BASELINE

SUBSURFACE INVESTIGATION SECOND INTERIM DATA REPORT

APRIL 1995

SEABREEZE YACHT CENTER
Oakland, California

For:

Port of Oakland
Oakland, California

S9171-C0

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April 19, 1995

TRANSMITTAL MEMO

TO: Barney Chan
Hazardous Materials Specialist
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Case Services Agency
1131 Harbor Bay Pkwy, 2nd Floor
Alameda, CA 94502

ENCLOSURES: April 5, 1995, Baseline Subsurface Investigation Second Interim Data Report - Seabreeze Yacht Center

REQUESTED ACTION:

Enclosed please find a copy of the April 5, 1995, Baseline Subsurface Investigation Second Interim Data Report - Seabreeze Yacht Center. Please call me if you have any questions or comments.

ENVIRONMENTAL PROTECTION
95 APR 20 PM 2:40

Very truly yours,

FITZGERALD, ABBOTT & BEARDSLEY

By Jonathan W. Redding
Jonathan W. Redding

cc: Regional Water Quality Control Board
Deborah Ballati, Esq.
Michele Heffes, Esq.
Stephen M. Judson, Esq.

BASELINE

ENVIRONMENTAL CONSULTING

5 April 1995
S9171-C0

Ms. Michele Heffes
Port of Oakland
Legal Department
530 Water Street
Oakland, CA 94607

Subject: Subsurface Investigation, Seabreeze Yacht Center, March 1995

Dear Michele:

Enclosed please find this Second Interim Data Report for subsurface investigations at and adjacent to the Seabreeze Yacht Center site conducted in January through March 1995. Should you have any questions or comments, please do not hesitate to contact us at your convenience.

Sincerely,

Yane Nordhav
Principal
Reg. Geologist No. 4009

Julie Pettijohn, M.P.H.
Staff Scientist

YN:JP:tt
Enclosures

S9171-C0.rp3-4/4/95

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SUBSURFACE INVESTIGATION
SECOND INTERIM DATA REPORT

APRIL 1995

SEABREEZE YACHT CENTER
Oakland, California

For:

Port of Oakland
Oakland, California

S9171-C0

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SUBSURFACE INVESTIGATION
Seabreeze Yacht Center
April 1995

INTRODUCTION

Surface and subsurface investigations at and adjacent to the Seabreeze Yacht Center (the Site) (Figure 1) were conducted in January through March 1995. The additional investigations were conducted to further characterize the nature and extent of previously identified contaminants. The work was conducted at the request of the Port of Oakland Legal Department.

This Second Interim Data Report documents the field activities performed during January through March 1995, the field methods, and the analytical results obtained from soil and groundwater samples. The first Interim Data Report documented field activities from November to December 1994.

Soil samples were collected from seven shoreline locations, eight soil boring locations, and nine monitoring well locations. A total of 15 shoreline soil samples and 27 subsurface soil samples were collected and submitted for laboratory analysis. Four additional monitoring wells were installed on the Site in January 1995. A total of thirteen groundwater samples were collected from the five wells previously installed on the Site (MW-SB1 through MW-SB5) and the four newly installed wells (PW-1 through PW-4).

SHORELINE SOIL SAMPLING

BASELINE performed soil sampling along the shoreline around Clinton Basin on 18 and 19 January 1995 and on 6 March 1995. A total of 14 samples were collected from six locations around Clinton Basin (Figure 2). Soil samples were collected above the mean tide mark in Clinton Basin from the finest grained materials found at the surface and approximately three horizontal feet into the bank at each of the six locations. Mean tide at Clinton Basin was estimated to be approximately 3.4 feet above the mean low-low tide based on the mean tide level at the Golden Gate (3.13 feet above mean low-low tide) and adjusted for the Oakland Harbor.

Metal stakes were used to mark the time when the water at Clinton Basin would be approximately 3.4 feet above mean low-low tide. The stakes were likely to have been placed at a slightly higher water mark than the mean tide since there was a storm in the area on the day the stakes were placed. A pick ax was used to excavate a trench at each location to expose the materials to be sampled. The samples labeled as "surface" (Tables 1 through 4) were collected immediately behind surficial gravel or riprap/brick/concretepieces which were removed. "Surface" samples were collected between six-inches to one and one-half feet behind the undisturbed shoreline surface. The depth indicated in the sample names for the deeper samples was the distance into the bank behind the corresponding shallow samples (Tables 1 through 4). In some cases, the deeper sample had to be collected approximately one foot to either side of the shallower sample because of the presence of riprap/brick/concretepieces. A tape measure was used to measure the distance between the shallow and deep samples; however, the measurements should be considered only approximate because the continued excavation of the

observations made during sample collection in January 1995 are presented in Table 4, and the tide levels are shown in Table 5.

One end of the pre-cleaned stainless steel liners used to collect the samples was sealed with teflon tape and capped; the open end was then inserted into the exposed materials to collect the samples. The liners had to be maneuvered around gravel and riprap/brick/concrete pieces to collect the finer grained materials. Once the sampling tubes were filled, the open end was also sealed with teflon tape and plastic cap and both end caps were sealed with silicon tape. The tubes were labeled, placed in ziplock bags, and stored in a cooled container ice. A shallow soil sample, Shore 2x, was collected on 6 March 1995 about 20 feet landward of Shore-2 (Figure 2). That sample was collected by hand-digging to a depth of 1.5 to 2.0 feet bgs and driving a six-inch brass liner capped at one end into the undisturbed soil.

Shoreline soil samples collected on 18 and 19 January 1995 were shipped under chain-of-custody to Friedman and Bruya, Inc., in Seattle by overnight delivery. Soil sample Shore 2x was submitted to Curtis & Tompkins, Ltd., of Berkeley, under chain-of-custody on 6 March 1995. Analyses performed on the shoreline soil samples are provided in Table 1. Analytical results for shoreline sediment samples are summarized in Tables 2 and 3. Laboratory reports for the shoreline samples are included in Appendix A.

MONITORING WELL INSTALLATION AND GROUNDWATER SAMPLING

Four monitoring wells, PW-1 through PW-4, were installed under the direction of a SOMA senior hydrogeologist by Environmental Resource Group of Corte Madera and Bayland Drilling of Palo Alto, California on 30 and 31 January 1995 (Figure 3) (Appendix B contains the report on well installation).

Groundwater samples were collected from PW-1 through PW-4 on 2 February 1995 by SOMA. The sampling methodology for the February event is included in Appendix B. Groundwater samples were also collected by BASELINE from PW-1 through PW-4 and MW-SB1 through MW-SB5 on 3 and 6 March 1995. Groundwater samples were collected by BASELINE after the water level in each well was measured and the wells were checked for floating product using a dual-interface probe, calibrated to the nearest 0.01 foot. The wells were then purged of three to five well volumes using a double diaphragm pump with polyethylene tubing. New tubing was used for each well.

The wells were sampled after the pH, electrical conductivity, and temperature of the purged water had stabilized, and with the exception of MW-SB2, the water level in each well had reached at least 75 percent of the original level. The water level in MW-SB2, at the time of sampling, was approximately 55 percent of the water level before purging; the well was allowed to recharge for three days prior to sampling. Groundwater samples were collected using disposable, bottom-valve, plastic bailers, and transferred into glass containers; a new bailer was used for each well. The containers were labeled, placed in a cooled container, and submitted under chain-of-custody to a certified laboratory for analysis. Three laboratory-supplied sample bottles were filled for each sample; two 1-liter (unpreserved) and one 40 ml VOA bottle (unpreserved).

Samples collected by SOMA on 2 February 1995 were submitted to Curtis & Tompkins Ltd., and Friedman and Bruya of Seattle, Washington via overnight delivery. Samples collected by BASELINE on 3 and 6 March 1995 were submitted to Curtis & Tompkins, Ltd. All samples were submitted under chain-of-custody to the laboratory. Purged and decontamination water from all groundwater sampling activities were placed in labeled 55-gallon drums, and stored at the Site pending laboratory results. A complete drum inventory is provided in Appendix C.

Analyses performed on groundwater samples are presented in Table 6. A summary of analytical results for groundwater samples is provided in Table 7. Groundwater elevation for each well is presented in Table 8. Observations made during the March 1995 sampling event are presented in Table 9. Groundwater sampling forms for the February and March 1995 sampling events are the presented in Appendices D and E; laboratory reports for the two sampling events are included in Appendices F and G, respectively.

Tidal Study and Groundwater Flow

Following installation of the four groundwater monitoring wells, a tidal study was conducted to determine the extent of tidal influence at the Site. The results indicated limited tidally-influenced water level fluctuations at the Site. Appendix B includes data obtained during the water level measurements in wells PW-2, PW-3, and PW-4. The shallow groundwater flow directions at the Site were determined for 3 March 1995 based on water levels measured in each well. Figure 4 shows groundwater contours at the Site and groundwater flow directions. The groundwater moves eastward toward Clinton Basin.

SOIL SAMPLING

Nineteen soil samples were collected during the installation of four monitoring wells (PW-1 though PW-4) on 30 and 31 January 1995 by SOMA (Figure 3 and Appendix B). The soil samples were submitted under chain-of-custody to Curtis & Tompkins, Ltd., and Friedman and Bruya. Boring logs from the installation of monitoring wells PW1-PW4 are included in Appendix B.

Ten soil samples were also collected by BASELINE from eight soil borings (TP-1 to TP-4 and T-1 to T-4) on 6 March 1995 (Figure 4). The soil borings were completed by Clear Heart Drilling of Guerneville, California, under the supervision of a BASELINE geologist. The borings were completed using a four-inch hollow stem auger drill rig. All drilling and sampling equipment were decontaminated prior to mobilization to the Site and between each boring location. Each boring was backfilled to grade using a cement/bentonite grout. Drill cuttings were stored on-site in a sealed and labeled 55-gallon drum. Decontamination rinsate was also stored on-site in a labeled 55-gallon drum.

Soil samples were collected from each boring using a sampler (1.5-inch diameter) fitted with six-inch brass liners. The sampler was driven into the ground with a 140-pound hammer. The filled brass liners were removed from the sampler, capped with teflon and plastic caps, sealed with silicone tape, labeled, placed in a ziplock bag, and stored in a cooled container. Soil samples were collected from 3.0 to 3.5 feet below ground surface (bgs) in all borings; samples were also collected from 5.5 to 6.0 feet bgs at TP-2 and T-1. The sampling equipment was decontaminated using trisodium phosphate, water, and deionized water prior to each sampling event.

Samples collected by BASELINE on 6 March 1995 were submitted to Curtis & Tompkins. The boring logs from the March 1995 sampling are included in Appendix H.

Analyses performed on all soil samples collected in February and March 1995 are presented in Table 10. The analytical results for the soil samples are presented in Table 11 through 14 and the laboratory reports are included in Appendix I.

WELL SURVEY

The elevation of the ground surface and the top of casing for monitoring wells PW-1 through PW-4 were surveyed by Bates and Bailey, a licensed surveyor on 8 February 1995. Wells MW-SB1 through MW-SB5 were previously surveyed by Bates & Bailey. Table 8 contains groundwater elevation for each of the nine monitoring wells. The surveyor's report is included in Appendix B.

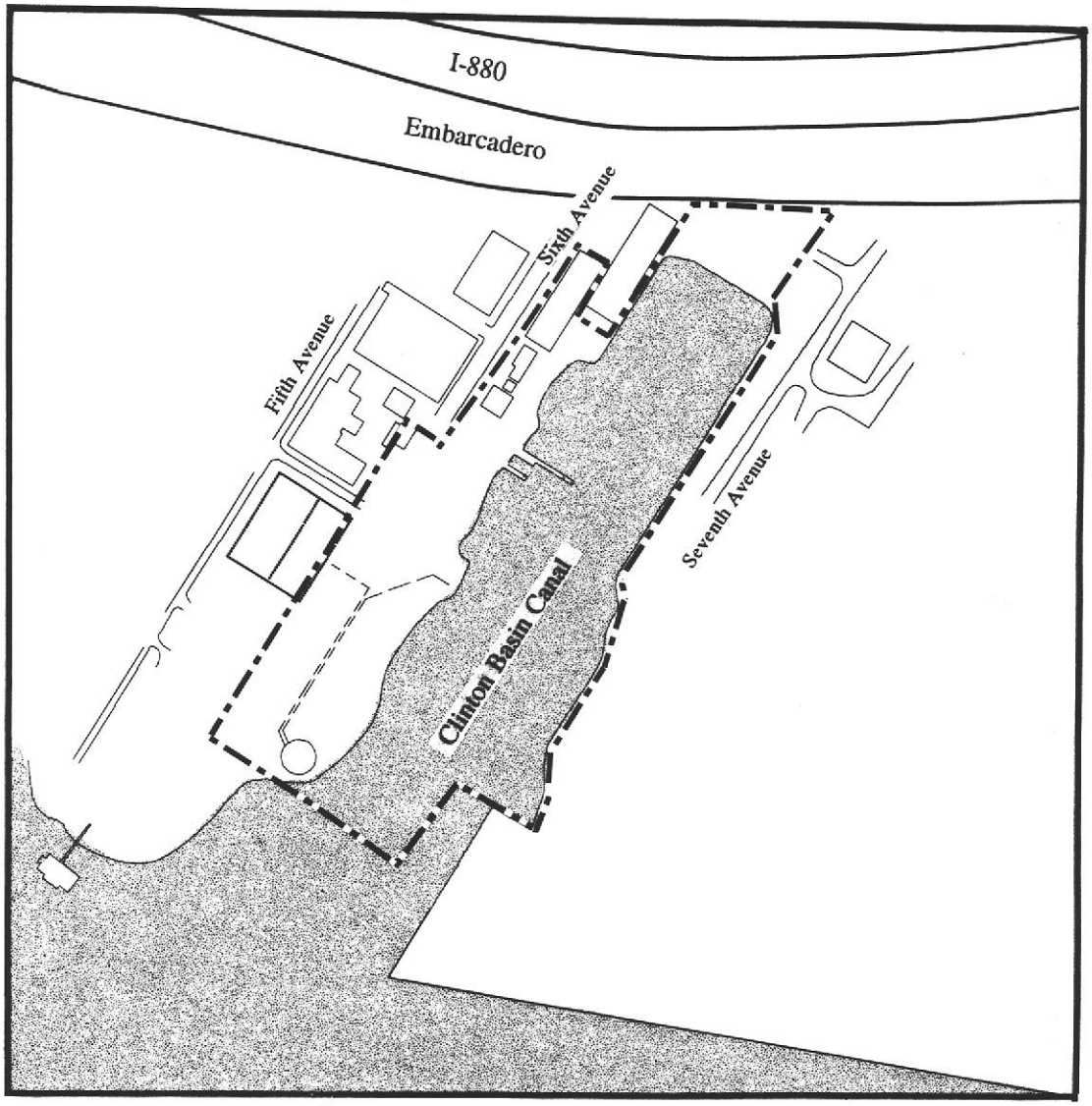
DISCUSSION

The results of soil and groundwater sampling activities in February and March 1995 confirm that releases from past land uses have affected the soil and groundwater at the Site. Petroleum hydrocarbons as Bunker C have been identified pervasively throughout the area previously occupied by PG&E. Bunker C has been identified throughout the unsaturated soil column at the locations where soil samples have been collected.

