

March 15, 1993
SCI 554.006

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Mr. Ronald W. Doll
Attorney at Law
c/o Mariner Square Associates
2236 Mariner Square
Alameda, California 94501

**Quarterly Groundwater Monitoring Report
3/3/93 Sampling Event
Mariner Warehouse
Alameda, California**

Dear Mr. Doll:

This letter presents quarterly groundwater monitoring results for the referenced site. Groundwater monitoring has been performed at the site as per Alameda County Health Care Services Agency's (ACHCSA) request letter dated June 10, 1992. The results of the previous quarterly sampling and analytical testing event were presented in a letter dated January 5, 1993.

The latest groundwater monitoring event consisted of (1) measuring groundwater levels, (2) purging five gallons of water from each of the wells, and (3) sampling each well with a pre-cleaned disposable bailer. The samples were retained in glass containers and preserved with hydrochloric acid. The containers were placed in ice filled coolers and remained cooled until delivery to the analytical laboratory. Chain-of-Custody records accompanied the samples to the laboratory.

Analytical testing was performed by Curtis and Tompkins, Ltd., a State of California Department of Health Services (DHS) certified laboratory for hazardous waste and water testing. The analytical tests included:

1. Total volatile hydrocarbons (TVH), EPA method 8015 mod/5030,
2. Benzene, toluene, xylene and ethylbenzene (BTXE), EPA method 8020/5030,
3. Total oil and grease (TOG), SMWW 17:5520B&F, and

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4. Total extractable hydrocarbons (TEH), EPA method 8015 mod/3510.

A summary of the current and previous analytical test results and groundwater elevation data are presented in Tables 1 and 2, respectively. Analytical test reports and Chain-of-Custody documents are attached.

Conclusions

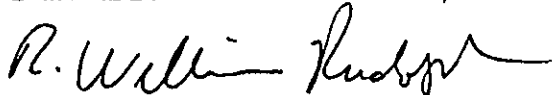
The groundwater level data indicate that the groundwater flow direction is toward the north at a gradient of approximately 1 percent.

The analytical test results indicate that during the latest sampling event TVH, BTEX, TOG and TEH were not encountered in the wells.

Groundwater monitoring will continue on a quarterly basis. If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.



R. William Rudolph
Geotechnical Engineer 741 (expires 12/31/92)

EBC:RWR:egh

2 copies submitted

Attachments: Table 1 - Contaminant Concentrations in Groundwater
Table 2 - Groundwater Elevations
Plate 1 - Site Plan
Analytical Test Reports
Chain-of-Custody Documents

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cc: Mr. Rich Hiett
Regional Water Quality Control Board
2101 Webster Street, Suite 500
Oakland, California 94612

✓ Ms. Juliet Shin
Alameda County Health Care Services Agency
80 Swan Way, Room 350
Oakland, California 94662-0901

Table 1.
Contaminant Concentrations in Groundwater

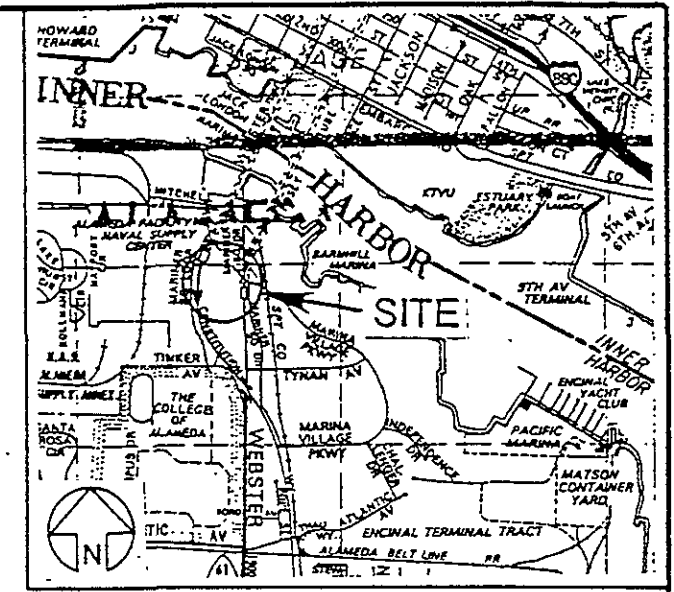
<u>Well</u>	<u>Date</u>	<u>TEH</u> <u>ug/l</u>	<u>TOG</u> <u>mg/l</u>	<u>TVH</u> <u>ug/l</u>	<u>Benzene</u> <u>ug/l</u>	<u>Toluene</u> <u>ug/l</u>	<u>Ethyl-</u> <u>Benzene</u> <u>ug/l</u>	<u>Total</u> <u>Xylenes</u> <u>ug/l</u>	<u>Polynuclear</u> <u>Aromatics</u> <u>ug/L</u>
MW-1	09/02/92	260	--	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(5)
	11/20/92	270	ND(5)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	--
	03/03/93	ND(50)	ND(5)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	--
MW-2	09/02/92	ND(50)	--	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(5)
	11/20/92	370	ND(7)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	--
	03/03/93	ND(50)	ND(5)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	--
MW-3	09/02/92	300	--	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(5)
	11/20/92	190	ND(5)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	--
	02/03/93	ND(50)	ND(5)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	--
MW-4	09/02/92	ND(50)	--	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(5)
	11/20/92	80	ND(5)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	--
	02/03/93	ND(50)	ND(5)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	--
MW-5	09/02/92	200	--	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(5)
	11/20/92	80	ND(5)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	--
	02/03/93	ND(50)	ND(5)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	--

