CROSBY & OVERTON, INC.
8430 AMELIA STREET • OAKLAND, CA 94621
(800) 821-0424 • (415) 633-0336
FAX (415) 633-0759

June 19, 1991

Mr. Bill Ridle
RF & Associates
462 Wilson Ave.
Richmond, CA 94805

RE: Monitor Well Sampling.

Dear Mr. Ridle:

Crosby & Overton, Inc. is pleased to submit this letter report concerning the results of groundwater monitoring well sampling and analyses. On May 22, 1991, Crosby & Overton personnel re-sampled three groundwater monitoring wells (MW-1, MW-2, & MW-3) located at 5903 Christie Avenue in Emeryville, California (formerly Weatherford BMW). See attached site map and site plan for site and well locations.

BACKGROUND

Groundwater monitoring well MW-1 was installed on June 2, 1989, and subsequently sampled on June 2, 1989.(1)

Two of the three wells on this site (MW-2 and MW-3), were originally installed on September 27, 1989, and sampled September 27, 1989.(2) The most recent groundwater sampling from the three wells took place on May 22, 1991. The results of all sampling events are summarized in Table 1.

PROCEDURES

A minimum of three well volumes were pumped from each well, each well was permitted to recharge to ≥98% of original capacity and stabilize. Stabilization was determined by measuring the parameters of pH, temperature, and electrical conductivity. When two subsequent measurements of these three parameters were within 10% of each other, the well was regarded as stablized and was sampled. Copies of the groundwater monitoring well field sampling report are attached at the end of this report.

(1) *See* Crosby & Overton *report dated June 23, 1989.*
(2) *See* Crosby & Overton *report dated October 18, 1989.*

The samples were collected using a new, disposable, polyethylene bailers, with bottom siphon and nylon cord. One bailer was used for each well. Each bailer was properly disposed of, and therefore, never reused. Duplicate water samples were collected from each well and placed, by draining the bailer through the bottom siphon, into three clear 40 ml VOA vials and two amber 950 ml bottles. The samples were labeled, placed on Blue Ice® in an ice chest, and sent to Med-Tox Associates (a California State Certified hazardous materials testing laboratory) under Chain-of-Custody documentation. The samples were analyzed for total petroleum hydrocarbons as diesel plus benzene, toluene, xylenes, and ethylbenzene (TPHd + BTXE) [Method 3510 GCFID, EPA 8020]. The samples were also analyzed for total oil and grease (TOG) [Methods 5520 C,F]. Copies of all analyses and Chain-of-Custody documentation are attached at the end of this report.

ANALYTIC RESULTS

The analyses of the May 22, 1991 sampling yielded the following results.

MW-1 had non-detectable (ND) results for all analyses except for 0.6 parts per million (ppm) total oil and grease (TOG) by method 5520 C.

MW-2 yielded 1.6 ppm TOG (Method 5520 C analyzes for all forms of oil and grease including natural vegetal compounds) and 1.0 ppm hydrocarbon oil and grease (Method 5520 F indicates the quantity of hydrocarbon-based oil and grease compounds). All other compounds were at ND levels.

MW-3 yielded ND results for all analyses.

Petroleum hydrocarbons as diesel (TPHd), benzene, toluene, xylenes, and ethylbenzene compounds (BTXE) were not detected in any of the groundwater monitoring wells.

TABLE 1

DATE	SAMPLE	5520 B ppm	5520 C ppm	5520 F ppm	TPHd ppm	B ppb	T ppb	X ppb	E ppb
6/89	MW-1	ND	NA	NA	ND	ND	ND	ND	ND
9/89	MW-2	1.8	NA	NA	ND	ND	ND	ND	ND
9/89	MW-3	0.87	NA	NA	ND	ND	ND	ND	ND
5/91	MW-1	NA	0.6	ND	ND	ND	ND	ND	ND
5/91	MW-2	NA	1.6	1.0	ND	ND	ND	ND	ND
5/91	MW-3	NA	ND	ND	ND	ND	ND	ND	ND

5520 B = Total Oil and Grease (Gravimetric)
5520 C = Total Oil and Grease (IR)
5520 F = Total **Hydrocarbon** Oil and Grease
TPHd = Total Petroleum Hydrocarbons as **diesel**

ppm = parts per million (mg/L)
ppb = parts per billion (μg/L)
ND = not detected
NA = not analyzed by this method

REPORTAGE

Submission to the RWQCB and the Hayward Fire Department Hazardous Materials Unit should include a copy of this report (in its entirety) and a cover letter from the property owner.