Each groundwater sample collected from the nine wells on the Site contained significant concentrations of petroleum hydrocarbons, including Bunker C. The groundwater flow direction is from the Site to Clinton Basin; therefore, contaminants from the Site migrate unimpeded into the Basin.

PROJECT LOCATION

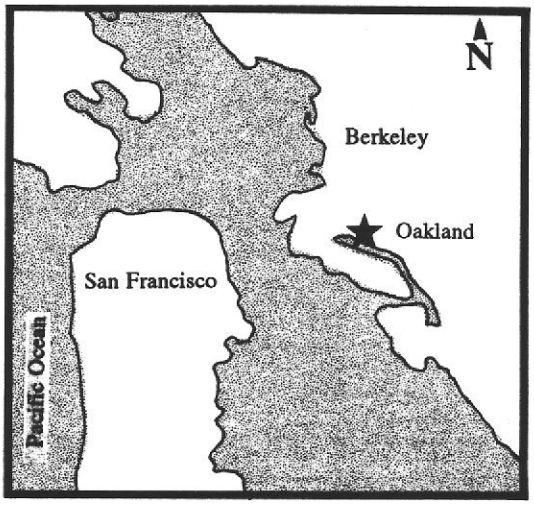
Figure 1



0 300 Feet

Legend

Project Site Boundary



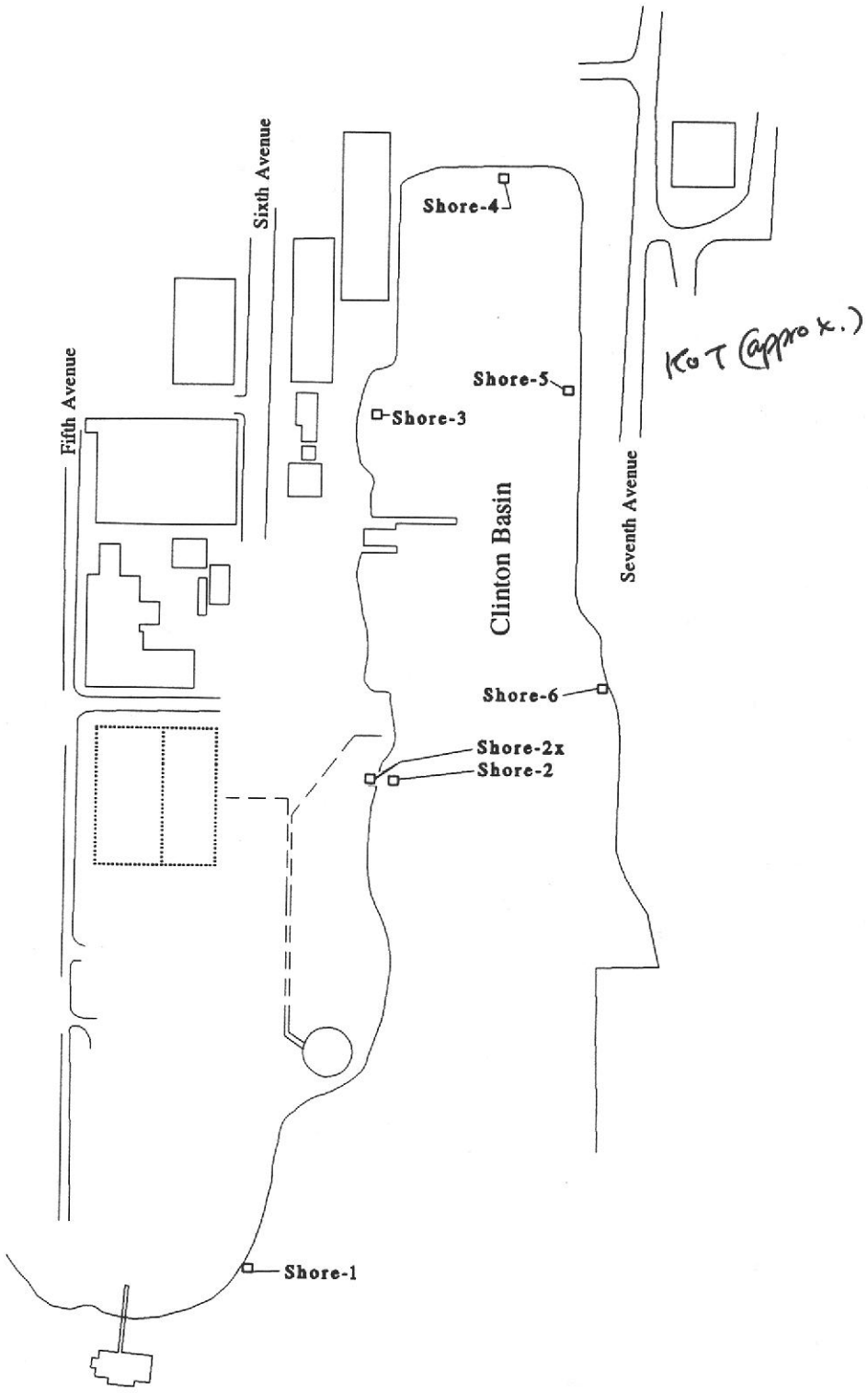
Clinton Basin
Oakland, California

BASELINE

S9171-BO.02 4/4/95

SHORELINE SAMPLE LOCATIONS

Figure 2



Legend

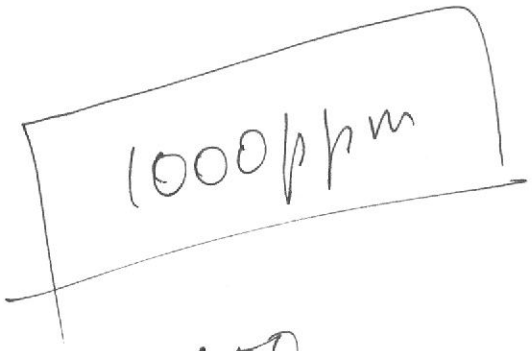
▫ Shoreline Sampling Location

Clinton Basin
Oakland, California

0 200 Feet

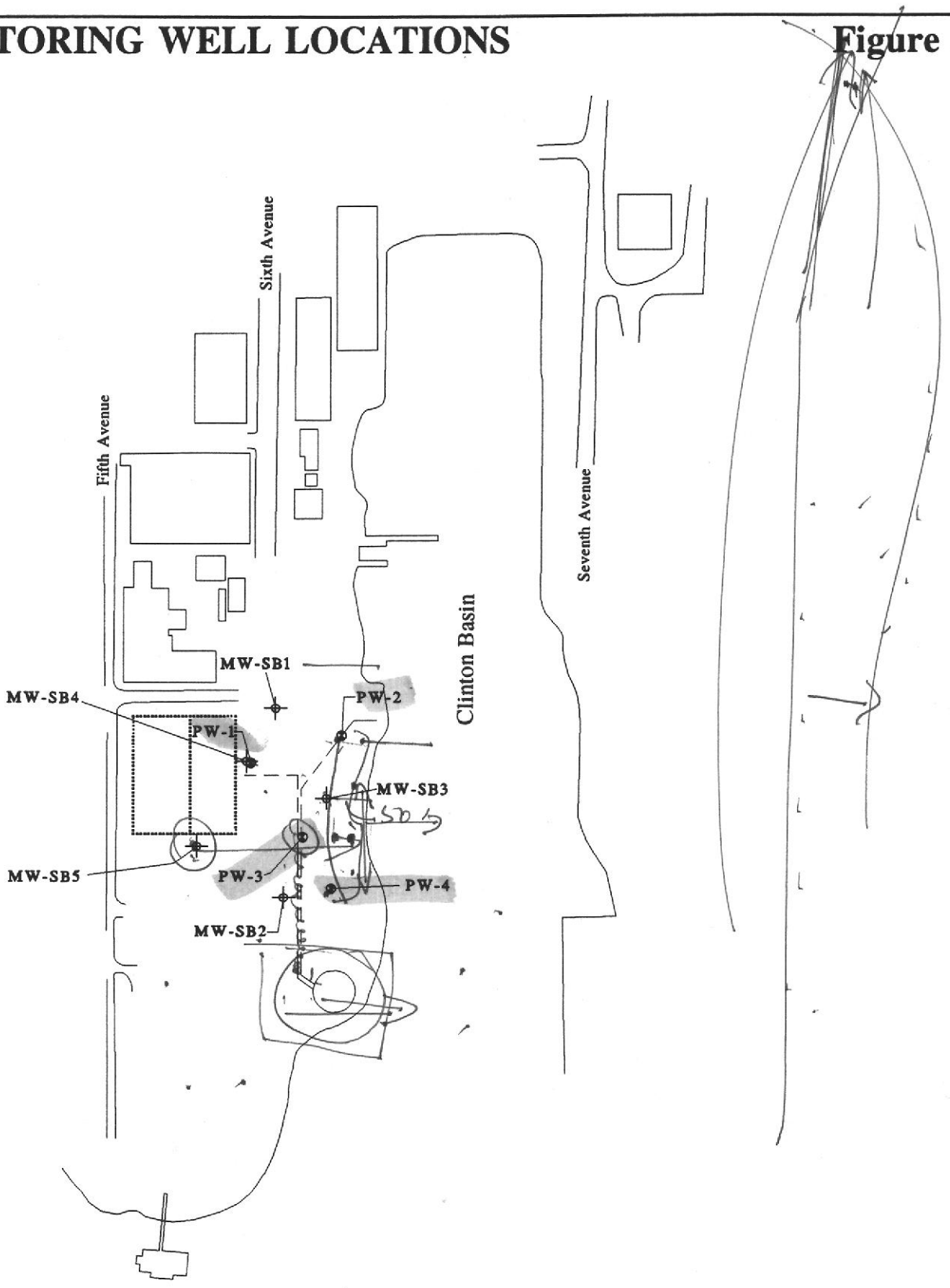
BASELINE

S9171-BO.02 4/4/95 Cadd - SL191


1000ppm
400

MONITORING WELL LOCATIONS

Figure 3



Legend

MW-SB2 ⊕ Monitoring Well Location

PW-1 ●

0 200 Feet

Clinton Basin
Oakland, California

BASELINE

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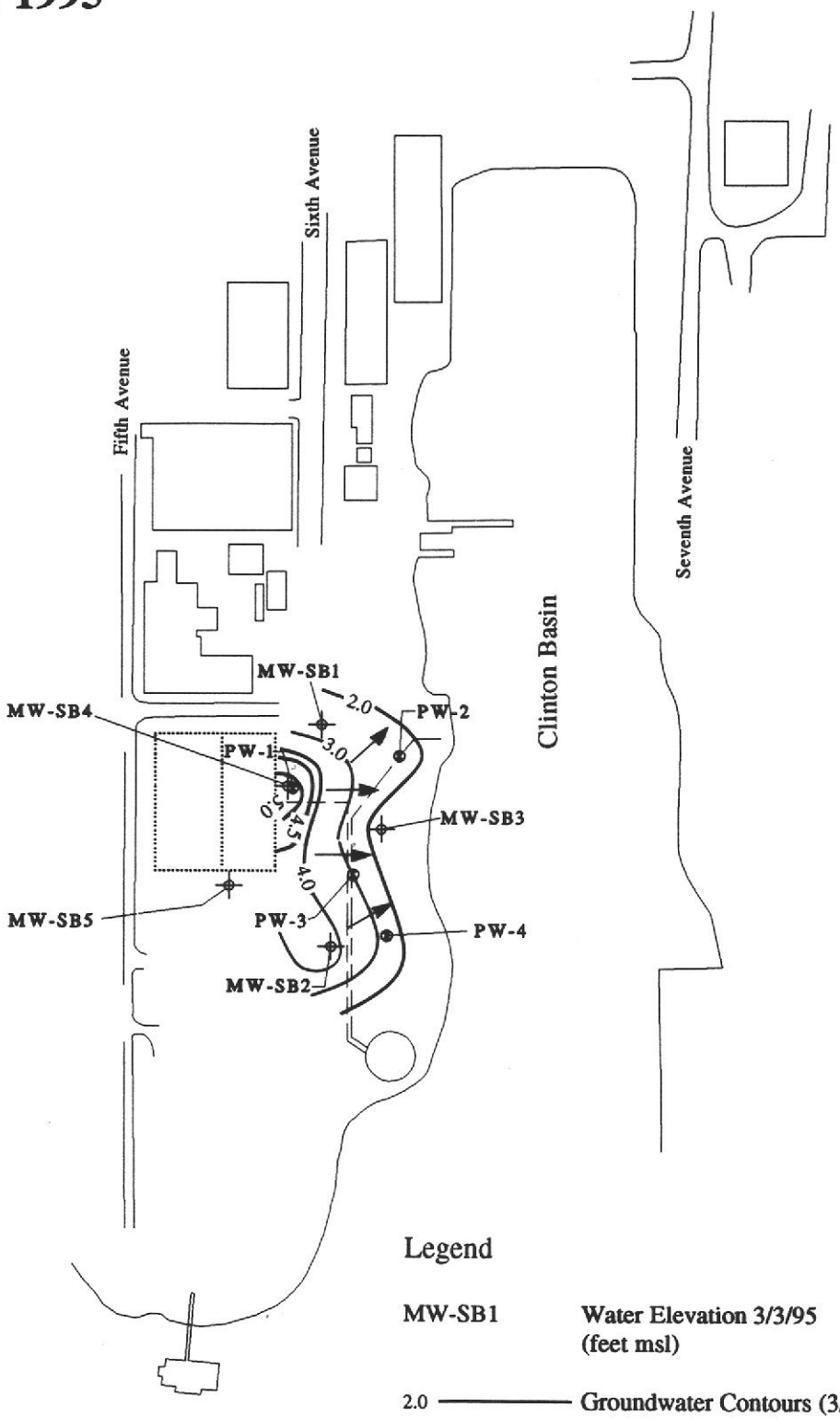
GROUNDWATER CONTOURS - MARCH 1995

