



TRANSMITTAL

ENGINEERING — SCIENCE, INC.
600 BANCROFT WAY
BERKELEY, CALIFORNIA 94710
(415) 548-7970

Date: 3 April 1990
ES Project No. NC222.03

IF MATERIAL NOT AS LISTED,
PLEASE NOTIFY US AT ONCE

To: Alameda County Department of Environmental Health
80 Swan Way
Suite 200
Oakland, California 94621

HOW MAILED:

Reg. X
Express Mail _____
Fed. Ex. _____
DHL _____
Greyhound _____
UPS _____

Attn: Mr. Dennis Byrne
Re: February 1990 Groundwater Monitoring Report

WE ARE SENDING YOU

- ATTACHED UNDER SEPARATE COVER VIA _____
- SHOP DRAWINGS TRACINGS
- PRINTS CATALOGS
- DOCUMENTS COPY OF LETTER
- SPECIFICATIONS _____

COPIES	DATE	ITEM
1	4/3/90	February 1990 (Second Quarter) Groundwater Monitoring Report 1650 - 65th Street Site, Emeryville, California.

REMARKS _____

COPY TO

- File
- Author
- Reading File
- P.O. Partners / Walt Kanzenbeck

90 APR -6 AM 11:05

SIGNED: Paul Bertucci
Paul F. Bertucci, Project Manager



21 March 1990
Ref: NC222.03

P.O. Partners
6475 Christie Avenue, Suite 500
Emeryville, CA 94608

Attention: Mr. Walter Kaczmarek

Subject: February 1990 (Second Quarterly) Groundwater Monitoring Report
1650-65th Street Site, Emeryville, California

Dear Mr. Kaczmarek:

INTRODUCTION

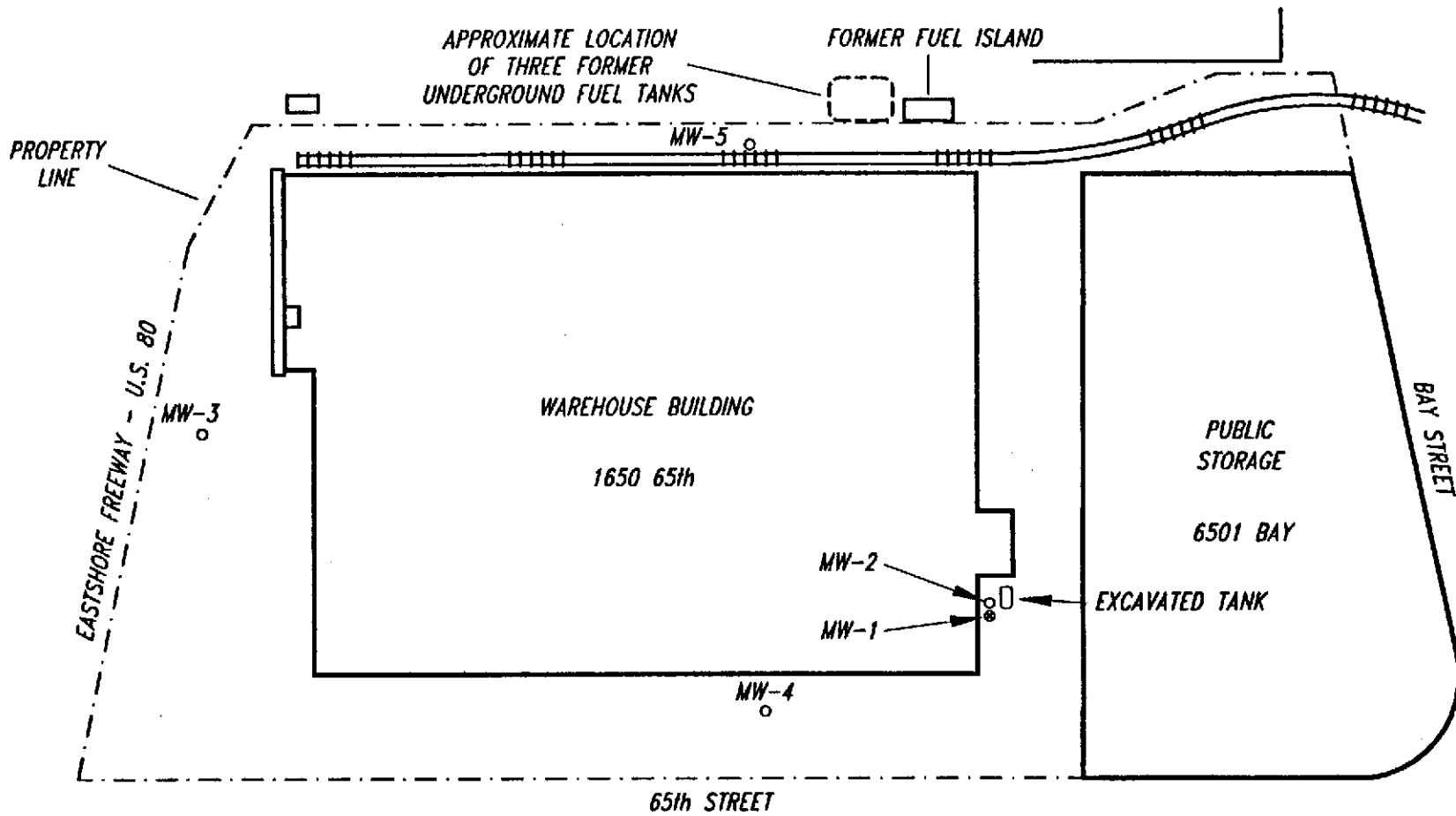
This letter report presents the hydrologic and hydrochemical results of February 1990 groundwater sampling event conducted at the 1650-65th Street Site in Emeryville, California. Engineering-Science has been retained by P.O. Partners to perform this sampling and analysis as part of a year of quarterly groundwater monitoring. This letter report presents findings for the second consecutive quarterly monitoring event. The purpose of quarterly groundwater sampling is to provide a data set to evaluate any seasonal effects on the groundwater quality. Groundwater levels in all four of the monitoring wells were recorded and the water samples collected from them were analyzed to determine groundwater quality. All samples were analyzed for total petroleum hydrocarbons (TPH), benzene (B), toluene (T), xylene (X), ethylbenzene, and lead. The only water sample analyzed for purgeable halocarbons was from Well MW-2 which had detected 1,2-dichloroethane in November 1989.

Monitoring wells MW-2, MW-3, MW-4 and MW-5 were installed between 28 September and 21 November 1989 to characterize hydrocarbon contamination associated with an on-site Underground Fuel Storage Tank (UFST) removed in July 1987. Figure 1 shows the locations of all four monitoring wells at the site. Monitoring Well MW-2 was installed in the excavation backfill of the former on-site UFST. Well MW-3 and MW-4 are located along the western and southern property line. Well MW-5 was installed along the northern property line near the former UFSTs on the adjacent property.

During the first sampling event, which followed the installation and development of wells, groundwater flow direction was determined to be southwest and south across the property area. The groundwater analytical results from the November

SITE PLAN

1650 65th Street Property



- LEGEND:**
- FORMER MONITORING WELL
 - MONITORING WELL
 - EXCAVATED TANK



0 100
SCALE IN FEET

P.O. Partners
21 March 1990
Page 2

1989 sampling event indicated benzene concentrations above the Department of Health Services (DHS) recommended maximum contaminant levels (MCLs) in drinking water, in all the wells. Total xylenes, ethylbenzene, and 1,2-dichloroethane exceeded DHS recommended MCLs in Well MW-2 only. The gasoline contamination levels in the monitoring wells were: 100,000 ppb (MW-2), 130 ppb (MW-3), and 200 ppb (MW-4). Well MW-5 did not detect gasoline (Reference 5).