The following addresses have been listed here for your convenience:

San Francisco Bay Regional Water Quality Control Board
1800 Harrison Street, Suite 700
Oakland, CA 94621
Attn: **Mr. Scott Hugenburger**

Alameda County Health Care Services Agency
80 Swan Way, Rm. 200
Oakland, CA 94621
Attn: **Mr. Dennis Byrne**

If you should have any questions please contact us at your convenience.

Sincerely,

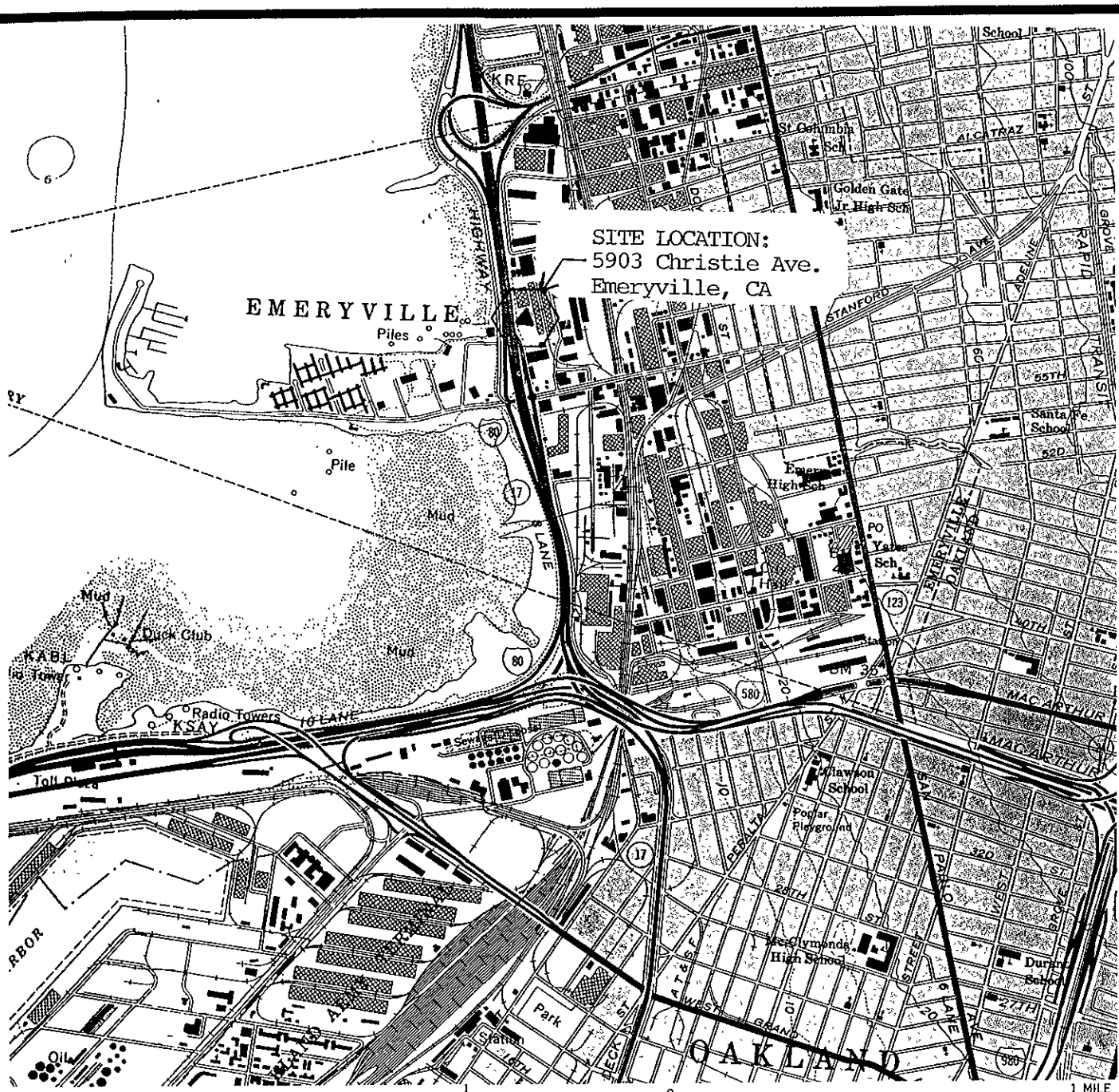
Matthew Walraven
Staff Geologist

James A. Jacobs
CA Registered Geologist #4815

REGISTERED GEOLOGIST
JAMES A. JACOBS
NO. 4815
STATE OF CALIFORNIA

Dave Sadoff
Project Environmental Geologist

MW/mhw



OAKLAND WEST, CALIF.
N3745—W12215/7.5

1959
PHOTOREVISED 1980
DMA 1559 IV SE—SERIES V895

CROSBY & OVERTON, INC.