TEH = total extractable hydrocarbons, EPA 8015/3550
 TOG = total oil and grease, SMWW 17:5520B&F
 TVH = total volatile hydrocarbons, EPA 8015 mod/5030
 mg/l = milligrams per liter or parts per billion (ppb)
 ug/l = micrograms per liter or parts per billion (ppb)
 ND = None detected above reporting limits indicated in parentheses

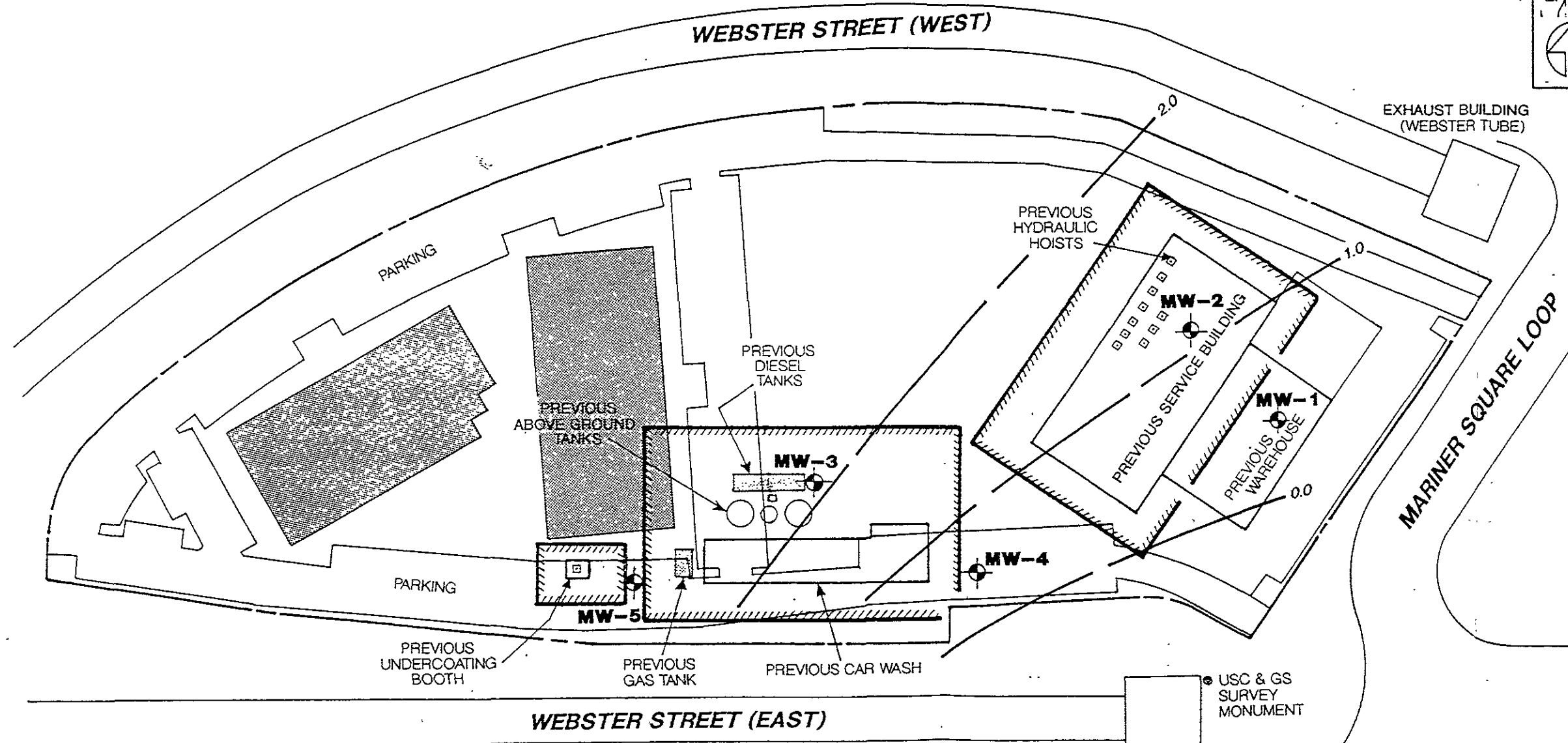
Table 2.
Groundwater Elevation Data

<u>Well</u>	<u>TOC Elev (ft)</u>	<u>Date</u>	<u>Groundwater Depth (ft)</u>	<u>Groundwater Elev (ft)</u>
MW-1	6.76	09/04/92	8.06	-1.30
		09/08/92	8.02	-1.26
		09/11/92	8.11	-1.35
		11/20/92	7.52	-0.76
		03/03/93	6.50	0.26
MW-2	6.32	09/04/92	8.72	-2.40
		09/08/92	6.33	-0.01
		09/11/92	8.65	-2.33
		11/20/92	6.37	-0.05
		03/03/93	5.12	1.20
MW-3	7.19	09/04/92	5.60	1.59
		09/08/92	5.45	1.74
		09/11/92	5.50	1.69
		11/20/92	5.40	1.79
		03/03/93	4.91	2.28
MW-4	7.27	09/04/92	7.86	-0.59
		09/08/92	7.84	-0.57
		09/11/92	7.91	-0.64
		11/20/92	7.56	-0.29
		03/03/93	7.21	0.06
MW-5	7.22	09/04/92	3.26	3.96
		09/08/92	5.10	2.12
		09/11/92	5.12	2.10
		11/20/92	5.13	2.09
		03/03/93	4.62	2.60

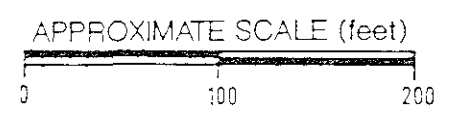
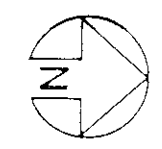
TOC = Top of Casing
Elevation with respect to Mean Sea Level



VICINITY MAP



- MONITORING WELL LOCATIONS
- PREVIOUS TANK LOCATION
- EXTENT OF SOIL REMEDIATION
- EXISTING BUILDINGS
- PROPERTY LINE
- GROUNDWATER CONTOUR ELEVATIONS (feet)



GROUNDWATER CONTOURS 3/3/93

Subsurface Consultants

MARINER WAREHOUSE - ALAMEDA, CA		PLATE
JOB NUMBER	DATE	APPROVED
554 006	3/3/93	<i>GC</i>
		1



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710; Phone (510) 486-0900

DATE RECEIVED: 03/03/93