SAMPLING PROTOCOLS

Groundwater samples were collected from the monitoring wells on 21 February 1990 following the Regional Water Quality Control Board (RWQCB) groundwater sampling guidelines. Before sampling, the static groundwater levels in all the wells were recorded using an electronic water level indicator to a precision of 0.01 feet.

The next step involved collection of groundwater samples. Each well was initially checked for the presence of free floating product. This was accomplished by collecting water from the top 6 inches using a quartz/Teflon bailer and inspecting it for free floating product, any odor, and/or oily sheen. None of the wells showed the presence of free floating product. Well MW-2 had a strong gasoline odor.

In order to sample for dissolved product, a minimum of three submerged well casing volumes were purged from each well prior to sampling. Field measurements of temperature, hydrogen ion index (pH) and electrical conductivity were recorded three times: prior to purging, after two well volumes had been removed from each well, and after three volumes had been removed from each well. Each time, the parameters were compared with previously recorded values to document stabilization. The purpose of recording temperature, pH, and EC readings was to ensure that a water sample representative of formation water was collected. Temperature, EC, and pH values in each of the wells stabilized within the first three readings (initial, two casing volumes, and three casing volumes) thus water samples were subsequently collected. If the parameters do not stabilize, the sampling protocols require purging a maximum of five well volumes from each well before the collection of water samples.

Groundwater purging and sampling was done using a clean quartz/Teflon bailer. Water samples to be analyzed for lead were collected in 500 ml plastic bottles preserved with nitric acid to bring pH below 2. Samples for purgeable hydrocarbons and total volatile hydrocarbons (gasoline, benzene, toluene, xylene, and ethylbenzene) were collected in 40 ml glass containers specifically designed to prevent the loss of volatile components. Sampling containers for purgeable hydrocarbons and TPH analyses were preserved with hydrochloric acid. All samples were labelled and chain-of-custody records were completed prior to placement of these containers in an iced cooler. After collection of water samples from individual wells, the sampling equipment was decontaminated by washing with a mild

P.O. Partners
21 March 1990
Page 3

detergent/water solution followed by rinsing with deionized water. Appendix A contains the groundwater sampling notes, water levels recorded in each well and chain-of-custody records.

ANALYTICAL PARAMETERS

Groundwater samples collected from monitoring wells MW-2, MW-3, MW-4 and MW-5 were analyzed for lead, and total volatile hydrocarbons (gasoline, benzene, toluene, ethylbenzene, and total xylenes) at Engineering-Science Analytical Laboratories in Berkeley, California. Lead content in each sample was quantified using EPA method 7421. Total petroleum hydrocarbons and BTEX were quantified using analytical procedures described in the LUFT manual by The California Department of Water Resources (Modified EPA Method 8015). Water sample from Well MW-2 only, was analyzed for purgeable halocarbons using EPA method 601. The analytical procedures followed are referenced with analytical results in Appendix B.

GROUNDWATER ELEVATIONS

Table 1 lists the historical groundwater levels in all four of the monitoring wells. Water levels measured in the field were calculated with reference to USGS datum. The groundwater elevations in each well were used to construct the water table isopleth map presented as Figure 2.

TABLE 1
HISTORICAL GROUNDWATER LEVELS
(Feet Above Mean Sea Level)