8430 AMELIA STREET • OAKLAND, CA 94621

(800) 821-0424 • (415) 633-0336
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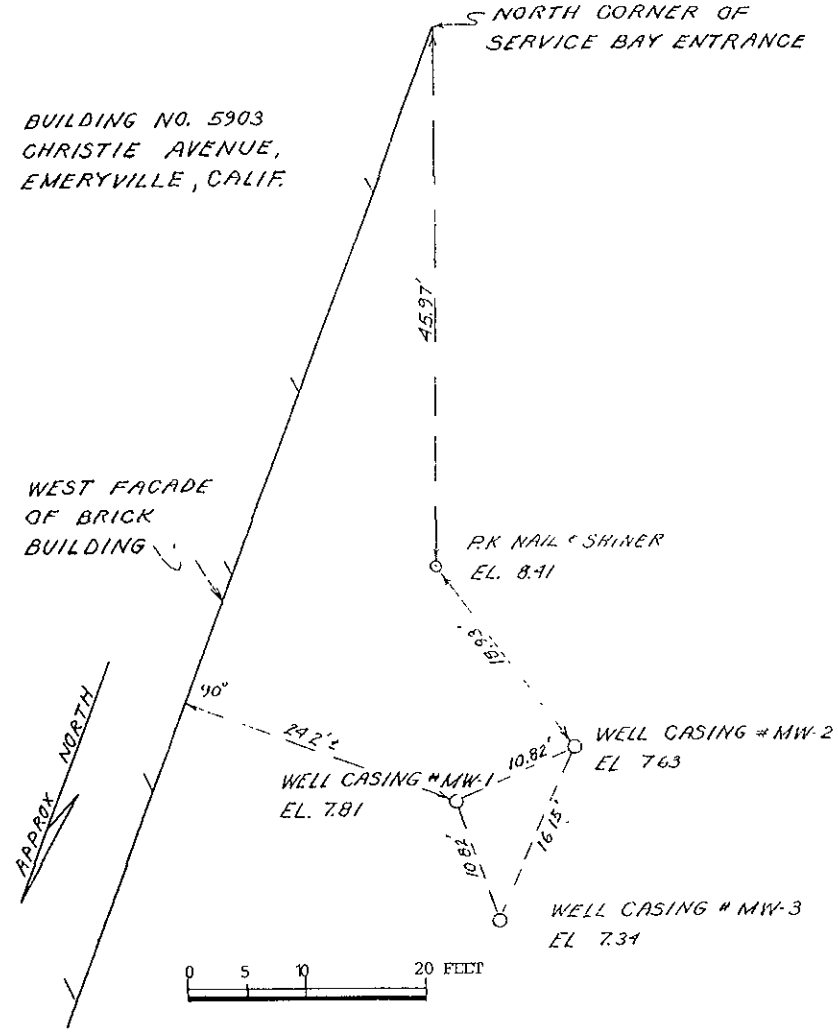
FIGURE	SITE MAP
JOB NUMBER:	8759-S
DATE:	6-21-91
DRAWN BY:	MHW
After USGS 15' quadrangle 1959.	



ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM (MEAN SEA LEVEL)

LICENSED LAND SURVEYOR
JEFFREY D. BLACK
5252
STATE OF CALIFORNIA

SEPT. 29, 1989

LICENSE EXPIRES 12-31-91

PLAT OF SURVEY

LOCATION OF WELL CASINGS
5903 CHRISTIE AVENUE
EMERYVILLE CALIF.
SEPT. 1989

MORAN ENGINEERING
BERKELEY, CALIF.

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FIGURE	SITE PLAN
JOB NUMBER:	8759-S
DATE:	6-21-91
DRAWN BY:	MHW

ANALYTICAL SERVICES

MED-TOX ASSOCIATES INC

CERTIFICATE OF ANALYSIS

RECEIVED JUN 3 1 Ans'd.....

