

QUARTERLY MONITORING WELL
SAMPLING AND ANALYSIS

FOR THE

U.S. COAST GUARD SUPPORT CENTER
EXCHANGE CENTER LOCATION
COAST GUARD ISLAND
ALAMEDA, CALIFORNIA

PREPARED FOR

U.S COAST GUARD SUPPORT CENTER
CIVIL ENGINEERING UNIT
2000 EMBARCADERO, SUITE 200
OAKLAND, CALIFORNIA 94606-5337



Professional Service Industries, Inc.

December 16, 1993

U.S. Coast Guard Support Center
Civil Engineering Unit
2000 Embarcadero, Suite 200
Oakland, CA. 94606-5337

Attention: Mr. Louis Rivero

Subject: QUARTERLY MONITORING WELL SAMPLING & ANALYSIS

Project: Exchange Center Location
Coast Guard Island
Alameda, CA 94606
Project No. 582-34006

Dear Mr. Rivero:

Professional Service Industries, Inc. (PSI), San Francisco Field Services Division is pleased to present the results of groundwater sampling for the third quarter of 1993. A description of the sampling and laboratory analysis for the five monitoring wells located at the Exchange Center Location (see Figure 1, Vicinity Map, Figure 2, Site Plan and Figure 3, Monitoring Well Location Map) are contained herein.

Field activities were conducted on October 20, 1993. The purpose of this program is to monitor hydrocarbon concentrations in the groundwater below the site.

SAMPLING METHOD

Groundwater elevations were measured prior to and after development. The five monitoring wells were redeveloped in order to establish a flow of groundwater into the wells and to remove any longstanding water. Well redevelopment was accomplished by means of a stainless steel bailer. Approximately 8 to 10 gallons of water (3 to 4 casing volumes) were removed from each well prior to sampling. The purged groundwater from the wells was contained in labelled 55-gallon drums and left on-site for future storage during additional sampling. After allowing the wells to recharge, groundwater samples were collected.

Prior to redevelopment and sampling from the wells, the bailer was cleaned using trisodium phosphate solution and triple-rinsed with potable water. Water samples were drained from the bailer into certified clean, 40 ml vials, with care being taken to eliminate headspace. The vials were labelled and placed into cold storage until delivery to a state certified laboratory for analysis. Additionally, hydrochloric acid was used to preserve samples. Proper chain-of-custody procedures were observed. Chain-of-custody is included with the attached analytical results.

OBSERVATIONS

No odor was evident and color was clear in each of the wells.

Note: See Appendix B Table I, Groundwater Elevation Data.

LABORATORY ANALYSES

The groundwater samples were submitted to Sequoia Analytical of Concord, California, Laboratory Certificate #1271, and analyzed for Aromatic Volatile Organics by EPA Method 8020 and Total Petroleum Hydrocarbons for Gasoline (TPHG), Method 8015, using gas chromatography with photoionization detection. The analytical results are summarized below. The complete laboratory report, including analytical results, QA/QC data, and chain-of-custody is attached.

SUMMARY OF ANALYTICAL RESULTS
THIRD QUARTER GROUNDWATER MONITORING (1993) *

<u>Well Number</u>	<u>Date of Sample</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethylbenzene</u>	<u>Xylenes</u>	<u>Purgeable Hydrocarbons</u>
MW-1EX	4/8/93	N.D.	N.D.	N.D.	N.D.	N.D.
	7/8/93	N.D.	N.D.	N.D.	N.D.	N.D.
	10/20/93	N.D.	N.D.	N.D.	N.D.	N.D.
MW-2EX	4/8/93	N.D.	N.D.	N.D.	N.D.	N.D.
	7/8/93	N.D.	N.D.	N.D.	N.D.	N.D.
	10/20/93	N.D.	N.D.	N.D.	N.D.	N.D.
MW-3EX	4/8/93	30	N.D.	N.D.	N.D.	6,000
	7/8/93	N.D.	N.D.	N.D.	N.D.	N.D.
	10/20/93	N.D.	N.D.	N.D.	N.D.	N.D.
MW-4EX	4/8/93	N.D.	N.D.	N.D.	N.D.	N.D.
	7/8/93	8.8	N.D.	N.D.	N.D.	N.D.
	10/20/93	N.D.	N.D.	N.D.	N.D.	2,700
MW-5EX	4/8/93	14	0.63	N.D.	1.5	170
	7/8/93	3.7	4.6	N.D.	170	4,300
	10/20/93	N.D.	N.D.	N.D.	N.D.	N.D.