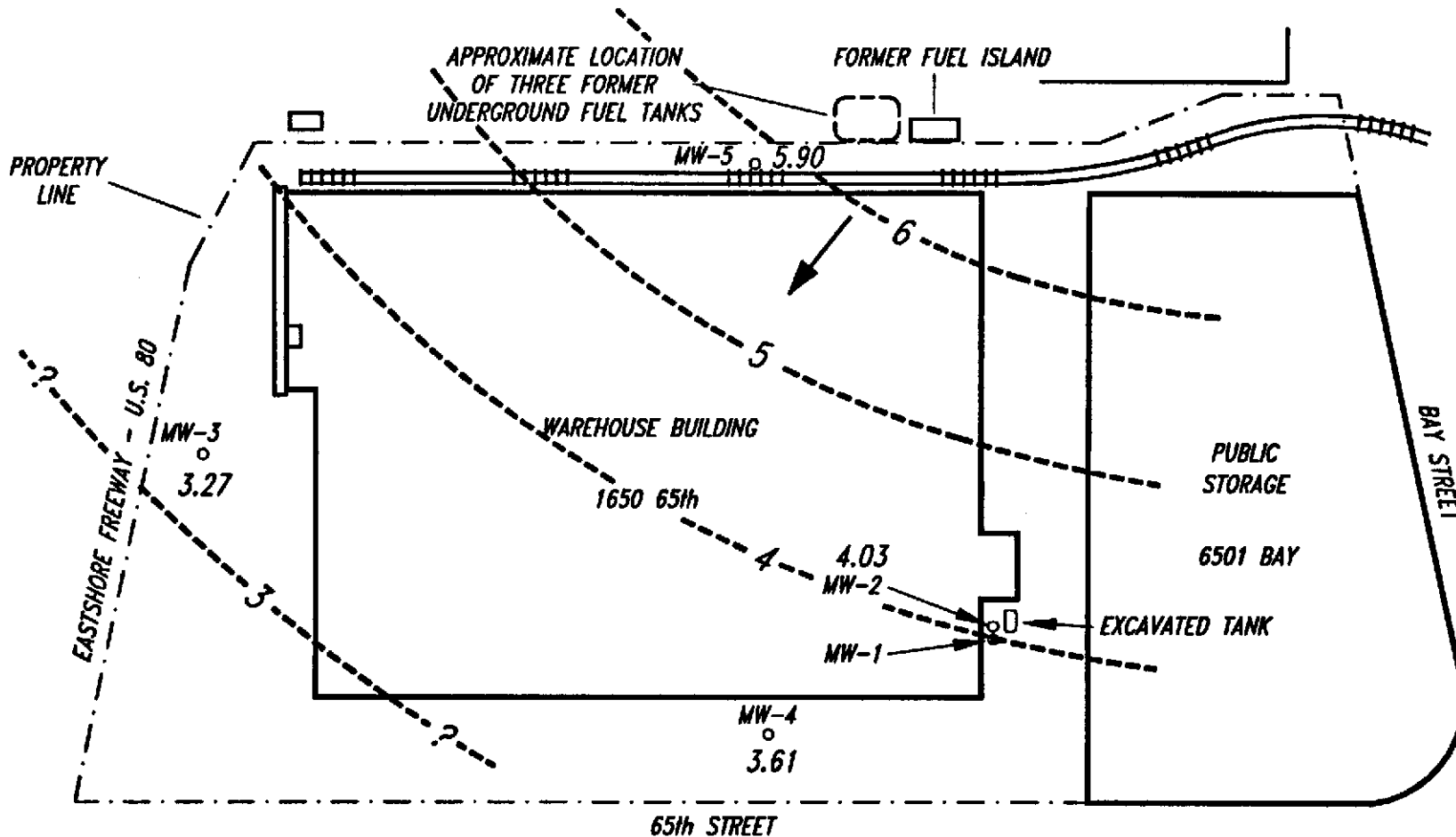
Well ID	21 November 1989	21 February 1990
MW-2	4.15	4.03
MW-3	3.90	3.27
MW-4	3.86	3.61
MW-5	5.27	5.90

Note: All elevations w.r.t USGS datum.

GROUNDWATER ELEVATION CONTOURS

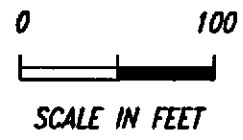
1650 65th Street Property, Emeryville, CA

21 FEBRUARY 1990



- LEGEND:**
- FORMER MONITORING WELL
 - MONITORING WELL
 - EXCAVATED TANK

- 5 --- GROUNDWATER ELEVATION CONTOUR
- 3.61 WATER LEVEL ELEVATION IN FEET ABOVE SEA LEVEL
- ↘ GROUNDWATER FLOW DIRECTION



ENGINEERING-SCIENCE

FIGURE 2

P.O. Partners
21 March 1990
Page 4

Water levels in Wells MW-2, MW-3, and MW-4 were slightly lower than the previous sampling event. Based on the water levels measured in the wells on 21 February 1990, the groundwater flow direction at the site was determined to be toward the southwest. Water level in well MW-5 increased by 0.63 feet compared to the November 1989 water level. All the wells recharged quickly, with water levels remaining nearly constant through the purging and sampling.

