5	P-10	2.5-3	7/7/95	X					
P-10-11	P-10	11-11.5	7/7/95						X
P-11-2	P-11	2-2.5	7/7/95	X	X			X	
Groundwater									
P-1	P-1	10.5-15.5	7/5/95		X	X			
P-2	P-2	17-22	7/6/95		X	X			
P-3	P-3	13-18	7/6/95		X	X			
P-4	P-4	9-14	7/6/95	X	X	X			
P-5	P-5	12.5-17.5	7/5/95	X	X		X		
P-6	P-6	13-18	7/5/95	X	X		X		
P-7	P-7	16-21	7/5/95	X	X	X			
P-8	P-8	14-19	7/7/95	X		X			
P-9	P-9	14-19	7/7/95	X		X			
P-10	P-10	14-19	7/7/95	X		X			
P-11	P-11	10-15	7/6/95	X	X	X		X	
P-Dup	P-11	10-15	7/6/95	X	X	X			

NOTES:

(a) "ft bgs" denotes feet below ground surface.
(b) Priority Metals by EPA 6000/7000 Series include arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, tin, thallium, and zinc.
(c) Grab groundwater samples were collected from borings that were temporarily cased with PVC and screened at the intervals indicated.

ABBREVIATIONS:

TEPH = Total Extractable Petroleum Hydrocarbons Quantified as Diesel
VOCs = Volatile Organic Compounds
PAHs = Polycyclic Aromatic Hydrocarbons

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Table 3
Summary of VOC, Petroleum Hydrocarbon, and BTEX Concentrations Detected In Groundwater Samples Collected in Prior On-Site Investigations
Sybase, Inc.
64th and 65th Street Properties, Emeryville, California
(EKI 940018.08)

Sampling Location and Date (a)	Volatile Organic Compounds (ug/L)								Petroleum Hydrocarbons and BTEX (ug/L)					
	1,1-DCA	1,2-DCA	1,1-DCE	trans-1,2-DCE	TCE	PCE	1,1,1-TCA	Carbon Disulfide	TEPH	TPPH	Benzene	Toluene	Ethyl-benzene	Total Xylenes
Ryerson Railroad Spur														
RS-1 (12/6/1988)	ND (b)	ND	ND	ND	ND	ND	ND	13	NA (c)	NA	NA	NA	NA	NA
RS-2 (12/6/88)	2.4	ND	ND	ND	ND	ND	ND	17	NA	NA	NA	NA	NA	NA
RS-3 (12/6/88)	37	ND	ND	63	14	14	ND	ND	NA	NA	NA	NA	NA	NA
RS-4 (1/4/89)	240	3.9	40	5.8	<0.5 (d)	<0.5	0.7	<0.5	NA	NA	NA	NA	NA	NA
Former Lowenberg Tanks														
Excavation Water (e, f)														
2/23/90	NA	NA	NA	NA	NA	NA	NA	NA	410,000	14,000	140	140	140	1,100
Well TMW-1														
4/13/90	NA	NA	NA	NA	NA	NA	NA	NA	<100	560	10	<2	10	30
11/30/90	NA	NA	NA	NA	NA	NA	NA	NA	<50	ND	3.2	<1	3.2	<1
4/12/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	150	3.2	<0.5	2	<0.5
8/16/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	150	4.8	<0.5	3.7	2.6
10/6/92	NA	NA	NA	NA	NA	NA	NA	NA	110	230	6.1	<0.5	3.1	<0.5
1/4/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	430	9.9	<0.5	<0.5	<0.5
3/28/95	NA	NA	NA	NA	NA	NA	NA	NA	330	100	4.8	<0.5	1.8	3.2
Well TMW-2														
4/13/90	NA	NA	NA	NA	NA	NA	NA	NA	<100	140	10	<2	2	7
11/30/90	NA	NA	NA	NA	NA	NA	NA	NA	<50	ND	3.8	<1	ND	<1
4/12/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	16	<0.5	1.7	<0.5
8/16/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	130	7.7	<0.5	1.3	1.1
10/6/92	NA	NA	NA	NA	NA	NA	NA	NA	90	170	18	<0.5	2.5	<0.5

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ATTACHMENT 11 – Table Summarizing Groundwater Elevations on Sybase Property (Erler & Kalinowski, Inc.)

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Table 9
Summary of Well Construction Details and Water Levels
Sybase, Inc.
64th and 65th Street Properties, Emeryville, California
(EKI 940018.08)

Well ID	Date Well Installed	Depth of Well (ft bgs)	Screen Interval (ft bgs)	Sand Pack Interval (ft bgs)	Top of Casing Elevation (ft msl)	24 March 1995		7 July 1995	
						Depth to Water (ft bgs)	Groundwater Elevation (ft msl)	Depth to Water (ft bgs)	Groundwater Elevation (ft msl)
MW-1	3/6/95	20	5 - 20	4 - 20	18.24	2.97	15.27	3.81	14.43
MW-2	3/8/95	15.5	5.5 - 15.5	4 - 15.5	19.45	3.03	16.42	4.20	15.25
MW-3	3/7/95	19	4 - 19	3 - 19	15.24	2.72	12.52	6.22	9.02
MW-4	3/6/95	20	5 - 20	4 - 20	14.02	4.57	9.45	5.77	8.25
MW-5	3/7/95	15	5 - 15	4 - 15	12.99	5.75	7.24	6.06	6.93
MW-6	3/6/95	14	4 - 14	3 - 14	12.66	2.55	10.11	5.01	7.65
RMW-1	8/6/93	15.5	4.5 - 15.5	4 - 15.5	14.38	3.61	10.77	4.45	9.93
RMW-2	8/6/93	15.5	4.5 - 15.5	4 - 15.5	14.55	3.35	11.2	4.18	10.37
RMW-3	8/6/93	15.5	4.5 - 15.5	4 - 15.5	14.15	2.95	11.2	3.70 (a)	10.45
TMW-1	4/12/90	15	5 - 15	4 -15	16.31	2.59	13.72	3.27	13.04
TMW-2	4/12/90	15.5	5 - 15	4 -15	15.57	NM	-	NM	-
TMW-3	4/12/90	15.5	5 - 15	4 -15	15.15	1.65	13.5	2.28	12.87

NOTES:

(a) Free-phase hydrocarbons present at a thickness of less than 0.01 foot.

ABBREVIATIONS:

ft bgs = feet below ground surface
ft msl = feet relative to mean sea level
NM = not measured, well obstructed by dirt