CROSBY & OVERTON, INC.
8430 AMELIA STREET
OAKLAND, CA 94621
ATTN: DAVE SADOFF

RECEIVED JUN 07 1991 Ans'd.....

CLIENT PROJ. ID: 8759-S
PURCHASE ORDER NO: 11483

REPORT DATE: 06/05/91
DATE SAMPLED: 05/22/91
DATE RECEIVED: 05/22/91
MED-TOX JOB NO: 9105206

ANALYSIS OF: WATER SAMPLES

Sample Identification Client Id.	Lab No.	Oil & Grease (mg/L)	Hydrocarbons (mg/L)	Extractable Hydrocarbons as Diesel (mg/L)	Extractable Hydrocarbons as Oil (mg/L)
MW-1	01A	---	---	ND	3.0 *
MW-1	01B	0.6	ND	---	---
MW-2	02A	---	---	ND	3.5 *
MW-2	02B	1.6	1.0	---	---
MW-3	03A	---	---	ND	2.4 *
MW-3	03B	ND	ND	---	---
Detection Limit		0.5	0.5	0.05	0.1
Method		5520C	5520F	3510 GCFID	3510 GCFID
Instrument		IR	IR	C	C
Date Extracted:		05/30/91	05/30/91	05/30/91	05/30/91
Date Analyzed:		05/31/91	05/31/91	05/30/91	05/30/91

ND = Not Detected

* Sample contains earlier eluting hydrocarbons than motor oil but was quantitated using motor oil calibration.

Andrew Bradeen, Manager
Organic Laboratory

Results FAXed 06/03/91

CROSBY & OVERTON, INC.

CLIENT PROJ. ID: 8759-S
CLIENT ID: MW-1
DATE SAMPLED: 05/22/91
DATE RECEIVED: 05/22/91
REPORT DATE: 06/05/91

MED-TOX LAB NO: 9105206-01C
MED-TOX JOB NO: 9105206

DATE ANALYZED: 05/24-28/91
INSTRUMENT: F

BTEX (WATER MATRIX)

METHOD: EPA 8020 (5030)

	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene	71-43-2	ND	0.3
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
Xylenes, Total	1330-20-7	ND	1

ND = Not Detected

CROSBY & OVERTON, INC.

CLIENT PROJ. ID: 8759-S
CLIENT ID: MW-2
DATE SAMPLED: 05/22/91
DATE RECEIVED: 05/22/91
REPORT DATE: 06/05/91

MED-TOX LAB NO: 9105206-02C
MED-TOX JOB NO: 9105206

DATE ANALYZED: 05/24-06/03/91
INSTRUMENT: F

BTEX (WATER MATRIX)

METHOD: EPA 8020 (5030)

	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene	71-43-2	ND	0.3
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
Xylenes, Total	1330-20-7	ND	1

ND = Not Detected

CROSBY & OVERTON, INC.

CLIENT PROJ. ID: 8759-S
CLIENT ID: MW-3
DATE SAMPLED: 05/22/91
DATE RECEIVED: 05/22/91
REPORT DATE: 06/05/91

MED-TOX LAB NO: 9105206-03C
MED-TOX JOB NO: 9105206

DATE ANALYZED: 05/24/91
INSTRUMENT: F

BTEX (WATER MATRIX)

METHOD: EPA 8020 (5030)

	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene	71-43-2	ND	0.3
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
Xylenes, Total	1330-20-7	ND	1

ND = Not Detected

MED-TOX ASSOCIATES, INC

QUALITY CONTROL DATA

CROSBY & OVERTON, INC.

CLIENT PROJ. ID: 8759-S

MED-TOX JOB NO: 9105206

DATE EXTRACTED: 05/30/91
DATE ANALYZED: 05/30/91
SAMPLE SPIKED: D.I. WATER

MED-TOX JOB NO: 9105206
CLIENT PROJ. ID: 8759-S
INSTRUMENT: IR

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

ANALYTE	MS Conc. (mg/L)	Sample Result (mg/L)	MS Result (mg/L)	MSD Result (mg/L)	Average Percent Recovery	RPD
Oil & Grease	7.13	ND	7.29	7.29	102.2	0.0

CURRENT QC LIMITS (Revised 03/14/91)