ANALYTICAL RESULTS

Table 2 summarizes the historical groundwater sampling analytical results from the 1650 - 65th Street property. Groundwater lead concentrations in each well was below 0.02 mg/L (ppm). Gasoline, xylene, ethylbenzene and toluene were not detected in water samples from wells MW-3 and MW-4. Water sample from Well MW-5 contained 200 $\mu\text{g/L}$ (ppb) benzene and 0.012 ppm lead. Water sample from Well MW-2 contained 54,000 ppb gasoline, 7,800 ppb benzene, 5,600 ppb toluene, 8,400 ppb total xylenes, 1,600 ppb ethylbenzene, 32 ppb 1,2-dichloroethane, and 0.02 ppm lead. However, concentrations of all the compounds except 1,2-dichloroethane were lower than detected in the November 1989 event. The laboratory reporting limits on these compounds are listed in the laboratory reports in Appendix B. Reporting limits had to be raised in the case of Well MW-2 to accommodate relatively high concentrations of BTEX and gasoline in the water sample. Reporting limits in the case of MW-2 were 500 ppb (BTEX), and 12,500 ppb (gasoline).

The groundwater contaminant concentrations decreased in wells MW-2, MW-3, and MW-4 and increased slightly in well MW-5. The most marked decrease occurred in well MW-2 with the concentrations dropping by nearly half. The concentration of gasoline in MW-3 and MW-4 decreased below the detection limit of 500 ppb. The only increase in concentration occurred in well MW-5 which showed an increase from 74 ppb to 200 ppb benzene. Well MW-5 monitors the off-site (upgradient) groundwater concentrations.

Engineering-Science appreciates the opportunity to provide technical services to P.O. Partners. Should you have any questions regarding this submittal, please call.

Very truly yours,



A handwritten signature in black ink, appearing to read "Richard Makdisi".

Richard Makdisi, R.G.
Manager, Hazardous Waste
Management Department

TABLE 2

**HISTORICAL GROUNDWATER SAMPLING ANALYTICAL RESULTS
1650 - 65TH STREET PROPERTY**

D R A F T

Contaminant	MW-2		MW-3		MW-4		MW-5		Drinking Water Regul. Limits	Site Cleanup Regul. Limits
	Nov 89	Feb 90	Nov 89	Feb 90	Nov 89	Feb 90	Nov 89	Feb 90		
ORGANICS ($\mu\text{g/L}$)										
Gasoline	100,000	54,000	130	ND	200	ND	ND	ND	NA	AD
Benzene	8,400	7,800	2.2	2.5	2.3	ND	74	200	1 ¹	AD
Toluene	7,400	5,600	ND	ND	ND	ND	ND	ND	100 ²	AD
Total Xylenes	13,000	8,400	3.0	ND	ND	ND	4.2	ND	1,750 ¹	AD
Ethylbenzene	2,400	1,600	ND	ND	ND	ND	ND	ND	680 ¹	AD
1,2-Dichloroethane	15	32	ND	NA	ND	NA	ND	NA	0.5 ¹	AD
INORGANICS (mg/L)										
Lead	0.05	0.02	ND	0.011	ND	0.006	ND	0.012	0.05 ³	AD

¹DHS Maximum Contaminant Level (MCL) in drinking water. California Administrative Code, Title 22, 6/1/89.

²DHS Recommended Drinking Water State Action Level (SAL), 6/1/89.

³U.S. EPA Maximum Contaminant Level - 40 CFR Parts 141, 142, and 143; National Primary and Secondary Drinking Water.

"NA" indicates not applicable.

"ND" indicates nothing detected above the detection limit of analysis.