Figure 4



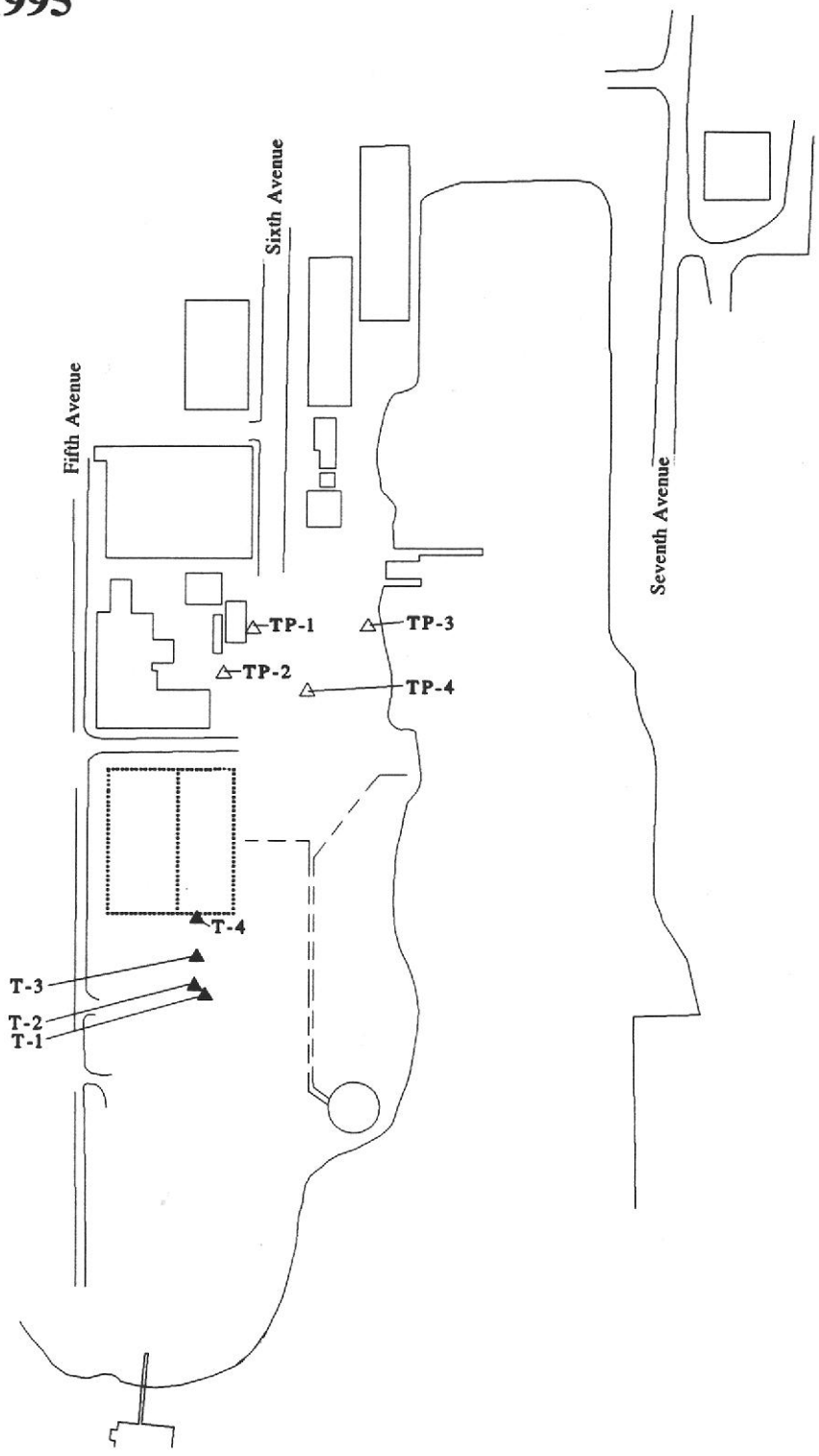
Clinton Basin
Oakland, California

S9171-BO.02 4/4/95 Cadd - SL191

BASELINE

SOIL SAMPLE LOCATIONS - MARCH 1995

Figure 5



Legend

△ Soil Sampling Location, Petroleum Hydrocarbons

▲ Soil Sampling Location, PCBs

0 200 Feet

Clinton Basin
Oakland, California

BASELINE

S9171-BO.02 4/4/95 Cadd - SL191

TABLE 1

SUMMARY OF ANALYSES PERFORMED, SHORELINE SOIL SAMPLING
Clinton Basin Shoreline, Oakland, California, January and March 1995

Sample ID	Depth (feet bgs)	Date	TPH by IR[1]	Metals[2]	PCBs	SVOCs[3]
Shore-1-Surface[4]	0	1/19/95	✓	✓	--	--
Shore-1-3'[4]	3	1/19/95	✓	✓	--	--
Shore-2-Surface[4]	0	1/19/95	✓	✓	--	--
Shore-2-3'[4]	3	1/19/95	✓	✓	--	✓
Shore-2d-Surface[4]	0	1/19/95	✓	✓	✓[5]	✓
Shore-2d-3'[4]	3	1/19/95	✓	✓	--	--
Shore-2x	0.5-1.0	3/6/95	--	--	✓[6] 4.7ppm	--
Shore-3-Surface[4]	0	1/19/95	✓	✓	--	--
Shore-3-2.5[4]	2.5	1/19/95	✓	✓	--	--
Shore-4-Surface[4]	0	1/19/95	✓	✓	--	--
Shore-4-3'[4]	3	1/19/95	✓	✓	--	✓
Shore-5-Surface[4]	0	1/19/95	✓	✓	--	--
Shore-5-3.0[4]	3.0	1/19/95	✓	✓	--	--
Shore-6-Surface[4]	0	1/19/95	✓	✓	--	--
Shore-6-2.0[4]	2.0	1/19/95	✓	✓	--	--

Notes:
TPH = Total petroleum hydrocarbons
IR = Infrared
PCBs = Polychlorinated biphenyls
SVOCs = Semi-volatile organic compounds
-- = Not analyzed
Sample locations indicated on Figure 2.
Results summarized in Tables 2 through 4.
Laboratory reports included in Appendix A.

1 Method 418.1.
2 EPA Method 6010.
3 EPA Method 8270.
4 Qualitative fingerprint characterization of petroleum hydrocarbons by capillary gas chromatography using flame ionization detector and electron capture detector also performed.
5 Analyzed for PCBs as Arochlor 1260 by GC/ECD Modified EPA Method 8080/3550.
6 Analyzed for PCBs as Arochlor 1221, 1232, 1016, 1242, 1248, 1254, and 1260 (EPA Method 8080/3550).

TABLE 2

SUMMARY OF METALS ANALYSIS, SHORELINE SOIL SAMPLING
Clinton Basin Shoreline, Oakland
(μg/g)

Sample ID	Depth (feet)	Sample Date	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	V	Ni
Shore-1-Surface	0	01/19/95	<2	45	<2	26	8	<2	<2	<2	39	28
Shore-1-3′	3	01/19/95	6	7	<2	22	55	<2	<2	<2	23	22
Shore-2-Surface	0	01/19/95	3	56	<2	59	230	<2	<2	<2	5	14
Shore-2-3′	3	01/19/95	5	79	<2	29	34	<2	<2	<2	33	43
Shore-2d-Surface	0	01/19/95	3	100	<2	110	600	<2	<2	<2	6	13
Shore-2d-3′	3	01/19/95	5	38	<2	33	20	<2	<2	<2	28	52
Shore-3-Surface	0	01/19/95	9	27	<2	12	240	<2	<2	<2	110	13
Shore-3-2.5	2.5	01/19/95	6/5	15/14	<2/<2	27/26	11/11	<2/<2	<2/<2	<2/<2	26/25	46/44
Shore-4-Surface	0	01/19/95	9	64	<2	15	420	<2	<2	<2	30	24
Shore-4-3′	3	01/19/95	10	34	<2	18	270	<2	3	<2	26	47
Shore-5-Surface	0	01/19/95	6	31	<2	17	300	<2	<3	<2	21	27
Shore-5-3.0	3	01/19/95	9	54	<2	18	600	<2	<2	<2	27	30
Shore-6-Surface	0	01/19/95	5	34	<2	11	100	<2	<2	<2	38	13
Shore-6-2.0	2	01/19/95	9	30	<2	15	110	<2	<2	<2	25	26

Notes: Analyzed by EPA Method 6010
xx/xx = Duplicate sample results
<x = Metal was not identified above the reporting limit
Samples locations indicated on Figure 2.
Laboratory reports included in Appendix A.

TABLE 3

SUMMARY OF TOTAL PETROLEUM HYDROCARBONS BY IR ANALYSIS, SHORELINE SOIL SAMPLING
Clinton Basin Shoreline, Oakland, 19 January 1995
(μg/g)

Sample ID	Depth (feet)	Total Petroleum Hydrocarbons by IR
Shore-1-Surface	0	<10
Shore-1-3′	3	15
Shore-2-Surface	0	44
Shore-2-3′[1]	3	<10
Shore-2d-Surface[2]	0	59
Shore-2d-3′	3	360
Shore-2x[3]	0.5-1.0	--
Shore-3-Surface	0	160
Shore-3-2.5	2.5	18
Shore-4-Surface	0	370
Shore-4-3′[4]	3	24
Shore-5-Surface	0	28
Shore-5-3.0	3	140
Shore-6-Surface	0	58
Shore-6-2.0	2	33

Notes: Analyzed by EPA Method 418.1
<xx = Petroleum hydrocarbons were not identified above the reporting limit
-- = Not analyzed
IR = infrared
Samples were collected by BASELINE; samples were analyzed by Friedman & Bruya, Inc.
Laboratory reports included in Appendix A.
Sample locations indicated on Figure 2.

[1] Sample also analyzed for semivolatile organic compounds (EPA Method 8270). All semivolatiles were reported below laboratory reporting limits except for 53 μg/kg di-n-butylphthalate, 200 μg/kg bis(2-ethylhexyl)phthalate, 37 μg/kg benzo(b)flouranthene, and 38 μg/kg benzo(k)flouranthene.

[2] Sample also analyzed for semivolatile organic compounds (EPA Method 8270) and polychlorinated biphenyls (PCBs) as Arochlor 1260 (Modified EPA Methods 3550/8080). All semivolatiles were reported below laboratory limits except for 1,000 μg/kg di-n-butylphthalate, 39 μg/kg pyrene, 67 μg/kg butylbenzylphthalate, 20,000 μg/kg bis(2-ethylhexyl)phthalate, and 160 μg/kg di-n-octylphthalate. PCBs were quantified at 2.9 μg/g. PCBs were quantified at 2.6 μg/g in a duplicate sample.

[3] Sample also analyzed for PCBs (EPA Method 3550/8080). All PCBs were reported below laboratory reporting limits except for Arochlor 1260, which was quantified at 4,700 μg/kg.

[4] Sample also analyzed for semivolatile organic compounds (EPA Method 8270). All semivolatiles were reported below laboratory reporting limits except for 30 μg/kg acenaphthylene, 25 μg/kg acenaphthene, 61 μg/kg fluorene, 670 μg/kg phenanthrene, 250 μg/kg anthracene, 110 μg/kg di-n-butylphthalate, 1,000 μg/kg fluoranthene, 990 μg/kg pyrene, 140 μg/kg butylbenzylphthalate, 360 μg/kg benzo(a)anthracene, 690 μg/kg chrysene, 170 μg/kg bis(2-ethylhexyl)phthalate, 470 μg/kg benzo(a)pyrene, 630 μg/kg benzo(b)flouranthene, 370 μg/kg benzo(k)flouranthene, 270 μg/kg indeno(1,2,3-cd)pyrene, 160 μg/kg dibenz(a,h)anthracene, and 310 μg/kg benzo(g,h,i)perylene.