* All concentrations are in parts per billion (micrograms per liter, ug/l).
N.D. Analytes reported as not detected above the analytical reporting limit.

DISCUSSION OF RESULTS

Based on the analytical results for this sampling event, it appears that purgeable hydrocarbons, and benzene, toluene, ethylbenzene, and xylenes (BTEX) in the groundwater beneath the site are not above the analytical reporting limits in MW-1EX, MW-2EX, MW-3EX, and MW-5EX.

A decrease in benzene levels was detected in both MW-4EX and MW-5EX from the July 8, 1993 readings. Benzene levels in MW-4EX dropped from 8.8 ug/l to non-detectable and in MW-5EX from 3.7 ug/l to non-detectable.

A significant increase in purgeable hydrocarbons, however, was found in MW-4EX from a non-detectable reading in the July 8, 1993 sampling event to 2,700 ug/l in the recent October 20, 1993 sample.

Groundwater was determined to flow in a southwesterly direction with a hydraulic gradient of 0.0011 ft/ft. Due to its close proximity to the San Francisco Bay, groundwater may be influenced by tidal action. Groundwater monitoring will continue for the remaining quarter in January of 1994.

LIMITATIONS OF INVESTIGATION

Our investigation was performed using the degree of care and skill ordinarily exercised under similar circumstances by reputable environmental consultants practicing in this or similar localities. The samples collected and used for testing and observations made are believed representative of site conditions. No other warranty, expressed or implied, is made to conclusions and professional advice included in this report.

This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are brought to the attention of the proper authorities and/or regulating agencies.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties.

In addition, changes in applicable or appropriate standards may occur from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should be updated as changes may occur.

The opportunity to be of service is appreciated. Should you have any questions regarding the content of this report, or we can be of further assistance, please do not hesitate to contact us.