"AD" = Agency Derived: Determined on a site-by-site basis by the RWQCB and/or ACHD depending on beneficial uses of the affected groundwater and potential sensitive receptors.

REFERENCES

1. Engineering-Science, Inc., 1989, October 1989 Quarterly Groundwater Monitoring Results for the 1650 65th Street Property in Emeryville, California.
2. Engineering-Science, Inc., 1987, Underground Fuel Storage Tank Site Investigation near the Southeast Corner of the Warehouse Building, 1650 65th Street Property, Emeryville, California.
3. Engineering-Science, Inc., 1987, Soil Remediation Plan for the Southeastern Corner of the 1650 65th Street Property, Emeryville, California.
4. Engineering-Science, Inc., 1988, Implementation of Remedial Action Plan Report for United States Postal Service at 1650 65th Street, Emeryville, California.
5. Engineering-Science, Inc., November 1989, Groundwater Contamination Investigation, 1650 65th Street, Emeryville, California.

APPENDIX A
GROUNDWATER MONITORING FIELD NOTES

GROUNDWATER SAMPLING FIELD NOTES

PROJECT/LOCATION 1650 65th ST. EMERYVILLE

PROJ. NO. NC222.03 DATE 02-21-90

WELL ID	SAMPLE DATE, TIME AND SAMPLER	WATER LEVEL BEFORE * WELL DIAMETER AND DEPTH	WATER LEVEL AFTER *	GALLONS PER CASING PER WELL VOLUME	PUMP PURGING METHOD **	PUMP ON	PUMP OFF	FLOW RATE / GALLONS PURGED	TEMPERATURE °C	SPECIFIC CONDUCTIVITY (UMHOS / CM)	PH	TOTAL WATER PURGED (GALLONS)	SAMPLE COLLECTION METHOD **	ANALYSIS AND PRESERVATIVE NO AND TYPE OF CONTAINERS	COMMENTS (SAMPLE TURBIDITY, SAMPLE ODOR, WEATHER CONDITIONS, ETC.)
MW-2	02-21-90 1055	11.72 2"	2.45		NA	NA	NA	16.4	3000	7.68			501-HCL TUH Lead	4/40 ml 4/40 ml 1/500 ml	No sheen. Strong gasoline odor. Semi-clear.
	AS	27.05	(7.36)				16.4	3020	7.71	8	B				
							16.4	3020	7.70						
MW-3	02-21-90	9.18	(5.75)		NA	NA	NA	18.4	5700	8.24			TUH Lead	4/40 ml 1/500 ml	Semi-clear No odor
	AS	18.02	(17.26)				18.4	5500	8.09	19	B				
							18.3	5500	8.06						
MW-4	02-21-90 1210	8.63 4"	(4.57)		NA	NA	NA	17.7	9000	8.63			TUH Lead	4/40 ml 1/500 ml	Has odor Semi clear
	AS	15.66	(13.71)				18.2	9000	8.69	14	B				
							18.3	9000	8.73						
MW-5	02-21-90	6.91	(7.08)		NA	NA	NA	13.8	2000	7.60			TUH Lead	4/40 ml 1/500 ml	No odor Clear
	AS	17.80	(21.24)				13.6	1920	7.60	14	B				
							13.4	1900	7.62						

* WATER LEVEL FROM GROUND SURFACE

**WW-WELL WIZARD; G-GRUNDFOS PUMP; B-BAILER

APPENDIX B
ANALYTICAL SAMPLING RESULTS
AND CHAIN OF CUSTODY



ENGINEERING-SCIENCE, INC.

600 BANCROFT WAY
BERKELEY, CA 94710
Tel: (415) 548-7970 Fax: (415) 548-7635

Report Date: 03/07/90

Work Order No.:1672

Client: Richard Makdisi
ES Berkeley/P.O. Partners
1650 65th Street/Emeryville
600 Bancroft Way
Berkeley, CA. 94710

Date of Sample Receipt: 02/21/90

Your samples identified as:

WELL MW-2
WELL MW-4
WELL MW-3
WELL MW-5

were analyzed for lead according to EPA Method 7421 and gasoline and BTEX according to modified EPA Method 8015

Finally, your sample identified as:

WELL MW-2
was analyzed for volatile halogenated organics according to EPA Method 601.