TABLE 4

SHORELINE SOIL SAMPLING OBSERVATIONS
Clinton Basin Shoreline, Oakland, California
18 and 19 January 1995

Sample Location/Number	Description of Sampled Material	Sample Specific Comments	General Comments
Shore-1-surface	Gray fine-grained sand with gravel and tan silty clay		Slope of bank was approximately 7:1.
Shore-1-3′	Gray fine-grained sand with gravel		
Shore-2-surface	Brown fine- to medium-grained sand		Slope of bank was approximately 4:1.
Shore-2-3′	Brown gravelly clay with sand	Encountered 3′ by 3′ piece of concrete; moved approximately 1′ sideways to edge of concrete to collect sample; slight petroleum odor.	Water flowed out of bank as trench was excavated. Tide retreated to expose sample location less than 30 minutes prior to sampling.
Shore-2d-surface (approx. 3′ bayward of Shore-2 location)	Brown fine- to medium-grained sand		
Shore-2d-3′	Greenish-gray silty clay (Bay mud)	Sheen developed on water that flowed over Bay mud; slight tar odor.	
Shore-3-surface	Black sandy gravel, some Bay mud seams	Sheen developed on water contacting the soil; slight sulfur odor.	Slope of bank was approximately 2:1.
Shore-3-2.5′	Greenish-gray silty clay (Bay mud)	Hand auger used to expose sample; the 2.5′ sample was collected approximately 1′ below the depth of the shallow sample because a large wood log prevented sample collection at the desired depth; slight sulfur odor.	

Sample Location/Number	Description of Sampled Material	Sample Specific Comments	General Comments
Shore-4-surface Shore-4-3′	Gravel with a brown sandy clay matrix, small black sandy clay seams Greenish-gray silty clay (Bay mud), some voids		Slope of bank was approximately 2:1. Significant sheen/scum floating on water at end of basin. Sheen appeared on water as metal stake was pounded in to mark the mean tide level. Black material at surface approximately 2′ lower than mean tide level had strong petroleum odor.
Shore-5-surface Shore-5-3′	Brown sandy clay Gray fine- to coarse-grained sandy clay-clayey sand		Slope of bank was approximately 2:1.
Shore-6-surface Shore-6-2′	Brown clayey gravel with sand Greenish-gray sandy clay with silt (Bay mud)		Slope of bank was approximately 2:1.

Note: Sample locations included in Figure 2.

TABLE 5

ESTIMATED HIGH AND LOW TIDES IN CLINTON BASIN
Shoreline Sampling
Clinton Basin, Oakland, California
18 and 19 January 1995

	High Tide		Low Tide		High Tide		Low Tide	
	Time	Water Level	Time	Water Level	Time	Water Level	Time	Water Level
18 January 1995	1:32	5.5	6:26	2.6	12:24	6.4	18:58	-0.4
19 January 1995	2:03	5.6	7:08	2.4	13:05	6.1	19:32	-0.1

Notes: Time is expressed using the 24-hour clock.
Water level is expressed in feet above mean low-low tide.
Tide at Clinton Basin was estimated as follows: time for high and low tides was estimated as 29 and 36 minutes later than at the Golden Gate; high tide water level was estimated to be 0.5 feet higher than at the Golden Gate; low tide water level was not adjusted from that at the Golden Gate.

TABLE 6

SUMMARY OF ANALYSES PERFORMED, GROUNDWATER
Seabreeze Yacht Center, Oakland, California

Sample ID	Sample Date	Kerosene[1]	Diesel[1]	Bunker C[1]	Motor Oil[1]	Turbidity[2]	RCRA Metals[3]	SVOCs[4]
PW-1	2/2/95[5]	--	--	--	--	--	✓	✓
	3/3/95	--	✓	✓	✓	✓	--	--
PW-2	2/2/95[5]	--	--	--	--	--	✓	--
	3/3/95	✓	✓	✓	✓	✓	--	--
PW-3	2/2/95[5]	--	--	--	--	--	✓	--
	3/3/95	✓	✓	✓	✓	✓	--	--
PW-4	2/2/95[5]	--	--	--	--	--	✓	--
	3/3/95	--	✓	✓	✓	✓	--	--
MW-SB1	3/3/95	--	✓	✓	✓	✓	--	--
MW-SB2	3/6/95	✓	✓	✓	✓	✓	--	--
MW-SB3	3/6/95	✓	✓	✓	✓	✓	--	--
MW-SB4	3/3/95	--	✓	✓	✓	✓	--	--
MW-SB5	3/6/95	✓	✓	✓	✓	✓	--	--

Note: SVOCs = Semi-volatile organic compounds
-- = Not analyzed
Sample locations included in Figure 3.
Laboratory Reports are included in Appendices F and G.
Results are summarized in Table 7.

1 California DOHS Method, LUFT Manual, October 1989.
2 EPA Method 180.1.
3 EPA Methods 6010A and 7470.
4 EPA Method 8270.
5 Qualitative fingerprint characterization of petroleum hydrocarbons by capillary gas chromatography using flame ionization detector and electron capture detector also performed.

TABLE 7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER
Seabreeze Yacht Center, Oakland, California
February/March 1995
(μg/L, except where noted) ppb

Sample ID	Date	Kerosene[1]	Diesel[1]	Bunker C[1]	Motor Oil[1]	Turbidity[2] (NTU)	RCRA Metals[3] As	Ba	Cd	Cr	Pb	Hg	Se	Ag
MW-SB1	3/3/95	--	1,800[4]	4,800[4]	1,400[4]	23	--	--	--	--	--	--	--	--
MW-SB2	3/6/95	[6]/[6]	16,000[4]/18,000[4,5]	28,000[4]/33,000[4,5]	4,900[4]/<25,000[4,5]	130/100	--	--	--	--	--	--	--	--
MW-SB3	3/6/95	[6]	4,500[4]	5,800[4]	1,500[4]	76	--	--	--	--	--	--	--	--
MW-SB4	3/3/95	--	1,400[4]	3,000	660[4]	130	--	--	--	--	--	--	--	--
MW-SB5	3/6/95	[6]/[6]	15,000[4]/15,000[4,5]	34,000[4]/31,000[4,5]	8,100[4]/6,900[4,5]	180/190	--	--	--	--	--	--	--	--
PW-1	2/2/95[7]	--	--	--	--	--	19	18	<5.0	<10	6.0	<0.20	<5.0	<10
	3/3/95	--	1,700[4]	3,900[4]	1,000[4]	60	--	--	--	--	--	--	--	--
PW-2	2/2/95[8]	--	--	--	--	--	14	100	<5.0	<10	4.3	<0.20	11	<10
	3/6/95	[6]	1,700[4]	4,400[4]	1,100[4]	84	--	--	--	--	--	--	--	--
PW-3	2/2/95[8]	--	--	--	--	--	15	84	<5.0	<10	<3.0	<0.20	<5.0	<10
	3/6/95	[6]	5,800[4]	9,400[4]	1,200[4]	6.8	--	--	--	--	--	--	--	--
PW-4	2/2/95[8]	--	--	--	--	--	14	81	<5.0	<10	<3.0	<0.20	<5.0	<10
	3/3/95	--	610[4]	1,600	<1,300	4.4	--	--	--	--	--	--	--	--

Notes: -- = No analysis requested
xx/xx = Duplicate sample
<x.x = Compound not indentified above laboratory reporting limit
NTU = Nephelometric turbidity units
Refer to Figure 3 for well locations.
Laboratory reports included in Appendices F and G.

1 California DOHS Method: LUFT Manual October 1989.
2 EPA Method 180.1.
3 EPA Methods 6010A and 7470.
4 Sample chromatogram does not resemble hydrocarbon standard.
5 Duplicate sample centrifuged prior to TEH analysis.
6 Not reported due to an overlap of hydrocarbon ranges.
7 Sample also analyzed for semi-volatile organic compounds (EPA Method 8270). All semi-volatiles were reported below laboratory reporting limits except for 38 μg/L bis(2-ethylhexyl)phthalate.
8 Qualitative fingerprint characterization of petroleum hydrocarbons by capillary gas chromatography using flame ionization detector and electron capture detector also performed.

TABLE 8

GROUNDWATER ELEVATION
Seabreeze Yacht Center, Oakland, California

Well	Date	Time	Surface Elevation (msl)	TOC Elevation (msl)	Depth to Groundwater (feet)	Groundwater Elevation (msl)
MW-SB1[1]	4/17/91	10:36	5.9	7.25	5.93	1.32
	7/9/91	10:03			5.92	1.33
	1/10/94	11:45			5.0	2.25
	1/26/94	13:10			5.03	2.22
	11/14/94	7:32			4.48	2.77
		10:55			5.02	2.23
		14:08			5.27	1.98
	11/28/94	8:56			4.82	2.43
	3/3/95	9:05			4.94	2.31
MW-SB2[1]	4/19/91	11:09	6.2	7.18	5.38	1.8
	7/9/91	11:04			3.7	3.48
	1/10/94	12:31			3.08	4.1
	1/26/94	13:40			1.63	5.5
	11/14/94	7:30			4.8	2.38
		11:05			4.76	2.42
		14:14			4.73	2.45
	11/28/94	9:00			2.85	4.33
	3/3/95	8:50			2.84	4.34
MW-SB3[1]	11/14/94	7:25	6.0	8.10	8.23	-0.13
		11:00			8.14	-0.04
		14:12			8.07	0.03
	11/28/94	8:53			6.32	1.78
	12/06/94	8:37			6.15	1.95
	3/3/95	8:40			6.78	1.32
MW-SB4[2]	11/28/94	9:02	6.6	6.39	1.05	5.34
	3/3/95	8:35			0.90	5.49
MW-SB5[2]	11/28/94	8:40	6.9	6.30	6.32	-0.02
	3/3/95	9:00			2.54	3.76
PW-1[3]	2/15/95[4]	--	6.60	6.43	1.57	4.86
	3/3/95	8:35			1.34	5.09
PW-2[3]	2/15/95[4]	--	5.56	6.57	4.60	1.97
	3/3/95	9:10			3.90	2.67
PW-3[3]	2/15/95[4]	--	6.36	7.81	4.95	2.86
	3/3/95	8:45			4.76	3.05
PW-4[3]	2/15/95[4]	--	6.22	7.32	4.90	2.42
	3/3/95	8:57			4.71	2.61

Table 8, *continued*

Notes: 11/14/94: High tide 9:21 a.m.; Low tide 3:50 p.m.
11/28/94: High tide 7:46 a.m.
2/15/95: High tide 5:14 a.m and 6:03 p.m.; Low tide 11:34 p.m.
3/3/95: High tide 1:14 p.m.; Low tide 7:03 a.m.
msl = Feet above mean sea level
TOC = Top of casing
-- = Unknown
Refer to Figure 3 for well locations.

[1] Well survey conducted by Bates & Bailey 11/18/94.
[2] Well survey conducted by Bates & Bailey 11/28/94.
[3] Well survey conducted by Bates & Bailey 2/8/95.
[4] Groundwater elevation measured by SOMA; all other elevations measured by BASELINE.

TABLE 9

OBSERVATIONS DURING GROUNDWATER SAMPLING
Seabreeze Yacht Center, Oakland, California
March 1995

Well	Date		Water Level (feet below TOC)		Percent Recovery	Sheen on Groundwater Prior to Purging	Appearance of Sample
	Purged	Sampled	Prior to Purging	Prior to Sampling			
MW-SB1	3/3/95	3/3/95	4.94	5.45	95	No	Clear
MW-SB2[1]	3/3/95	3/6/95	2.84	6.48	55	No	Clear
MW-SB3	3/3/95	3/6/95	6.78	6.98	95	No	Clear to very slightly turbid
MW-SB4	3/3/95	3/3/95	0.90	0.91	100	Yes	Clear to very slightly turbid
MW-SB5[1]	3/3/95	3/6/95	2.54	2.5	100	No	Light amber
PW-1	3/3/95	3/3/95	1.34	1.35	100	No	Clear to very slightly turbid
PW-2	3/3/95	3/6/95	3.90	6.36	75	No	Clear to very slightly turbid
PW-3	3/3/95	3/6/95	4.76	4.75	100	No	Clear
PW-4	3/3/95	3/3/95	4.71	4.67	99	No	Clear

Note: Refer to Figure 3 for well locations.

[1] A duplicate sample was collected; in both cases, the appearance of the duplicate was similar to the actual sample.

TABLE 10

SUMMARY OF ANALYSES PERFORMED, SOIL
Seabreeze Yacht Center, Oakland, California

Sample ID	Depth (feet bgs)	Sample Date	Total Extractable Hydrocarbons[1]				PCBs[2]	RCRA Metals[3]	SVOCs[4]	Moisture (%)[5]	Bulk Density[6]	Total Organic Carbon[7]
			Diesel	Motor Oil	Bunker C	Kerosene						
TP-1A	3.0-3.5	3/6/95	✓	✓	✓	✓	--	--	--	--	--	--
TP-2	3.0-3.5	3/6/95	✓	✓	✓	✓	--	--	--	--	--	--
	5.5-6.0		✓	✓	✓	✓	--	--	--	--	--	--
TP-3	3.0-3.5	3/6/95	✓	✓	✓	✓	--	--	--	--	--	--
TP-4	3.0-3.5	3/6/95	✓	✓	✓	✓	--	--	--	--	--	--
T-1	3.0-3.5	3/6/95	--	--	--	--	✓	--	--	--	--	--
	5.5-6.0		--	--	--	--	✓	--	--	--	--	--
T-2	3.0-3.5	3/6/95	--	--	--	--	✓	--	--	--	--	--
T-3	3.0-3.5	3/6/95	--	--	--	--	✓	--	--	--	--	--
T-4	3.0-3.5	3/6/95	--	--	--	--	✓	--	--	--	--	--
PW-1	1.5[8]	1/31/95	✓[9]	--	--	--	--	--	--	--	--	--
	2		✓[9]	--	--	--	--	--	--	--	--	--
	3		--	--	--	--	--	✓	✓	--	--	--
	5		--	--	--	--	--	✓	--	--	--	--
PW-2	0.5[8]	1/30/95	✓[9]	--	--	--	--	--	--	--	--	--
	1.0		--	--	--	--	--	✓	--	--	--	--
	4.5-6[8]		✓[9]	--	--	--	--	✓	--	--	--	--
	10.0		--	--	--	--	--	--	--	✓	✓	✓
PW-3	0.5[8]	1/30/95	✓[9]	--	--	--	--	--	--	--	--	--
	1.0		--	--	--	--	--	✓	--	--	--	--
	5.0[8]		✓[9]	--	--	--	--	--	--	--	--	--
	5.6		--	--	--	--	--	✓	--	--	--	--
	10		--	--	--	--	--	--	--	✓	✓	✓

Table 10, *continued*

Sample ID	Depth (feet bgs)	Sample Date	Total Extractable Hydrocarbons[1]				PCBs[2]	RCRA Metals[3]	SVOCs[4]	Moisture (%)[5]	Bulk Density[6]	Total Organic Carbon[7]
			Diesel	Motor Oil	Bunker C	Kerosene						
PW-4	0.5[8]	1/30/95	✓[9]	--	--	--	--	--	--	--	--	--
	1.0		--	--	--	--	--	✓	--	--	--	--
	3.0[8]		✓[9]	--	--	--	--	--	--	--	--	--
	3.5		--	--	--	--	--	✓	--	--	--	--

Notes: PCBs = Polychlorinated biphenyls
SVOCs = Semi-volatile organic compounds
-- = Not analyzed
Sample locations included in Figure 5.
Results summarized in Tables 11 through 14.
Laboratory Reports included in Appendix I.