DATE REPORTED: 03/12/93

LABORATORY NUMBER: 110226

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 554.006

LOCATION: MARINER WAREHOUSE

RESULTS: SEE ATTACHED

Teresa K. Morrison
Reviewed by

Keeley OB
Reviewed by

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LABORATORY NUMBER: 110226
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 554.006
 LOCATION: MARINER WAREHOUSE

DATE SAMPLED: 03/03/93
 DATE RECEIVED: 03/03/93
 DATE ANALYZED: 03/11/93
 DATE REPORTED: 03/12/93

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions
 TVH by California DOHS Method/LUFT Manual October 1989
 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
110226-1	MW-1	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
110226-2	MW-2	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
110226-3	MW-3	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
110226-4	MW-4	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
110226-5	MW-5	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not detected at or above reporting limit; Reporting limit
 indicated in parentheses.

QA/QC SUMMARY

RPD, %	6
RECOVERY, %	107

LABORATORY NUMBER: 110226
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 554.006
 LOCATION: MARINER WAREHOUSE

DATE SAMPLED: 03/03/93
 DATE RECEIVED: 03/03/93
 DATE EXTRACTED: 03/05/93
 DATE ANALYZED: 03/07-08/93
 DATE REPORTED: 03/12/93

Extractable Petroleum Hydrocarbons in Aqueous Solutions
 California DOHS Method
 LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT* (ug/L)
110226-1	MW-1	ND	ND	50
110226-2	MW-2	ND	ND	50
110226-3	MW-3	ND	ND	50
110226-4	MW-4	ND	ND	50
110226-5	MW-5	ND	ND	50

ND = Not detected at or above reporting limit.