Sincerely,

Professional Service Industries, Inc.
San Francisco Field Services



Mark A. Casterson, REA
Professional Senior



Richard S. Dreessen, Jr., CEG
Branch Manager

APPENDICES

APPENDIX A
FIGURES

Professional Service Industries

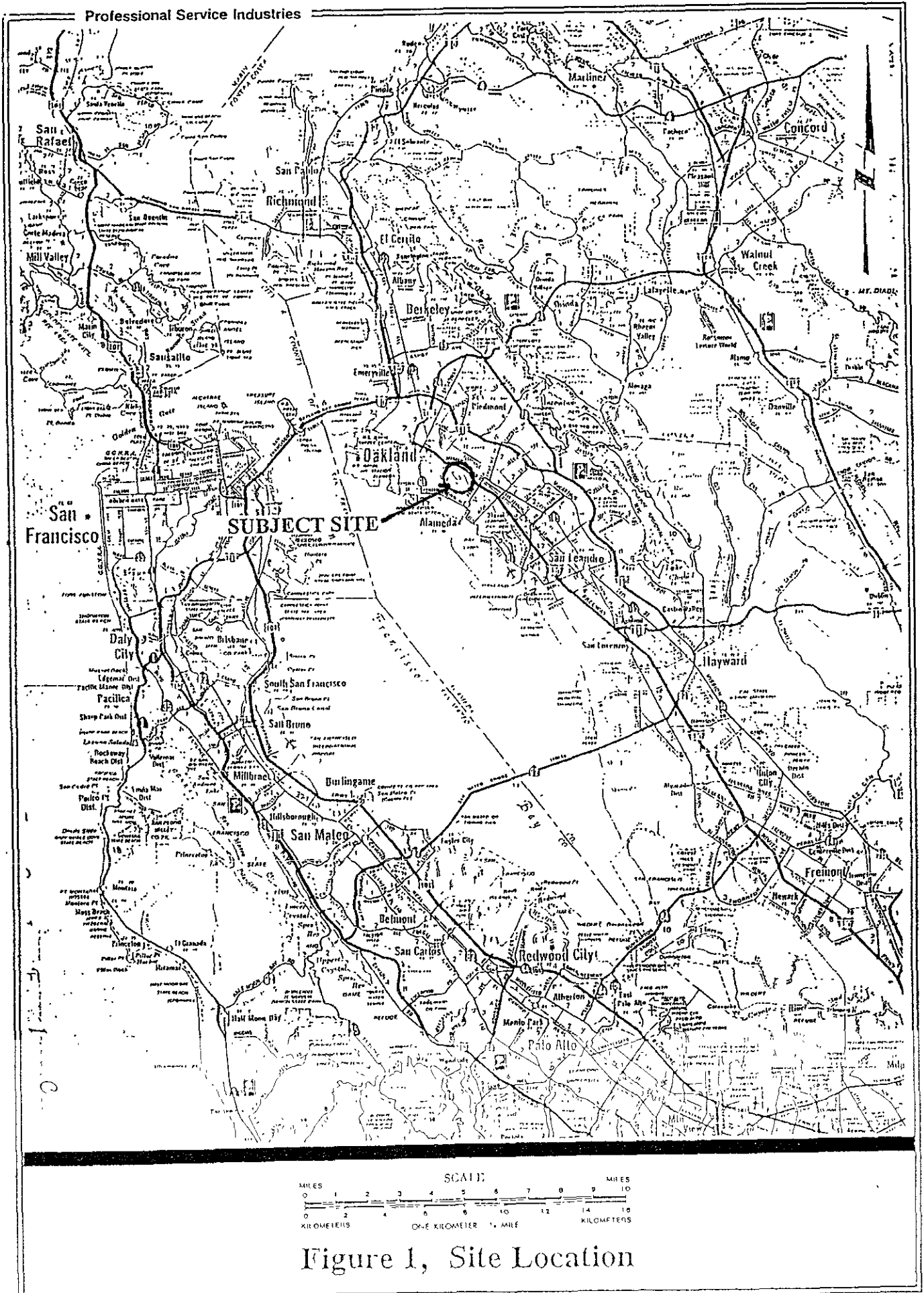


Figure 1, Site Location