1 California DOHS Method, LUFT Manual, October 1989, except where noted.
2 EPA Method 8080.
3 EPA Methods 7060, 6010A, 7421, 7471, and 7740.
4 EPA Method 8270.
5 EPA Method CLP.
6 Method ASTM D854.
7 EPA Method 9060.
8 Sample also qualitatively analyzed for petroleum hydrocarbons by capillary gas chromatography using flame ionization detector and electron capture detector also performed.
9 EPA Method 8015M, extended to include motor oil range compounds.

TABLE 11

SUMMARY OF ANALYSES FOR TOTAL EXTRACTABLE HYDROCARBONS, SOIL
Seabreeze Yacht Center, Oakland, California
6 March 1995

(mg/kg)

Sample ID	Depth (feet bgs)	Kerosene[1]	Diesel[1]	Motor Oil[1]	Bunker C[1]
TP-1A	3.0-3.5	NR[2]	28[3]	200[3]	340[3]
TP-2	3.0-3.5	<1.0	<1.0	<25	<25
TP-2	5.5-6.0	<1.0	14[3]	120[3]	190[3]
TP-3	3.0-3.5	NR[2]	92[3]	190[3]	400[3]
TP-4	3.0-3.5	<1.0	<1.0	<25	<25

Notes: <x.x = Compound not reported above laboratory reporting limits.
NR = Not reported
Sample locations provided in Figure 5.
Laboratory reports included in Appendix I.

[1] California DOHS Method, LUFT Manual, October 1989.
[2] Kerosene range not reported due to overlap of hydrocarbon ranges.
[3] Sample chromatogram does not resemble laboratory hydrocarbon standard.

TABLE 12

SUMMARY OF ANALYSES FOR PCBs, SOIL
Seabreeze Yacht Center, Oakland, California
6 March 1995

(µg/kg) ppb

Sample ID	Depth (feet bgs)	Arochlor[1]						
		1221	1232	1016	1242	1248	1254	1260
T-1	3.0-3.5	<20	<20	<20	<20	<20	<20	<20
T-1	5.5-6.0	<20	<20	<20	<20	<20	<20	<20
T-2	3.0-3.5	<20	<20	<20	<20	<20	**150**	**65**
T-3	3.0-3.5	<20	<20	<20	<20	<20	<20	<20
T-4	3.0-3.5	<20	<20	<20	<20	<20	<20	<20

Notes: PCB = Polychlorinated biphenyl
<x.x = compound not reported above laboratory reporting limits
Sample locations provided in Figure 5.
Laboratory Reports included in Appendix I.

[1] EPA Method 8080.

TABLE 13

SUMMARY OF ANALYTICAL RESULTS, SOIL
Seabreeze Yacht Center, Oakland, California
(mg/kg, except where noted)

Sample Location	Sample Date	Depth (feet)	RCRA Metals[1]								TPH as Diesel extracted[2]	Semi-volatiles[3]
			As	Ba	Cd	Cr	Pb	Hg	Se	Ag		
PW-1	1/31/95	1.5[4]	--		--	--	--	--	--	--	30	--
		2.0	--		--	--	--	--	--	--	410	--
		3.0	2.6	54	<0.25	48	9.3	<0.095	<2.5	<0.50	--	<1.7-<8.3
		5.0	5.0	120	0.49	22	38	<0.091	<2.5	<0.50	--	--
PW-2	1/30/95	0.5[4]	--	--	--	--	--	--	--	--	1,000	--
		4.5-6.0[4]	<2.5	28	<0.25	55	6.4	<0.10	<2.5	<0.50	620	--
		1.0	4.9	190	0.53	140	210	0.22	<2.5	<0.50	--	--
PW-3	1/30/95	0.5[4]	--	--	--	--	--	--	--	--	<50	--
		5.0[4]	--	--	--	--	--	--	--	--	<50	--
		1.0	5.7	140	0.58	35	81	<0.091	<2.5	<0.5	--	--
		5.6	4.4	61	<0.25	51	28	0.18	<2.5	<0.5	--	--
PW-4	1/30/95	0.5[4]	--	--	--	--	--	--	--	--	<50	--
		3.0[4]	--	--	--	--	--	--	--	--	<50/<50	--
		3.5	6.7	180	0.25	33	63	0.13	<2.5	<0.50	--	--
		1.0	5.5	86	0.40	31	43	<0.10	<2.5	<0.50	--	--

Notes: -- =Not analyzed
<xx=compound not detected above laboratory reporting limits
Sample locations included in Figure 3.
Laboratory results included in Appendix I.

1 EPA Methods 7060, 6010A, 7421, 7471, and 7740.
2 EPA Method 8015M, extended to include motor oil range compounds.
3 EPA Method 8270.
4 Sample also qualitatively analyzed for petroleum hydrocarbons by capillary gas chromatography using flame ionization detector and electron capture detector.

TABLE 14

SUMMARY OF MISCELLANEOUS ANALYTICAL RESULTS, SOIL
Seabreeze Yacht Center, Oakland, California
6 March 1995

Sample Location	Sample Date	Depth (feet)	Percent Moisture[1] (percent)	Bulk Density[2] (g/ml)	Total Organic Carbon[3] (mg/kg)
PW-2	1/30/95	10	52	2.0	3,900
PW-3	1/30/95	10	13	2.1	1,200

Notes: Sample locations included in Figure 3.
Laboratory results included in Appendix I.

[1] EPA Method CLP.
[2] Method ASTM D854.
[3] EPA Method 9060.

APPENDIX A

LABORATORY REPORTS, SHORELINE SOIL SAMPLES
January/March 1995

DRAFT

February 1, 1995

Michele Heffes, Esquire
Port of Oakland
530 Water Street
P.O. Box 2064
Oakland, CA 94604

Dear Ms. Heffes:

Enclosed are the results from the testing of material submitted on January 20, 1995 from your Seabreeze project. Low levels of mercury were initially reported to be present in several of the soil samples using Method 6010. The sample extracts from these samples were analyzed for mercury using a cold vapor mercury analyzer. No mercury was found to be present in the sample extracts.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

James E. Bruya, Ph.D.
Chemist

jdp
Enclosures

FAX: (510) 444-2093

NA0201B.DOC

DRAFT

Date of Report: February 1, 1995
Date Received: January 20, 1995
Project: Seabreeze
Date Samples Extracted: January 20, 1995
Date Extracts Analyzed: January 23, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Results Reported as µg/g (ppm)

Sample ID	Shore-2-Surface	Shore-2d-Surface	Shore-2d-8'
Analyte:			
Arsenic	3	3	5
Barium	56	100	38
Cadmium	<2	<2	<2
Chromium	59	110	33
Lead	230	600	20
Mercury	<2	<2	<2
Selenium	<2	<2	<2
Silver	<2	<2	<2
Vanadium	5	6	28
Nickel	14	12	52

DRAFT

Date of Report: February 1, 1995
Date Received: January 20, 1995
Project: Seabreeze
Date Samples Extracted: January 20, 1995
Date Extracts Analyzed: January 23, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Results Reported as µg/g (ppm)

Sample ID	Shore-2-3'	Shore-1-Surface	Shore-1-3'
Analyte:			
Arsenic	5	<2	6
Barium	79	45	7
Cadmium	<2	<2	<2
Chromium	29	26	22
Lead	34	8	55
Mercury	<2	<2	<2
Selenium	<2	<2	<2
Silver	<2	<2	<2
Vanadium	33	39	23
Nickel	43	28	22

DRAFT

Date of Report: February 1, 1995
Date Received: January 20, 1995
Project: Seabreeze
Date Samples Extracted: January 20, 1995
Date Extracts Analyzed: January 28, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Results Reported as µg/g (ppm)

Sample ID	Shore-4-Surface	Shore-4-3'	Shore-5-Surface
Analyte:			
Arsenic	9	10	6
Barium	64	34	31
Cadmium	<2	<2	<2
Chromium	15	18	17
Lead	420	270	300
Mercury	<2	<2	<2
Selenium	<2	3	<3
Silver	<2	<2	<2
Vanadium	30	26	21
Nickel	24	47	27

DRAFT

Date of Report: February 1, 1995
Date Received: January 20, 1995
Project: Seabreeze
Date Samples Extracted: January 20, 1995
Date Extracts Analyzed: January 23, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Results Reported as µg/g (ppm)

Sample ID	Shore-6-3.0	Shore-6-Surface	Shore-6-2.0
Analyte:			
Arsenic	9	5	9
Barium	54	84	80
Cadmium	<2	<2	<2
Chromium	18	11	15
Lead	600	100	110
Mercury	<2	<2	<2
Selenium	<2	<2	<2
Silver	<2	<2	<2
Vanadium	27	36	25
Nickel	30	13	26

DRAFT

Date of Report: February 1, 1995
Date Received: January 20, 1995
Project: Seabreeze
Date Samples Extracted: January 20, 1995
Date Extracts Analyzed: January 23, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Results Reported as µg/g (ppm)

Sample ID	Shore-3-Surface	Shore-3-2.5
Analyte:		
Arsenic	9	6
Barium	27	15
Cadmium	<2	<2
Chromium	12	27
Lead	240	11
Mercury	<2	<2
Selenium	<2	<2
Silver	<2	<2
Vanadium	110	26
Nickel	13	46

DRAFT

Date of Report: February 1, 1995
Date Received: January 20, 1995
Project: Seabreeze
Date Samples Extracted: January 20, 1995
Date Extracts Analyzed: January 28, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Results Reported as µg/g (ppm)
Quality Assurance

Sample ID Analyte:	Blank	Shore-8-2.5 (Duplicate)
Arsenic	<2	5
Barium	<2	14
Cadmium	<2	<2
Chromium	<2	26
Lead	<2	11
Mercury	<2	<2
Selenium	<2	<2
Silver	<2	<2
Vanadium	<2	25
Nickel	<2	44

DRAFT

Date of Report: February 1, 1995
Date Received: January 20, 1995
Project: Seabreeze
Date Samples Extracted: January 20, 1995
Date Extracts Analyzed: January 23, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Results Reported as % Recovery
Quality Assurance

Sample ID	Shore-3-2.5 Matrix Spike % Recovery	Shore-3-2.5 Matrix Spike Duplicate % Recovery	Spike Level
Analyte:			
Arsenic	81%	75%	100
Barium	57%	68%	50
Cadmium	71%	65%	50
Chromium	76%	66%	50
Lead	73%	68%	100
Mercury	79%	77%	100
Selenium	83%	80%	100
Silver	94%	50%	20
Vanadium	79%	88%	100
Nickel	76%	63%	100

DRAFT

Date of Report: February 1, 1995
Date Received: January 20, 1995
Project: Seabreeze
Date Samples Extracted: January 20, 1995
Date Extracts Analyzed: January 23, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Results Reported as % Recovery
Quality Assurance

Sample ID	Spike Blank % Recovery	Spike Level
Analyte:		
Arsenic	96%	100
Barium	106%	50
Cadmium	85%	50
Chromium	95%	50
Lead	90%	100
Mercury	92%	100
Selenium	91%	100
Silver	56%	20
Vanadium	99%	100
Nickel	92%	100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 7, 1995
Date Received: January 20, 1995
Project: Seabreeze
Date Samples Extracted: February 3, 1995
Date Extracts Analyzed: February 3, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS BY IR (METHOD 418.1)

Results Reported as µg/g (ppm)

Sample ID	Total Petroleum Hydrocarbons
Shore-2-Surface	44
Shore-2d-Surface	59
Shore-2d-3'	360
Shore-2-3'	<10
Shore-1-Surface	<10
Shore-1-3'	15
Shore-4-Surface	370
Shore-4-3'	24
Shore-5-Surface	28
Shore-5-3.0	140
Shore-6'-Surface	58
Shore-6-2.0	33
Shore-3-Surface	160
Shore-3-2.5	18

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 7, 1995
Date Received: January 20, 1995
Project: Seabreeze
Date Samples Extracted: February 3, 1995
Date Extracts Analyzed: February 3, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS BY IR (METHOD 418.1)

Results Reported as µg/g (ppm)
Quality Assurance

Sample ID	Total Petroleum Hydrocarbons
Blank	<10
Shore-2d-Surface (Duplicate)	120
Shore-2d-Surface (Matrix Spike) % Recovery	130%
Shore-2d-Surface (Matrix Spike Duplicate) % Recovery	124%
Shore-3-Surface (Duplicate)	130
Shore-3-Surface (Matrix Spike) % Recovery	124%
Shore-3-Surface (Matrix Spike Duplicate) % Recovery	119%
Spike Blank % Recovery	128%
Spike Level	5,000

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 8, 1995
Date Received: January 20, 1995
Project: Seabreeze
Date Samples Extracted: February 3, 1995