* Reporting limit applies to all analytes.

QA/QC SUMMARY

RPD, %	1
RECOVERY, %	118



Client: Subsurface Consultants

Laboratory Login Number: 110226

Project Name: Mariner Warehouse

Report Date: 12 March 93

Project Number: 554.006

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

METHOD: SMWW 17:5520BF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
110226-001	MW-1	Water	03-MAR-93	03-MAR-93	08-MAR-93	ND	mg/L	5	TR	8513
110226-002	MW-2	Water	03-MAR-93	03-MAR-93	08-MAR-93	ND	mg/L	5	TR	8513
110226-003	MW-3	Water	03-MAR-93	03-MAR-93	08-MAR-93	ND	mg/L	5	TR	8513
110226-004	MW-4	Water	03-MAR-93	03-MAR-93	08-MAR-93	ND	mg/L	5	TR	8513
110226-005	MW-5	Water	03-MAR-93	03-MAR-93	08-MAR-93	ND	mg/L	5	TR	8513

ND = Not Detected at or above Reporting Limit (RL).



Q C B a t c h R e p o r t

Client: Subsurface Consultants
Project Name: Mariner Warehouse
Project Number: 554.006

Laboratory Login Number: 110226
Report Date: 12 March 93

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

QC Batch Number: 8513

Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
BLANK	ND	5	mg/L	SMWW 17:5520BF	08-MAR-93

Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	87%	SMWW 17:5520BF	08-MAR-93
BSD	88%	SMWW 17:5520BF	08-MAR-93

		Control Limits
Average Spike Recovery	88%	80% - 120%
Relative Percent Difference	1.2%	< 20%

CHAIN OF CUSTODY FORM

PROJECT NAME: MARINER WAREHOUSE
 JOB NUMBER: SCI 554.006 LAB: CURTIS & TOMPKINS
 PROJECT CONTACT: R.W. RUDOLPH TURNAROUND: NORMAL
 SAMPLED BY: _____ REQUESTED BY: E. CHANG

ANALYSIS REQUESTED						
TVH	BTEX	TEL	ORG			

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX				CONTAINERS				METHOD PRESERVED					SAMPLING DATE				NOTES	TVH	BTEX	TEL	ORG		
		WATER	SOIL	WASTE	AIR	VOA	LITER	PINT	TUBE	HCL	H2SO4	HNO3	ICE	NONE	MONTH	DAY	YEAR	TIME							
110226	-1	MW-1					4	2							03	03	93	1350							
	-2	MW-2					4	2							03	03	93	1430							
	-3	MW-3					4	2							03	03	93	1230							
	-4	MW-4					4	2							03	03	93	1530							
	-5	MW-5					4	2							03	03	93	1615							

COMMENTS & NOTES:

CHAIN OF CUSTODY RECORD			
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
<i>E. Chang</i>	3/3/93 17:00		
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
		<i>Teresa F. Moran</i>	3/3/93 17:00

Subsurface Consultants, Inc.
 171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607
 (510) 268-0461 • FAX: 510-268-0137

CHAIN OF CUSTODY FORM

PAGE 1 OF 1

PROJECT NAME: MARINER WAREHOUSE
 JOB NUMBER: SCI 55A.006 LAB: CURTIS & TOMPKINS
 PROJECT CONTACT: E.W. RUDOLPH TURNAROUND: NORMAL
 SAMPLED BY: _____ REQUESTED BY: E. CHANG

ANALYSIS REQUESTED			

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX				CONTAINERS				METHOD PRESERVED					SAMPLING DATE				NOTES	TVH/BTEX	TSH	DTG						
		WATER	SOIL	WASTE	AIR	VOA	LITER	PINT	TUBE	HCL	H2SO4	HNO3	ICE	NONE	MONTH	DAY	YEAR	TIME										
	MW-1	X				4	2			X				X			03	03	93	13	50							
	MW-2	X				4	2			X				X			03	03	93	14	30							
	MW-3	X				4	2			X				X			03	03	93	12	30							
	MW-4	X				4	2			X				X			03	03	93	15	30							
	MW-5	X				4	2			X				X			03	03	93	16	15							

COMMENTS & NOTES:

CHAIN OF CUSTODY RECORD			
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
<i>E. Chang</i>	3/3/93 17:00		
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
		<i>Teresa L. Morris</i>	3/3/93 17:00

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