Analyte	Percent Recovery	RPD
Oil & Grease	(70-121)	7.1

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

DATE EXTRACTED: 05/30/91
DATE ANALYZED: 05/31/91
SAMPLE SPIKED: D.I. WATER

MED-TOX JOB NO: 9105206
CLIENT PROJ. ID: 8759-S
INSTRUMENT: C

MATRIX SPIKE RECOVERY SUMMARY
TPH EXTRACTABLE WATERS
METHOD 3510 GCFID
(WATER MATRIX; EXTRACTION METHOD)

ANALYTE	Spike Conc. (mg/L)	Sample Result (mg/L)	MS Result (mg/L)	MSD Result (mg/L)	Average Percent Recovery	RPD
Diesel	0.509	ND	0.442	0.394	82.1	11.5

CURRENT QC LIMITS (Revised 05/02/91)

Analyte	Percent Recovery	RPD
Diesel	(49.8-100.0)	30.1

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

DATE ANALYZED: 05/28/91
SAMPLE SPIKED: 9105206-01A
INSTRUMENT: F

MED-TOX JOB NO: 9105206

CLIENT PROJ. ID: 8759-S

MATRIX SPIKE RECOVERY SUMMARY
METHOD TPHBTW
5030 w/GCFID/8020

ANALYTE	Spike Conc. (ug/L)	Sample Result (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	Average Percent Recovery	RPD
Benzene	17.7	ND	17.0	16.2	93.8	4.8
Toluene	56.8	ND	50.8	49.3	88.1	3.0
Hydrocarbons as Gasoline	520	ND	493	472	92.8	4.4

CURRENT QC LIMITS (Revised 04/30/91)

Analyte	Percent Recovery	RPD
Benzene	(75.6-118.0)	12.6
Toluene	(78.2-116.8)	10.9
Gasoline	(66.3-114.0)	14.4

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

R-3,S-4

CHAIN OF CUSTODY RECORD

9105206

PROJ. NO.	PROJECT NAME	P.O. NO
875[illegible]	5903 CHRISTIE	11483

SAMPLERS: Signature

Send report attention to;

	STA NO	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO OF CONTAINERS	TPH-D +BTEX	5520 E/F	REMARKS
01A-E	MW-1	5/22/91	2:47		✓	MW-1	5	X	X	2 amber 3 voas
02A-E	MW-2	"	2:59		✓	MW-2	5	X	X	
03A-E	MW-3	"	3:11		✓	MW-3	5	X	X	

Relinquished by:Signature	Date/Time	Received by:Signature	Date/Time
	5/22/91 4:10	michelle eyrat	5-22-91 4:10
Relinquished by:Signature	Date/Time	Received by:Signature	Date/Time
michelle eyrat	5-22-91 1810		
Relinquished by:Signature	Date/Time	Received by:Signature	Date/Time
		Gina Gillespie	5/22/91 1810

REMARKS:

NORMAL TAT

Company Name
Address

CROSBY & OVERTON, INC.
8430 AMELIA STREET • OAKLAND, CA 94621
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WELL PRODUCTION LOG

TIME	t_0=	t_1=	t_2=	t_3=	t_4=	t_5=	t_6=	t_7=
DEPTH (feet)	4.71	4.99						
TEMPERATURE (°F)	67.8	68.1						
ELECTRIC COND.	2365 umoh	1645 umoh						
pH								
VOLUME PUMPED		18 gal.						
Δt	Δt_0= 0	Δt_1=	Δt_2=	Δt_3=	Δt_4=	Δt_5=	Δt_6=	Δt_7=
MISC.	MW-1	MW-1						

DATE: 5 / 22 / 91 BA # : 8758-S SURFACE ELEV.: _____

LOCATION: 5903 Christie Ave., Emeryville, CA

LOG BY : D. Sadoff NOTE: No floating product observed.

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WELL PRODUCTION LOG

TIME	t_0=	t_1=	t_2=	t_3=	t_4=	t_5=	t_6=	t_7=
DEPTH (feet)	4.39	4.56						
TEMPERATURE (°F)	67.2	67.8						
ELECTRIC COND.	2730 umoh	7620 umoh						
pH								
VOLUME PUMPED		18 gal.						
Δt	Δt_0= 0	Δt_1=	Δt_2=	Δt_3=	Δt_4=	Δt_5=	Δt_6=	Δt_7=
MISC.	MW-3	MW-3						

DATE: 5 / 22 / 91 **BA # :** 8759-S **SURFACE ELEV.:** _____

LOCATION: 5903 Christie Ave., Emeryville, CA

LOG BY : D. Sadoff NOTE: No floating product observed.