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLE FOR PCB AS AROCHLOR 1260 BY GC/ECD (MODIFIED 8080)

Samples Processed Using Method 3550
Results Reported as µg/g (ppm)

Sample ID	PCB	Surrogate Standard (% Recovery)
Shore-2d-Surface	2.9	105%
Quality Assurance		
Blank	<0.02	79%
Shore-2d-Surface (Duplicate)	2.6	97%
Shore-2d-Surface (Matrix Spike) % Recovery	na	88%
Shore-2d-Surface (Matrix Spike Duplicate) % Recovery	na	86%
Spike Blank % Recovery	90%	106%
Spike Level	0.67	

na The analyte indicated was not added to the matrix spike sample

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119
(208) 285-8282

Semivolatile Results by Method 8270

Client:	Baseline	Date Received:	01/20/95	Analyst:	BA
Project:	Seabreeze, Port Of Oakland	Date Extracted:	01/25/95	FBI ID #:	56375
Client ID:	Shore-2d-Surface	Date Analyzed:	01/26/95	Units:	ug/kg (ppb)

Phenol	<330
bis(2-Chloroethyl)ether	<33
2-Chlorophenol	<330
1,3-Dichlorobenzene	<33
1,4-Dichlorobenzene	<33
1,2-Dichlorobenzene	<33
Benzyl alcohol	<33
bis(2-chloroisopropyl)ether	<33
2-Methylphenol	<330
Hexachloroethane	<33
N-nitroso-di-n-propylamine	<33
4-Methylphenol	<330
Nitrobenzene	<33
Isophorone	<33
2-Nitrophenol	<330
2,4-Dimethylphenol	<330
bis(2-Chloroethoxy)methane	<33
2,4-Dichlorophenol	<330
1,2,4-Trichlorobenzene	<33
Naphthalene	<33
Hexachlorobutadiene	<33
4-Chloro-3-methylphenol	<330
2-Methylnaphthalene	<33
Hexachlorocyclopentadiene	<33
2,4,6-Trichlorophenol	<330
2,4,5-Trichlorophenol	<330
2-Chloronaphthalene	<33
Dimethylphthalate	<33
Acenaphthylene	<33
2,6-Dinitrotoluene	<33
Acenaphthene	<33
2,4-Dinitrophenol	<330
Dibenzofuran	<33
2,4-Dinitrotoluene	<33
4-Nitrophenol	<330
Diethylphthalate	<33
Fluorene	<33
4-Chlorophenyl-phenylether	<33
n-Nitrosodiphenylamine	<33
4,6-Dinitro-2-methylphenol	<330
4-Bromophenyl-phenylether	<33
Hexachlorobenzene	<33

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119
(206) 285-8282

Semivolatile Results by Method 8270

Client:	Baseline	Date Received:	01/20/95	Analyst:	BA
Project:	Seabreeze, Port Of Oakland	Date Extracted:	01/25/95	FBI ID #:	56375
Client ID:	Shore-2d-Surface	Date Analyzed:	01/26/95	Units:	ug/kg (ppb)

Pentachlorophenol		<330
Phenanthrene		<33
Anthracene		<33
[redacted]		[redacted]
Fluoranthene	1,000	[redacted]
[redacted]		<33
[redacted]	39	[redacted]
[redacted]		[redacted]
Benzo[a]anthracene	67	[redacted]
Chrysene		<33
[redacted]		<33
[redacted]	20,000	[redacted]
[redacted]	160	[redacted]
Benzo(a)pyrene		<33
Benzo(b)flouranthene		<33
Benzo(k)flouranthene		<33
Indeno(1,2,3-cd)pyrene		<33
Dibenz(a,h)anthracene		<33
Benzo(g,h,i)perylene		<33

Surrogate Recoveries:

	QC Limits	
2-Fluorophenol	30-115	49%
Phenol-d6	24-113	64%
Nitrobenzene-d5	23-120	69%
2-Fluorobiphenyl	30-115	80%
2,4,6-Tribromophenol	19-122	74%
Terphenyl-d14	18-137	92%

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119
(206) 285-8282

Semivolatile Results by Method 8270

Client:	Baseline	Date Received:	01/20/95	Analyst:	BA
Project:	Seabreeze, Port Of Oakland	Date Extracted:	01/25/95	FBI ID #:	56377
Client ID:	Shore-2-3'	Date Analyzed:	01/26/95	Units:	ug/kg (ppb)

Phenol	<330
bis(2-Chloroethyl)ether	<33
2-Chlorophenol	<330
1,3-Dichlorobenzene	<33
1,4-Dichlorobenzene	<33
1,2-Dichlorobenzene	<33
Benzyl alcohol	<33
bis(2-chloroisopropyl)ether	<33
2-Methylphenol	<330
Hexachloroethane	<33
N-nitroso-di-n-propylamine	<33
4-Methylphenol	<330
Nitrobenzene	<33
Isophorone	<33
2-Nitrophenol	<330
2,4-Dimethylphenol	<330
bis(2-Chloroethoxy)methane	<33
2,4-Dichlorophenol	<330
1,2,4-Trichlorobenzene	<33
Naphthalene	<33
Hexachlorobutadiene	<33
4-Chloro-3-methylphenol	<330
2-Methylnaphthalene	<33
Hexachlorocyclopentadiene	<33
2,4,6-Trichlorophenol	<330
2,4,5-Trichlorophenol	<330
2-Chloronaphthalene	<33
Dimethylphthalate	<33
Acenaphthylene	<33
2,6-Dinitrotoluene	<33
Acenaphthene	<33
2,4-Dinitrophenol	<330
Dibenzofuran	<33
2,4-Dinitrotoluene	<33
4-Nitrophenol	<330
Diethylphthalate	<33
Fluorene	<33
4-Chlorophenyl-phenylether	<33
n-Nitrosodiphenylamine	<33
4,6-Dinitro-2-methylphenol	<330
4-Bromophenyl-phenylether	<33
Hexachlorobenzene	<33

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119
(206) 285-8282

Semivolatile Results by Method 8270

Client:	Baseline	Date Received:	01/20/95	Analyst:	BA
Project:	Seabreeze, Port Of Oakland	Date Extracted:	01/25/95	FBI ID #:	56377
Client ID:	Shore-2-3'	Date Analyzed:	01/26/95	Units:	ug/kg (ppb)

Pentachlorophenol	<330
Phenanthrene	<33
Anthracene	<33
Di-n-butylphthalate	53
Fluoranthene	<33
Pyrene	<33
Butylbenzylphthalate	<33
Benzo[a]anthracene	<33
Chrysene	<33
[redacted]	200
[redacted]	<33
[redacted]	<33
[redacted]	31
[redacted]	38
Indeno(1,2,3-cd)pyrene	<33
Dibenz(a,h)anthracene	<33
Benzo(g,h,i)perylene	<33

Surrogate Recoveries:

	QC Limits	
2-Fluorophenol	30-115	56%
Phenol-d6	24-113	64%
Nitrobenzene-d5	23-120	63%
2-Fluorobiphenyl	30-115	84%
2,4,6-Tribromophenol	19-122	74%
Terphenyl-d14	18-137	76%

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119
(206) 285-8282

Semivolatile Results by Method 8270

Client:	Baseline	Date Received:	01/20/95	Analyst:	BA
Project:	Seabreeze, Port Of Oakland	Date Extracted:	01/25/95	FBI ID #:	56381
Client ID:	Shore-4-3'	Date Analyzed:	01/26/95	Units:	ug/kg (ppb)

Phenol	<330
bis(2-Chloroethyl)ether	<33
2-Chlorophenol	<330
1,3-Dichlorobenzene	<33
1,4-Dichlorobenzene	<33
1,2-Dichlorobenzene	<33
Benzyl alcohol	<33
bis(2-chloroisopropyl)ether	<33
2-Methylphenol	<330
Hexachloroethane	<33
N-nitroso-di-n-propylamine	<33
4-Methylphenol	<330
Nitrobenzene	<33
Isophorone	<33
2-Nitrophenol	<330
2,4-Dimethylphenol	<330
bis(2-Chloroethoxy)methane	<33
2,4-Dichlorophenol	<330
1,2,4-Trichlorobenzene	<33
Naphthalene	<33
Hexachlorobutadiene	<33
4-Chloro-3-methylphenol	<330
2-Methylnaphthalene	<33
Hexachlorocyclopentadiene	<33
2,4,6-Trichlorophenol	<330
2,4,5-Trichlorophenol	<330
2-Chloronaphthalene	<33
Dimethylphthalate	<33
[redacted]	30
2,6-Dinitrotoluene	<33
[redacted]	25
2,4-Dinitrophenol	<330
Dibenzofuran	<33
2,4-Dinitrotoluene	<33
4-Nitrophenol	<330
Diethylphthalate	<33
[redacted]	61
[redacted]	<33
n-Nitrosodiphenylamine	<33
4,6-Dinitro-2-methylphenol	<330
4-Bromophenyl-phenylether	<33
Hexachlorobenzene	<33

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119
(206) 285-8282

Semivolatile Results by Method 8270

Client:	Baseline	Date Received:	01/20/95	Analyst:	BA
Project:	Seabreeze, Port Of Oakland	Date Extracted:	01/25/95	FBI ID #:	56381
Client ID:	Shore-4-3'	Date Analyzed:	01/26/95	Units:	ug/kg (ppb)

Pentachlorophenol	<330
Phenanthrene	670
Anthracene	250
Di-n-butylphthalate	110
Fluoranthene	1000
Pyrene	990
Butylbenzylphthalate	140
Benzo[a]anthracene	360
Chrysene	690
bis(2-Ethylhexyl)phthalate	170
Di-n-octylphthalate	<33
Benzo(a)pyrene	470
Benzo(b)flouranthene	630
Benzo(k)flouranthene	370
Indeno(1,2,3-cd)pyrene	270
Dibenz(a,h)anthracene	160
Benzo(g,h,i)perylene	310

Surrogate Recoveries:

	QC Limits	
2-Fluorophenol	30-115	61%
Phenol-d6	24-113	65%
Nitrobenzene-d5	23-120	74%
2-Fluorobiphenyl	30-115	88%
2,4,6-Tribromophenol	19-122	76%
Terphenyl-d14	18-137	105%

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119
(206) 285-8282

Semivolatile Results by Method 8270

Client:	Baseline	Date Received:	01/20/95	Analyst:	BA
Project:	Seabreeze, Port Of Oakland	Date Extracted:	01/25/95	FBI ID #:	M Blk
Client ID:	Method Blank	Date Analyzed:	01/26/95	Units:	ug/kg (ppb)

Phenol	<330
bis(2-Chloroethyl)ether	<33
2-Chlorophenol	<330
1,3-Dichlorobenzene	<33
1,4-Dichlorobenzene	<33
1,2-Dichlorobenzene	<33
Benzyl alcohol	<33
bis(2-chloroisopropyl)ether	<33
2-Methylphenol	<330
Hexachloroethane	<33
N-nitroso-di-n-propylamine	<33
4-Methylphenol	<330
Nitrobenzene	<33
Isophorone	<33
2-Nitrophenol	<330
2,4-Dimethylphenol	<330
bis(2-Chloroethoxy)methane	<33
2,4-Dichlorophenol	<330
1,2,4-Trichlorobenzene	<33
Naphthalene	<33
Hexachlorobutadiene	<33
4-Chloro-3-methylphenol	<330
2-Methylnaphthalene	<33
Hexachlorocyclopentadiene	<33
2,4,6-Trichlorophenol	<330
2,4,5-Trichlorophenol	<330
2-Chloronaphthalene	<33
Dimethylphthalate	<33
Acenaphthylene	<33
2,6-Dinitrotoluene	<33
Acenaphthene	<33
2,4-Dinitrophenol	<330
Dibenzofuran	<33
2,4-Dinitrotoluene	<33
4-Nitrophenol	<330
Diethylphthalate	<33
Fluorene	<33
4-Chlorophenyl-phenylether	<33
n-Nitrosodiphenylamine	<33
4,6-Dinitro-2-methylphenol	<330
4-Bromophenyl-phenylether	<33
Hexachlorobenzene	<33

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119
(206) 285-8282

Semivolatile Results by Method 8270

Client:	Baseline	Date Received:	01/20/95	Analyst:	BA
Project:	Seabreeze, Port Of Oakland	Date Extracted:	01/25/95	FBI ID #:	M Blk
Client ID:	Method Blank	Date Analyzed:	01/26/95	Units:	ug/kg (ppb)

Pentachlorophenol	<330
Phenanthrene	<33
Anthracene	<33
Di-n-butylphthalate	<33
Fluoranthene	<33
Pyrene	<33
Butylbenzylphthalate	<33
Benzo[a]anthracene	<33
Chrysene	<33
bis(2-Ethylhexyl)phthalate	<33
Di-n-octylphthalate	<33
Benzo(a)pyrene	<33
Benzo(b)flouranthene	<33
Benzo(k)flouranthene	<33
Indeno(1,2,3-cd)pyrene	<33
Dibenz(a,h)anthracene	<33
Benzo(g,h,i)perylene	<33

Surrogate Recoveries:

	QC Limits	
2-Fluorophenol	30-115	62%
Phenol-d6	24-113	60%
Nitrobenzene-d5	23-120	59%
2-Fluorobiphenyl	30-115	69%
2,4,6-Tribromophenol	19-122	60%
Terphenyl-d14	18-137	82%

BASELINE
5900 Hollis Street, Suite D
Emeryville, CA 94608
(415) 420-8686

01 BTB AE AO
01-30-95
11:04

CHAIN OF CUSTODY RECORD

Turn-Around Time
Lab Friedman & Bruya
Contact Person Lyda Huang

Project No.	Project Name and Location
59-171	Seabreeze, Port of Oakland, Oakland, CA