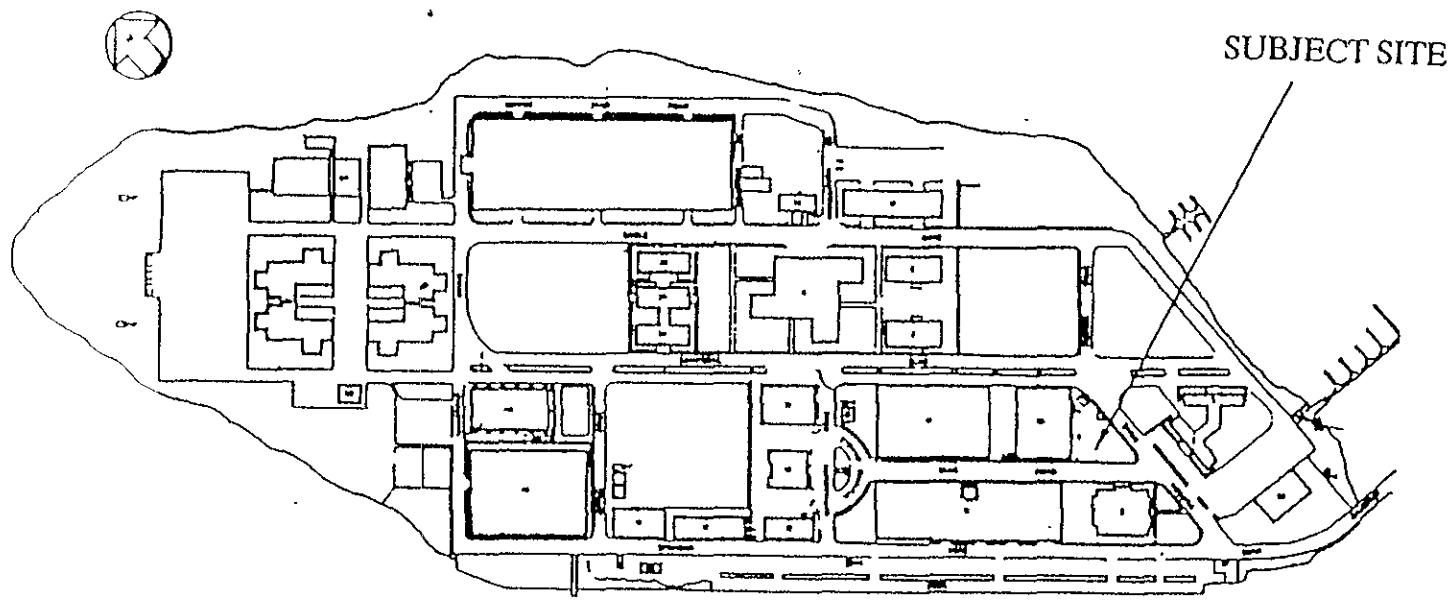
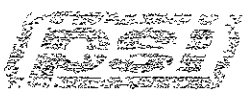
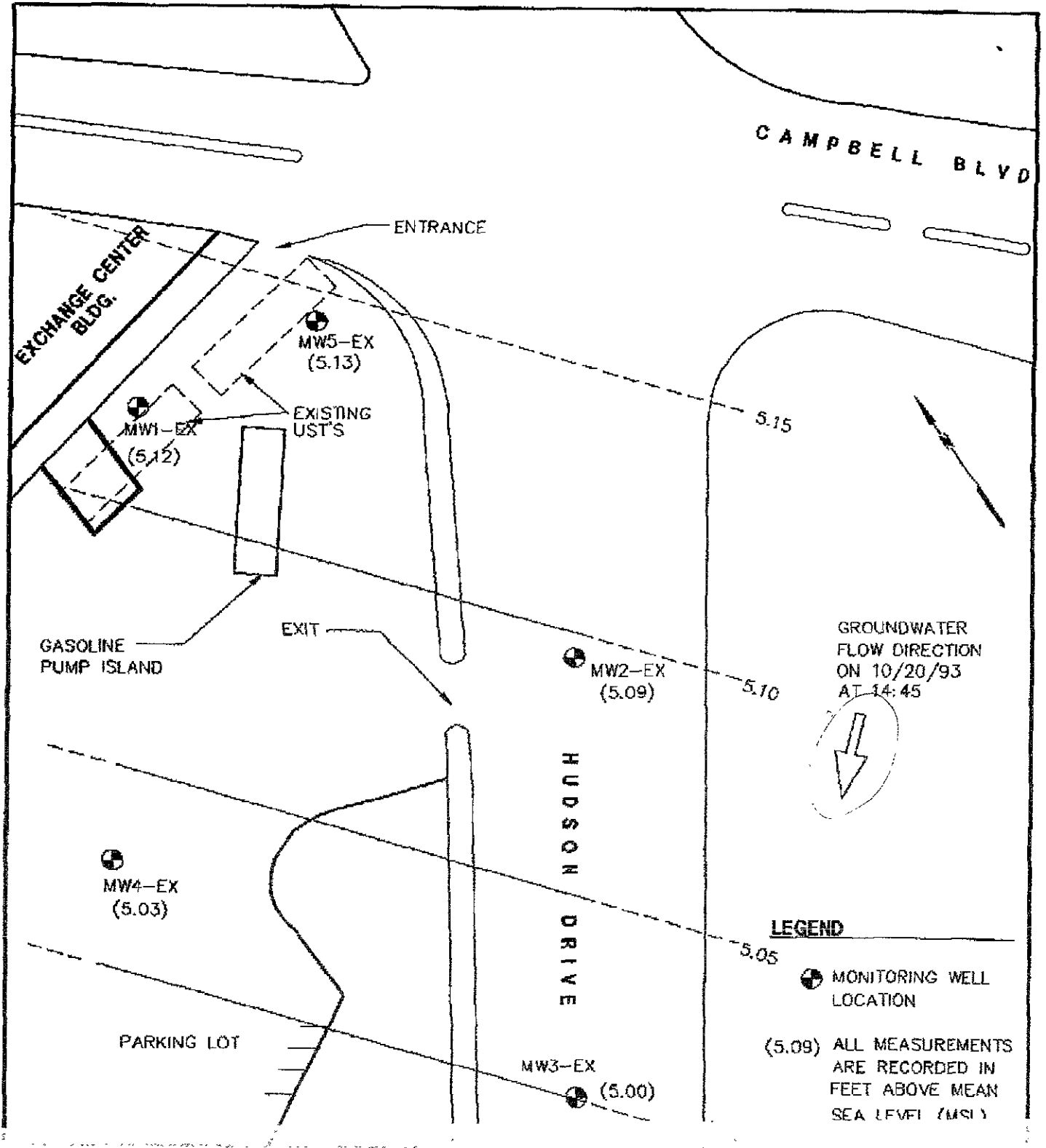
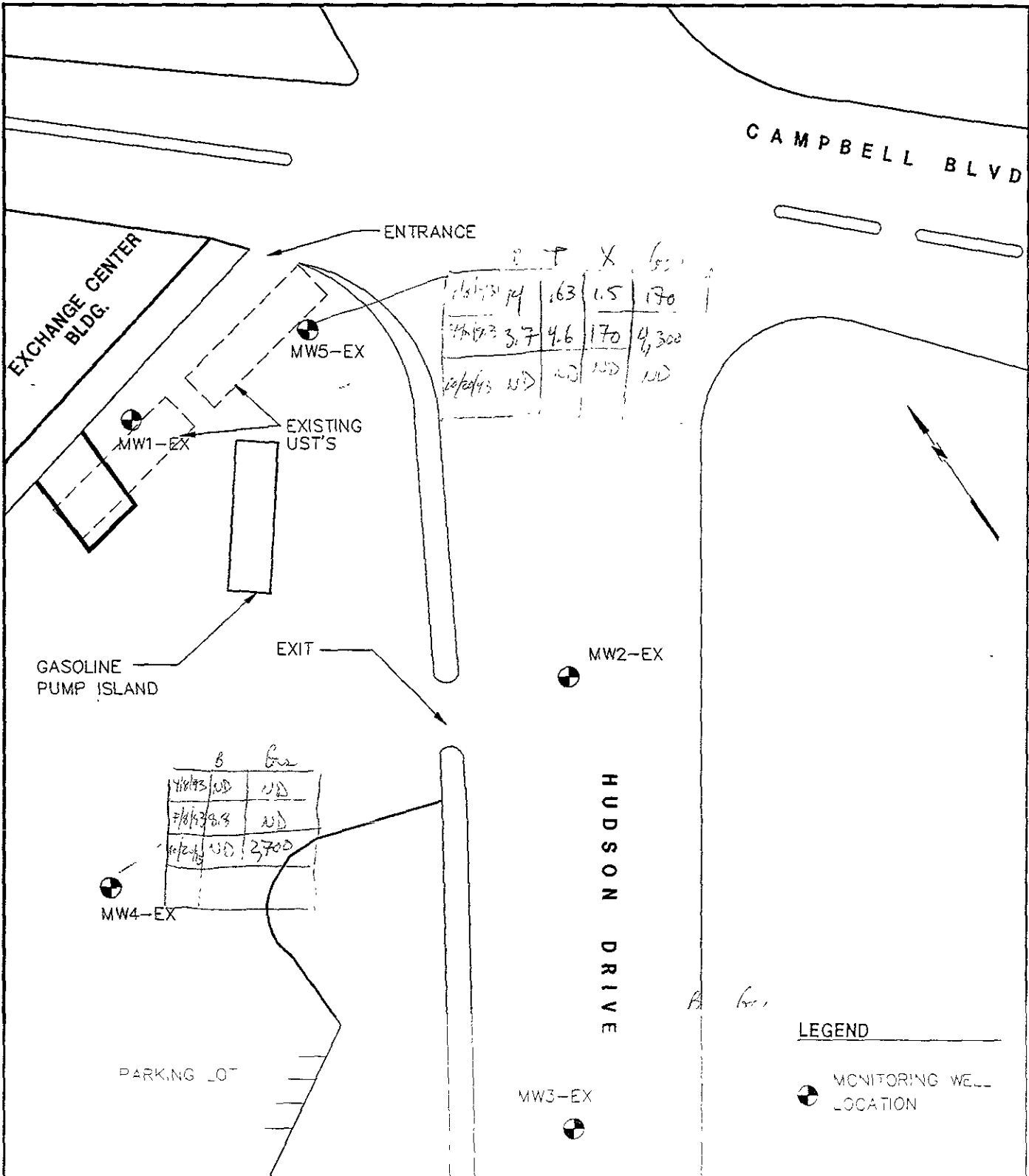