The analytical reports for the samples listed above are attached.

ES-ENGINEERING SCIENCE, INC.

600 Bancroft Way
Berkeley, CA 94710

GC ANALYTICAL REPORT
GASOLINE by MOD 8015(LUFT)
BTEX by 8020

Work Order NO.: 1672

Matrix: WATER

Client ID: WELL MW-2

Unit: UG/L

Laboratory ID: 1672-01

Date Collected: 02/21/90

Date Analyzed: 02/28/90

Dilution Factor: GAS=25, BTEX=250

Compound	Result	Reporting Limit
Benzene	7800	500
Ethyl Benzene	1600	500
Toluene	5600	500
Xylenes (total)	8400	500
Gasoline	54000	12500

ND-Not Detected
NA-Not Applicable

ANALYST: *molwiczewski*
03/02/90

GROUP LEADER:

EF
3/5/90

ES-ENGINEERING SCIENCE, INC.

600 Bancroft Way
Berkeley, CA 94710

GC ANALYTICAL REPORT
GASOLINE by MOD 8015(LUFT)
BTEX by 8020

Work Order NO.: 1672

Matrix:WATER

Client ID: WELL MW-3

Unit:UG/L

Laboratory ID: 1672-03

Date Collected: 02/21/90

Date Analyzed:02/27/90

Dilution Factor: 1

Compound	Result	Reporting Limit
Benzene	2.5	2.0
Ethyl Benzene	ND	2.0
Toluene	ND	2.0
Xylenes (total)	ND	2.0
Gasoline	ND	500

ND-Not Detected
NA-Not Applicable

ANALYST: *mdurisienski*
03/02/90

GROUP LEADER: *JF*

3/5/90

ES-ENGINEERING SCIENCE, INC.

600 Bancroft Way
Berkeley, CA 94710

GC ANALYTICAL REPORT
GASOLINE by MOD 8015(LUFT)
BTEX by 8020

Work Order NO.: 1672

Matrix: WATER

Client ID: WELL MW-4

Unit: UG/L

Laboratory ID: 1672-02

Date Collected: 02/21/90

Date Analyzed: 02/27/90

Dilution Factor: 1

Compound	Result	Reporting Limit
Benzene	ND	2.0
Ethyl Benzene	ND	2.0
Toluene	ND	2.0
Xylenes (total)	ND	2.0
Gasoline	ND	500

ND-Not Detected
NA-Not Applicable

ANALYST: *ndw/mic/ks*
03/02/90

GROUP LEADER:

DF
3/5/90

ES-ENGINEERING SCIENCE, INC.

600 Bancroft Way
Berkeley, CA 94710

GC ANALYTICAL REPORT
GASOLINE by MOD 8015(LUFT)
BTEX by 8020

Work Order NO.: 1672

Matrix: WATER

Client ID: WELL MW-5

Unit: UG/L

Laboratory ID: 1672-04

Date Collected: 02/21/90

Date Analyzed: 03/05/90

Dilution Factor: GAS=1, BTXE=10

Compound	Result	Reporting Limit
Benzene	200	20.0
Ethyl Benzene	ND	20.0
Toluene	ND	20.0
Xylenes (total)	ND	20.0
Gasoline	ND	500

ND-Not Detected
NA-Not Applicable

ANALYST:

YW
3/6/90

GROUP LEADER:

JF
3/6/90

GC ANALYTICAL REPORT
Analytical Method
601 Volatile Compounds

Work Order NO.:1672

% Moisture:NA

Client ID:MW-2

Matrix:Water

Laboratory ID:1672-01

Unit:ug/L

Date Collected:2/21/90

Date Analyzed:3/1/90
Date Confirmed:NA

Dilution Factor: 1

Compound	Result	Reporting Limit
----------	--------	-----------------

BROMODICHLOROMETHANE	ND	1
BROMOFORM	ND	2
BROMOMETHANE	ND	11.8
CARBON TETRACHLORIDE	ND	1.2
CHLOROBENZENE	ND	2.5
CHLOROETHANE	ND	5.2
2CHLOROETHYLVINYLETHER	ND	1.3
CHLOROFORM	ND	0.5
CHLOROMETHANE	ND	0.8
DIBROMOCHLOROMETHANE	ND	0.9
12 DICHLOROBENZENE	ND	1.5
13 DICHLOROBENZENE	ND	3.2
14 DICHLOROBENZENE	ND	2.4
DICHLORODIFLUOROMETHANE	ND	18.1
11 DICHLOROETHANE	ND	0.7
12 DICHLOROETHANE	32	0.3
11 DICHLOROETHENE	ND	1.3
t-12 DICHLOROETHENE	ND	1
12 DICHLOROPROPANE	ND	0.4
c-13 DICHLOROPROPENE	ND	3.4
t-13 DICHLOROPROPENE	ND	2
METHYLENE CHLORIDE	ND	2.5
1122 TETRACHLOROETHANE	ND	0.3
TETRACHLOROETHENE	ND	0.3
111 TRICHLOROETHANE	ND	0.3
112 TRICHLOROETHANE	ND	0.2
TRICHLOROETHENE	ND	1.2
TRICHLOROFLUOROMETHANE	ND	5
VINYL CHLORIDE	ND	1.8

ND-Not Detected
NA-Not ApplicableANALYST: *Jmf*GROUP LEADER: *SF*
3/5/90

ES-ENGINEERING SCIENCE, INC.

600 Bancroft Way
Berkeley, CA 94710

INORGANIC ANALYTICAL REPORT

Work Order No.: 1672

% Moisture: NA

Client ID: WELL MW-2

Matrix: WATER

Laboratory ID: 1672.01A

Unit: mg/L

Parameter	Result	Reporting Limit	Analytical Method	Date Analyzed
LEAD	0.021	.005	GF-AA	3/7/90

NA- Not Applicable
ND- Not Detected

ANALYST:

J. Michael

GROUP LEADER:

Michael

INORG 1

ES-ENGINEERING SCIENCE, INC.

600 Bancroft Way
Berkeley, CA 94710

INORGANIC ANALYTICAL REPORT

Work Order No.: 1672

% Moisture: NA

Client ID: WELL MW-3

Matrix: WATER

Laboratory ID: 1672.03A

Unit: mg/L

Parameter	Result	Reporting Limit	Analytical Method	Date Analyzed
LEAD	.011	.005	GF-AA	3/7/90

NA- Not Applicable
ND- Not Detected

ANALYST:

J. Meheat

GROUP LEADER:

William J. ...

INORG 1

ES-ENGINEERING SCIENCE, INC.

600 Bancroft Way
Berkeley, CA 94710

INORGANIC ANALYTICAL REPORT

Work Order No.: 1672

% Moisture: NA

Client ID: WELL MW-4

Matrix: WATER

Laboratory ID: 1672.02A

Unit: mg/L

Parameter	Result	Reporting Limit	Analytical Method	Date Analyzed
LEAD	.006	.005	GF-AA	3/7/90

NA- Not Applicable
ND- Not Detected

ANALYST:

J. Michael

GROUP LEADER:

William J. King

INORG 1

ES-ENGINEERING SCIENCE, INC.

600 Bancroft Way
Berkeley, CA 94710

INORGANIC ANALYTICAL REPORT

Work Order No.: 1672

% Moisture: NA

Client ID: WELL MW-5

Matrix: WATER

Laboratory ID: 1672.04A

Unit: mg/L

Parameter	Result	Reporting Limit	Analytical Method	Date Analyzed
LEAD	.012	.005	GF-AA	3/7/90

NA- Not Applicable
ND- Not Detected

ANALYST:

J. Michael

GROUP LEADER:

William D. King

INORG 1