Samplers: (Signature) Lyda Huang

No. Station	Date	Time	Media	Depth	Composites	No. of Containers	Station Location	Analysis		PCB 8B	418.1 9nB	HESO 8B	Metals 6 92B	Remarks	Detection Limits
Shore-2-surface	1/18/95	3:00 pm	Soil	0	NO	1	56374 ok			✓	✓	✓		Consult	
Shore-2d-surface	1/18/95	3:20 pm	Soil	0	NO	1	56375		✓	✓	✓	✓		Jim Bruya	
Shore-2d-3'	1/18/95	3:35 pm	Soil	3'	NO	1	56376 ok			✓	✓	✓		for analysis	
Shore-2-3'	1/18/95	3:45 pm	Soil	3'	NO	1	56377 ok			✓	✓	✓			
Shore-1-surface	1/18/95	4:15 pm	Soil	0	NO	1	56378 ok			✓	✓	✓	6270 approved by Jim Bruya		
Shore-1-3'	1/18/95	4:20 pm	Soil	3'	NO	1	56379 ok			✓	✓	✓		Per phone conversation 1-25-95	
Shore-4-surface	1/18/95	4:55 pm	Soil	0	NO	1	56380 ok.			✓	✓	✓		on samples Shore-2, Shore-1-3', Shore-4-3'	
Shore-4-3'	1/18/95	5:20 pm	Soil	3'	NO	1	56381 ok			✓	✓	✓		BTB	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Lyda Huang	1/19/95 3:30 pm	relinquished to UPS	
Relinquished by: (Signature)	Date / Time	Received by: (Signature) ~~Cathy Riggs~~	Date / Time
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Cathy Riggs	1/20/95 11:00

Condition of Samples upon Arrival at Laboratory:

Remarks:

MAR-02-1995 12:30 FROM PORT OF OAKLAND (LEGAL) TO 4231737 P.06

BASELINE
5900 Hollis Street, Suite D
Emeryville, CA 94608
(415) 420-8686

CHAIN OF CUSTODY RECORD

Turn-Around Time
Lab Friedman & Bruya
Contact Person Lydia Hwang

Project No.	Project Name and Location
S9171	Seabreeze, Port of Oakland, Oakland CA

Samplers: (Signature) Julie C. Pettijohn

No. Station	Date	Time	Media	Depth	Composites	No. of Containers	Station Location	Analysis: 418.1	HFS	metals	Remarks	Detection Limits
Shore - 5 Surface	1/19/95	7:05 am	Soil	Surface 0'	NO	1	56382 ok	✓	✓	✓	Consult Jim Bruya for analysis	
Shore - 5 3.0	1/19/95	7:15 am	Soil	3.0 - 3.5'	No	1	56383 ok	✓	✓	✓		
Shore - 6 Surface	1/19/95	7:45 am	Soil	Surface 0'	No	1	56384 ok	✓	✓	✓		
Shore - 6 2.0	1/19/95	7:50 am	Soil	2.0 - 2.5'	No	1	56385 ok	✓	✓	✓		
Shore - 3 Surface	1/19/95	8:25 am	Soil	Surface 0'	No	1	56386 ok	✓	✓	✓		
Shore - 3 2.5	1/19/95	8:32 am	Soil	2.5 - 3.0'	No	1	56387 ok	✓	✓	✓		

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Condition of Samples upon Arrival at Laboratory
Julie C. Pettijohn	1/19 1:45 pm relinquished to UPS			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Remarks:
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Cathy Rugg	Date / Time 1/20 11:00	

SHORE 2X

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-005
CLIENT: BASELINE ENVIRONMENTAL
PROJECT ID: S9171
LOCATION: SEABREEZE YACHT, OAKLAND
SAMPLE ID: SHORE 2X

DATE SAMPLED: 03/06/95
DATE RECEIVED: 03/06/95
DATE EXTRACTED: 03/10/95
DATE ANALYZED: 03/13/95
DATE REPORTED: 03/14/95
BATCH NO: 19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)
ANALYSIS METHOD: EPA 8080
EXTRACTION METHOD: EPA 3550

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	100
AROCLOR 1232	ND	100
AROCLOR 1016	ND	100
AROCLOR 1242	ND	100
AROCLOR 1248	ND	100
AROCLOR 1254	ND	100
AROCLOR 1260	4,700	100

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: MS/MSD

RPD, %	1
RECOVERY, %	108

QC Sample: 120142-007

120198

BASELINE
101 H Street, Suite L
Petaluma, CA 94952
(707) 762-5233

CHAIN OF CUSTODY RECORD

Turn-around Time: 5-DAY
Lab: Curtis & Tompkins
BASELINE Contact Person: YANE NORDHAV

MAR 14 '95 16:49

Project No.	Project Name and Location
59171	Seabreeze, Port of Oakland

Samplers: (Signature) Bruce Ann

Sample ID No. Station	Date	Time	Media	Depth	No. of Containers	Analysis: TPH	TEH 45 DIESEL MOTOR OIL BUNKER C	BTX&E	Oil & Grease	Motor Oil	PNAs	Title 22 Metals	Total Lead	PCBs EPA 8085				Remarks/ Composite	Detection Limits
TP-1A 3.0-3.5	3/6/95	10:10	Soil	3.0-3.5	1		X												
TP-2 3.0-3.5		10:35	Soil	3.0-3.5	1		X												
TP-2 5.5-6.0		10:50		5.5-6.0	1		X												
TP-3 3.0-3.5		11:10		3.0-3.5	1		X												
Shoe 2x		11:15		0.5-1.0	1								X						
TP-4 3.0-3.5		11:35		3.0-3.5	1		X												
T-1 3.0-3.5		12:20		3.0-3.5	1								X						
T-1 5.5-6.0		12:35		5.5-6.0	1								X						
T-2 3.0-3.5		12:45		3.0-3.5	1								X						
T-3 3.0-3.5		13:10		3.0-3.5	1								X						
T-4 3.0-3.5		13:30		3.0-3.5	1								X						

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Conditions of Samples Upon Arrival at Laboratory:
Bruce Ann	3/6/95		3/6/95 3:47p	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Remarks: 5-days
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	

CCSTRCDP.FRM

APPENDIX B

SOMA REPORT

ENVIRONMENTAL ENGINEERING, INC
2680 Bishop Drive, Suite 203, San Ramon, CA 94583
TEL (510) 244-6600 • FAX (510) 244-6601

LIMITED SOIL AND GROUNDWATER INVESTIGATION

AT THE

FORMER SEABREEZE YACHT CENTER

OAKLAND, CALIFORNIA

March 20, 1995

Prepared by
SOMA Environmental Engineering, Inc.
2680 Bishop Drive, Suite 203
San Ramon, California 94594

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LIST OF FIGURES

March 20, 1995 95-2120

SOIL AND GROUNDWATER INVESTIGATION REPORT FORMER SEABREEZE YACHT CENTER 280 SIXTH AVENUE, OAKLAND, CALIFORNIA

1.0 INTRODUCTION

This technical report describes the methodology, scope of work, and results of a limited soil and groundwater investigation conducted by SOMA Environmental Engineering, Inc. (SOMA) at the former Seabreeze Yacht Center located at 280 Sixth Avenue in Oakland, California ("the site"). This investigation was conducted by SOMA on behalf of the Port of Oakland, which owns the property.

1.1 Scope of Work

This limited soil and groundwater investigation consisted of the following scope-of-work:

(1) Drilling and sampling of four soil borings to a depth of approximately 15 feet to characterize soil conditions, collect soil samples for chemical analysis, and install monitoring wells.

(2) Analysis of eight soil samples for total extractable petroleum hydrocarbons (TEPH) and RCRA metals, one soil sample for semivolatile organic compounds (SVOCs) by EPA Method 8270, and two soil samples for fraction of organic carbon, moisture content, and density.

(3) Installation of four groundwater monitoring wells constructed of 4-inch diameter PVC well casing in each boring.

(4) Development and sampling of each of the four monitoring wells.

(5) Analysis of groundwater samples from each of the four newly installed monitoring wells for

(6) Surveying the locations, ground surface elevations, and top-of-casing elevations for each of the monitoring wells and measurement of groundwater elevations to determine the local groundwater flow direction and gradient.

(7) Installation of a tidal water level monitoring point and monitoring of water levels in the Clinton Basin and three of the newly installed monitoring wells on an hourly basis for a 72-hour period to assess tidal effects on groundwater level fluctuations.

(8) Data evaluation and preparation of this written report.

2.0 FIELD INVESTIGATION

2.1 Drilling and Soil Sampling

On January 30 and 31, 1995, four soil borings were drilled at the site in the area bounded by the former PG&E power plant, the Clinton Basin, and the containment structure for the former aboveground fuel oil storage tank (Figure 1). The borings were drilled for the combined purposes of collecting soil samples for chemical and physical analysis and installing groundwater monitoring wells to allow measurement of groundwater levels and collection of groundwater samples for chemical analysis. The borings and monitoring wells were completed under the supervision of a SOMA Senior hydrogeologist by Environmental Resource Group of Corte Madera and Bayland Drilling, Inc. of Palo Alto, California. Borings were drilled to a depth of 14 feet using a truck-mounted 10-inch O.D. hollow-stem auger.

Soil samples were collected during drilling for lithologic description and for laboratory analysis. The purpose of soil sampling was to qualitatively characterize subsurface conditions and to quantitatively assess the horizontal and vertical distribution of petroleum hydrocarbons and metals in subsurface soils.

Soil sample cores were collected continuously for the first five feet of drilling (to identify the depth at which the Bay Mud was encountered beneath the surficial fill material), and at five-foot intervals thereafter. Samples were collected using a modified California sampler lined with new, pre-cleaned brass tubes, which was driven into undisturbed soil below the lead auger using a 140-pound drop hammer mounted on the auger rig. The sampling device was scrubbed with a solution of Alconox detergent to remove visible soil particles, rinsed with clean tap water, and rinsed a second time with de-ionized water prior to each use.

The two lowermost brass tubes from each driven sample were retained for possible chemical analysis. The ends of the tube were covered promptly with aluminum foil and plastic caps, and taped shut with waterproof tape. The sealed tubes were then labeled, placed in plastic zip-lock bags and promptly stored in a chilled ice chest for transport to the analytical laboratory.

A chain-of-custody form containing information on sample identification and requested analyses was completed by the field sampler and accompanied the samples to the analytical laboratory (Appendix C). All samples were delivered to the analytical laboratory within 48 hours of collection.

A photo-ionization detector (PID) was used to screen samples in the field for the presence of petroleum hydrocarbons to aid in selecting samples for possible chemical analysis. The PID was calibrated prior to the start of field work using a 101-ppm isobutylene standard.

The procedure for screening soil samples using the PID was as follows. A sample of soil was placed into a plastic zip-lock bag, which was then sealed. The soil sample was manipulated gently by hand to break up clumps of soil and release volatile hydrocarbons. The sample was then allowed to sit for approximately ten minutes to allow for temperature equilibration to ambient temperature and chemical equilibration between the soil and air within the sealed bag. After the equilibration period, the probe of the PID was inserted through the wall of the sealed plastic bag and a measurement of volatile hydrocarbon concentration in the air inside the bag was taken and recorded on the boring log (Appendix A).

2.2 Monitoring Well Construction

Monitoring wells were constructed in each of the four boring locations (Figure 1, PW-1 through PW-4) using 4-inch diameter flush-threaded Schedule 40 PVC well casing. The lower ten feet of the well casing consisted of factory-slotted casing with 0.010-inch slots. A filter pack of #0/30 sand was emplaced in the borehole surrounding the slotted portion of the well casing (the well screen) and was extended one foot above the top of the screen. The relatively small slot width and fine grain size for the filter pack were selected in advance based on the fine-grained sediments expected to be encountered. A two-foot seal of bentonite pellets was emplaced around the casing immediately above the sand pack and was hydrated with clean tap water.

After installation, the location, ground surface elevation, and top-of-casing elevation of each monitoring well were surveyed by a licensed surveyor. Well construction logs and survey data are included in Appendix A.

2.3 Monitoring Well Development and Sampling

The monitoring wells were developed on February 1, 1995 and were sampled the following day. The wells were developed by bailing and surging using a hand surging tool to remove fine sediments from the well casing and filter pack and to improve hydraulic communication between the well and the surrounding sediments. Four to ten casing volumes of water were removed from each well during development, depending on the yield of the well. The

temperature, pH, electrical conductivity, and appearance (e.g., clarity, color, odor) of groundwater withdrawn was monitored and recorded (see field logs in Appendix B) during the well development process.

The new monitoring wells were sampled on February 2, 1995. Prior to collecting a groundwater sample, approximately 1.5 to 2 well casing volumes of water were removed from the well using a bailer. During purging, water quality parameters and appearance were monitored as during well development and recorded on field sampling logs (Appendix B). Samples to be analyzed for RCRA metals were filtered directly from the sample bailer into prepared sample bottles using an in-line 0.45-micron filter assembly. A hand pump was used to pressurize the head space in the bailer and force the water through a disposable filter capsule and into the sample bottle. Three laboratory-supplied sample bottles were filled for each sample: two 1-liter amber bottles (unpreserved) and one 500 ml plastic bottle (with nitric acid preservative).

At the end of the day, one set of samples (consisting of one 1-liter amber and one 500 ml plastic bottle from each monitoring well) was delivered to Curtis & Tompkins' laboratory in Berkeley and a second set of samples (consisting of one 1-liter amber bottle from each monitoring well) was sent via Federal Express overnight delivery to Friedman & Bruya's laboratory in Seattle.

2.4 Laboratory Analyses

Two soil samples from each boring (one from the upper 18 inches and a second from a depth of between three and six feet) were analyzed for the following parameters:

- TEPH as diesel, extended to include motor oil range compounds
- RCRA metals

In addition, a single soil sample collected from boring PW-1 at a depth of 2.5 to 3 feet was analyzed for SVOCs by EPA Method 8270. The TEPH analyses were performed by Friedman & Bruya, and the RCRA metals and EPA 8270 analyses were performed by Curtis & Tompkins.