Figure 2, Site Plan



FROM ORIGINAL SERVICE ADDRESS FOR
 [Illegible text]

DATE	TIME	WELL NO.	DEPTH	WATER TYPE	WELL TYPE
10/20/93	14:45	MW1-EX	5.12	GROUNDWATER	(MONITOR) M&D
10/20/93	14:45	MW2-EX	5.09	GROUNDWATER	(MONITOR) M&D
10/20/93	14:45	MW3-EX	5.00	GROUNDWATER	(MONITOR) M&D
10/20/93	14:45	MW4-EX	5.03	GROUNDWATER	(MONITOR) M&D
10/20/93	14:45	MW5-EX	5.13	GROUNDWATER	(MONITOR) M&D



	P	T	X	65'
1/31/93	1.4	1.63	1.5	170
7/1/93	3.7	4.6	170	4,300
10/20/93	ND	ND	ND	ND

	S	65'
7/1/93	ND	ND
7/8/93	ND	ND
10/20/93	ND	2700

LEGEND

● MONITORING WELL LOCATION

DWG 34006-3A



PROFESSIONAL SERVICE INDUSTRIES, INC.
 3730 MT DIABLO BLVD, SUITE 345 LAFAYETTE, CA 94549
 (510) 284-3070

PROJECT NAME:	U.S. COAST GUARD ALAMEDA, CA	DATE:	12/6/93
TITLE:	MONITORING WELL LOCATION MAP	DWG NO.:	34006-3B
FIGURE NO.:	3	PROJ NO.:	582-34006
		DRAWN BY:	NIMAN
		APP'D BY:	K. OLIVER
		SCALE:	NOT TO SCALE

APPENDIX B
GROUNDWATER ELEVATION DATA

TABLE I
GROUNDWATER ELEVATION DATA*

<u>Well Number</u>	<u>Surface Casing Elevations</u>	<u>Date/Time of Measurement</u>	<u>Depth to Water Meas. in ft.</u>	<u>Water Level Elev. (MSL)</u>
MW-1EX	13.72	4/5/93/15:05	7.95	5.77
		7/8/93/11:45	8.20	5.52
		10/20/93/14:25	8.60	5.12
MW-2EX	13.74	4/5/93/16:40	8.00	5.74
		7/8/93/11:25	8.20	5.54
		10/20/93/14:31	8.65	5.09
MW-3EX	13.50	4/8/93/09:00	8.00	5.50
		7/8/93/11:05	8.10	5.40
		10/20/93/14:33	8.50	5.00
MW-4EX	13.38	4/8/93/10:50	7.95	5.43
		7/8/93/10:50	8.00	5.38
		10/20/93/14:36	8.35	5.03
MW-5EX	13.98	4/8/93/12:36	8.00	5.98
		7/8/93/10:30	8.55	5.43
		10/20/93/14:44	8.85	5.13

* MSL, Mean Sea Level

APPENDIX C
LABORATORY RESULTS AND
CHAIN OF CUSTODY



SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Professional Service Industries
3730 Mt. Diablo Blvd., Ste 345
Lafayette, CA 94549
Attention: Kevin Oliver

Client Project ID: US Coast Guard
Sample Matrix: Water
Analysis Method: EPA 5030/8015/8020
First Sample #: 310-1136

Sampled: Oct 20, 1993
Received: Oct 21, 1993
Reported: Nov 1, 1993

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 310-1137 MW1-EX	Sample I.D. 310-1138 MW2-EX	Sample I.D. 310-1139 MW3-EX	Sample I.D. 310-1140 MW4-EX	Sample I.D. 310-1141 MW5-EX
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	2,700	N.D.
Benzene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.5	N.D.	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--	Discrete Peak	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	40	1.0
Date Analyzed:	10/25/93	10/25/93	10/25/93	10/27/93	10/25/93
Instrument Identification:	HP-5	HP-5	HP-5	HP-4	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	124	98	101	103	96

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard
Analytes reported as N.D. were not detected above the stated reporting limit

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager



SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Professional Service Industries
3730 Mt. Diablo Blvd., Ste 345
Lafayette, CA 94549
Attention: Kevin Oliver

Client Project ID: US Coast Guard
Matrix: Water

QC Sample Group: 3101136-41

Reported: Nov 1, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl- Benzene	Xylenes
	Method:	EPA 8020	EPA 8020	EPA 8020
Analyst:	J.F.	J.F.	J.F.	J.F.
Conc. Spiked:	20	20	20	60
Units:	µg/L	µg/L	µg/L	µg/L
LCS Batch#:	1LCS102693	1LCS102693	1LCS102693	1LCS102693
Date Prepared:	10/26/93	10/26/93	10/26/93	10/26/93
Date Analyzed:	10/26/93	10/26/93	10/26/93	10/26/93
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
LCS % Recovery:	106	103	104	104
Control Limits:	70-130	70-130	70-130	70-130

MS/MSD	Benzene	Toluene	Ethyl- Benzene	Xylenes
Batch #:	3100980	3100980	3100980	3100980
Date Prepared:	10/26/93	10/26/93	10/26/93	10/26/93
Date Analyzed:	10/26/93	10/26/93	10/26/93	10/26/93
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Matrix Spike % Recovery:	110	110	110	110
Matrix Spike Duplicate % Recovery:	110	110	110	110
Relative % Difference:	0.0	0.0	0.0	0.0

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

Please Note
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS, MSD's are advisory only and are not used to accept or reject batch results.



680 Chesapeake Drive • Redwood City, CA 94063 • (415) 364-9600 FAX (415) 364-9233
 819 West Striker Ave. • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 921-0100
 1900 Bates Ave., Suite LM • Concord, CA 94520 • (510) 686-9600 FAX (510) 686-9689

Company Name: <u>PROFESSIONAL SERVICE INDUSTRIES</u>		Project Name: <u>US COAST GUARD</u>	
Address: <u>3730 MT. DIABLO BLVD., STE 345</u>		Billing Address (if different):	
City: <u>LAFAYETTE</u>	State: <u>CA</u>	Zip Code: <u>94534</u>	
Telephone: <u>(510) 284-3070</u>		FAX #: <u>284-3151</u>	
Report To: <u>KEVIN OLIVITA</u>		Sampler: <u>MARK CASTROSON</u>	
		QC Data: <input checked="" type="checkbox"/> Level A (Standard) <input type="checkbox"/> Level B <input type="checkbox"/> Level C <input type="checkbox"/> Level D	

Turnaround 10 Working Days 3 Working Days 2 - 8 Hours
 Time: 7 Working Days 2 Working Days
 5 Working Days 24 Hours

Drinking Water
 Waste Water
 Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested										Comments					
1. MW1 - SP	10-20-93	L	2	VOA		X	X														3101136 AB
2. MW1 - Ex	↓	↓	↓	↓		X	X														1137
3. MW2 - Ex	↓	↓	↓	↓		X	X														1138
4. MW3 - Ex	10-20-93	↓	↓	↓		X	X														1139
5. MW4 - Ex	↓	↓	↓	↓		X	X														1140
6. MW5 - Ex	↓	↓	↓	↓		X	X														1141
7. Equipment Blank	10/20/93	L	2	VOA																	Hold as per mark castroson 10/22/93 1445
8.																					
9.																					
10.																					

Relinquished By: <u>[Signature]</u>	Date: <u>10/21/93</u>	Time: <u>5:20</u>	Received By: <u>Melissa Crews</u>	Date: <u>10/21/93</u>	Time: <u>3:40 pm</u>
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

Were Samples Received in Good Condition? Yes No Sampled in Ice Yes No Method of

Pink - Client

Yellow - Sequoia

White - Sequoia

APPENDIX D
GROUNDWATER SAMPLING DATA