Groundwater samples from each of the monitoring wells were analyzed for the following parameters:

- Petroleum hydrocarbon scan (GC-FID/ECD)
- RCRA metals
- SVOCs by EPA Method 8270 (PW-1 only)

The petroleum hydrocarbon scan was performed by Friedman & Bruya, and the remaining analyses were performed by Curtis & Tompkins. The sample from PW-1 was selected for an 8270 analysis due to the presence of an oily sheen noted in this well.

2.5 Tidal Study

To evaluate the effects of tidal water level fluctuations in the Clinton Basin on groundwater levels and groundwater flow in shallow saturated sediments at the site, a tidal study was performed. The tidal study consisted of continously monitoring water levels in three of the new monitoring wells (PW-2 through PW-4) and a tidal monitoring point in Clinton Basin (TMP-1, Figure 1) over a 72-hour period. Water levels were monitored using 10 PSI pressure transducers connected to electronic data loggers. Due to the high water level in well PW-1 (less than one foot below the top of casing), a data logger could not be installed at this location. (In-well data loggers were used so that monitoring equipment could be secured inside the locked well housings against theft or vandalism; a minimum clearance of approximately 2.5 feet between the top of casing and the maximum water level was required to accommodate the data loggers.)

Pressure transducers and data loggers were installed at TMP-1 and in monitoring wells PW-2 through PW-4 on the morning of February 8. The data loggers were programmed to record water level readings at 15-minute intervals. The test was begun at noon on February 8 and was terminated at noon on February 11. Water levels at each location were measured manually using an electronic water level probe at the time of installation and removal of the pressure transducers and data loggers to provide a reference level for the pressure transducer readings and as a check on the transducer measurements. Water levels were also measured manually in well PW-1 on several occasions during the test to check whether significant water level fluctuations occured at PW-1.

3.0 RESULTS

3.1 Subsurface Soil Conditions

At all four drilling locations, soil samples were collected to a maximum depth of 15 to 15.5 feet. Soils encountered at each location consisted of clayey to sandy artificial fill overling Bay Mud (see Appendix A). Undisturbed Bay Mud, consisting of bluish gray to bluish black silty clay, typically with a hydrogen sulfide (rotten egg) odor indicative of anaerobic organic decomposition, was encountered at depths ranging from 4.5 feet at PW-2 to approximately 13 feet at PW-3. At two locations—PW-1 and PW-3—two intervals of Bay Mud were encountered, the upper interval being underlain by artificial fill material. The upper interval of Bay Mud at these locations probably represents locally derived fill material and not undisturbed natural sediments.

The artificial fill material encountered in borings PW-1 through PW-3 consisted of clayey sand to sandy clay with varying amounts of gravel and crushed miscellaneous base (including rock and brick fragments, etc.). At PW-4, the upper three feet of fill material was similar to

that encountered at the other boring locations, but fill material encountered between depths of three and approximately twelve feet was relatively free of fine grained materials, consisting of medium sand to gravelly sand with granitic rock fragments and crushed miscellaneous base.

Monitoring well PW-2 is screened entirely within Bay Mud, while the remaining newly installed monitoring wells are screened predominantly or wholly within fill material. Soils within the screened interval of monitoring well PW-4 are considerably coarser than soils penetrated by the other three newly installed monitoring wells. Well construction and lithologic logs for monitoring wells PW-1 through PW-4 are presented in Appendix A.

3.2 Groundwater Levels and Flow

3.2.1 Effects of Tidal Fluctuations

Figures 3 through 7 present the results of the tidal study. On Figure 3, the water level elevation is plotted at hourly intervals over the duration of the test at all four monitoring locations (TMP-1, PW-2, PW-3, and PW-4). Figures 4 through 7 present water level plots for each of these locations individually. Note that the scale of the y-axis (water level) is different on each figure as it is scaled for each figure according to the overall range of water level variations.

From Figure 3, it can be seen that the water level in Clinton Basin (TMP-1) fluctuated over an interval of 5 to 5.5 feet on average during the course of one complete tidal cycle (25 hours). It can also be seen from Figure 3 that water levels in monitoring wells PW-2 through PW-4 did not fluctuate significantly over the duration of the test in response to the tidal water level fluctuations in Clinton Basin. The largest tidal response was observed in well PW-4 (Figure 7), where water levels fluctuated by about 0.08 feet on average over a complete tidal cycle. Compared to the difference in water level elevations between monitoring wells (approximately 0.5 to 0.6 feet between PW-3 and PW-4), the fluctuation in well PW-4—which is located only 25 feet from the high-water shoreline—is relatively insignificant.

The water level in well PW-2 (Figures 3 and 5) increased at a more-or-less constant rate throughout the test duration. This suggests that the water level in PW-2 was still recovering from the drawdown caused by removal of water from the well during development and sampling activities nearly one week prior to the start of the test. The log for this well (Figure A-2) shows that it is screened entirely within the Bay Mud; the low permeability of the Bay Mud probably accounts for the very slow recovery of the water level in well PW-2 to equilibrium conditions.

3.2.2 Groundwater Flow

After allowing the groundwater level at well PW-2 to stabilize, water levels were measured in all four new monitoring wells on February 15, 1995. Groundwater elevation contours based on these data are plotted in Figure 2, which shows that the groundwater flow direction is toward Clinton Basin, more-or-less perpendicular to the shoreline. The water levels indicate a hydraulic gradient of approximately 0.02 ft/ft, equivalent to approximately 100 feet/mile. This relatively steep gradient reflects the low hydraulic conductivitity of the shallow saturated sediments at the site.

4.0 CONCLUSIONS

Based on the results of the tidal study and groundwater elevation measurements, shallow groundwater beneath the site flows toward and discharges to the Clinton Basin, which is connected to San Francisco Bay via the Oakland-Alameda estuary. The hydraulic gradient in the shallow saturated sediments is relatively steep and directed toward the shoreline. Tidal water level fluctuations in the bay have little impact in water levels in monitoring wells as close as 25 feet from the high-water shoreline. Therefore, synoptic (one-time) water level measurements in on-site monitoring wells can reliably be used to characterize the groundwater flow direction and gradient.

FIGURES

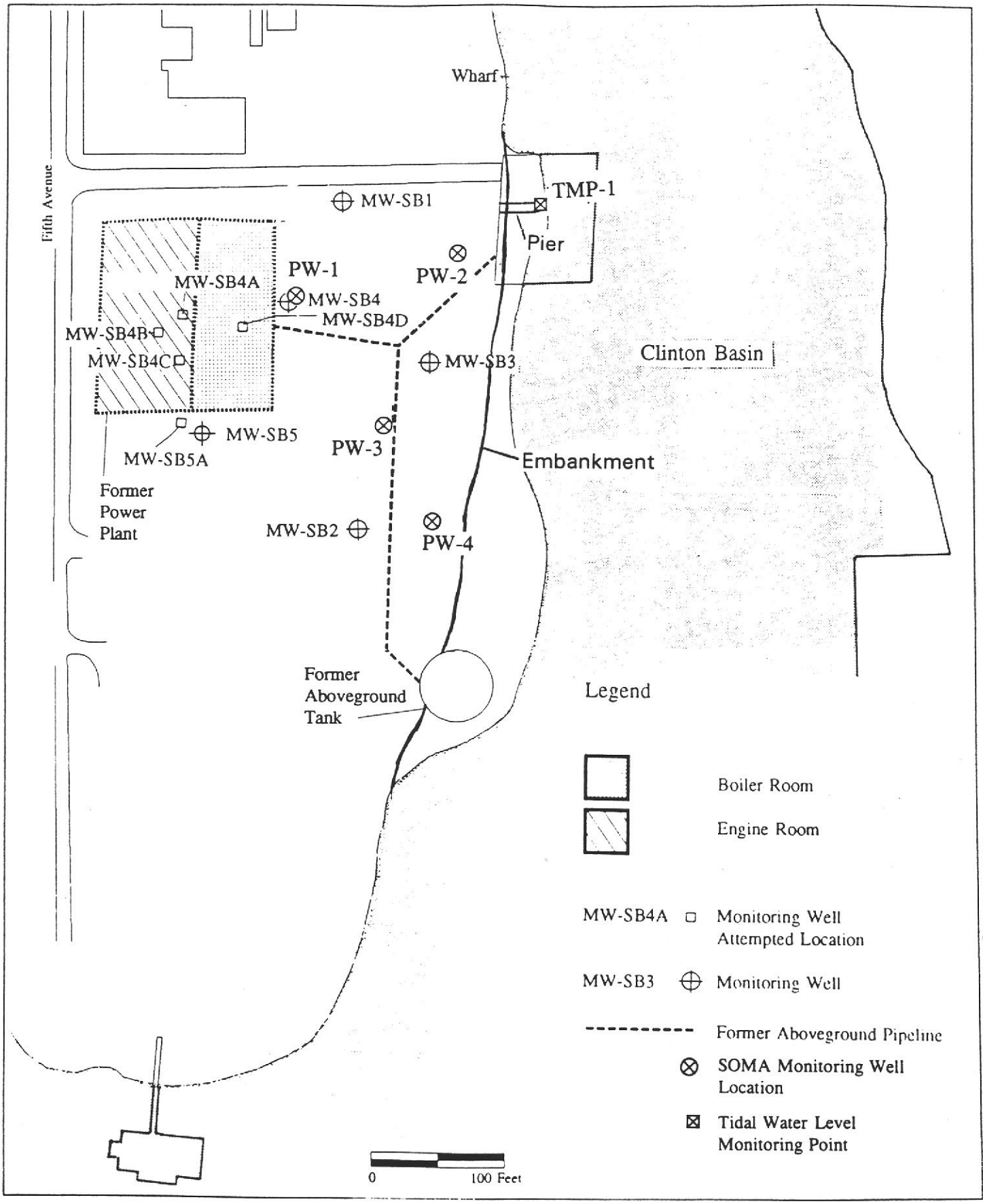

Figure 1: Monitoring Well Locations

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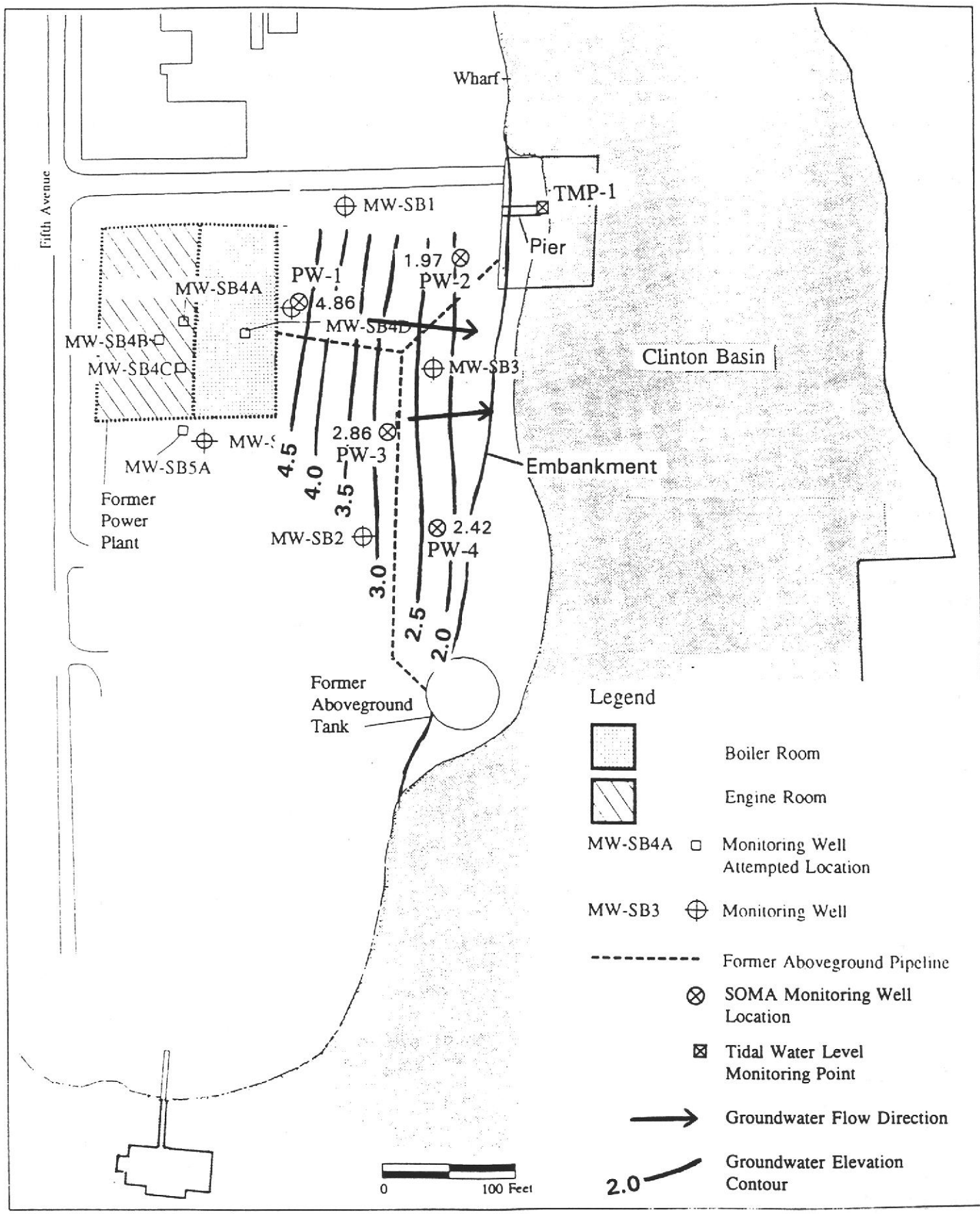


Figure 2: Groundwater Elevation Contours for February 15, 1995

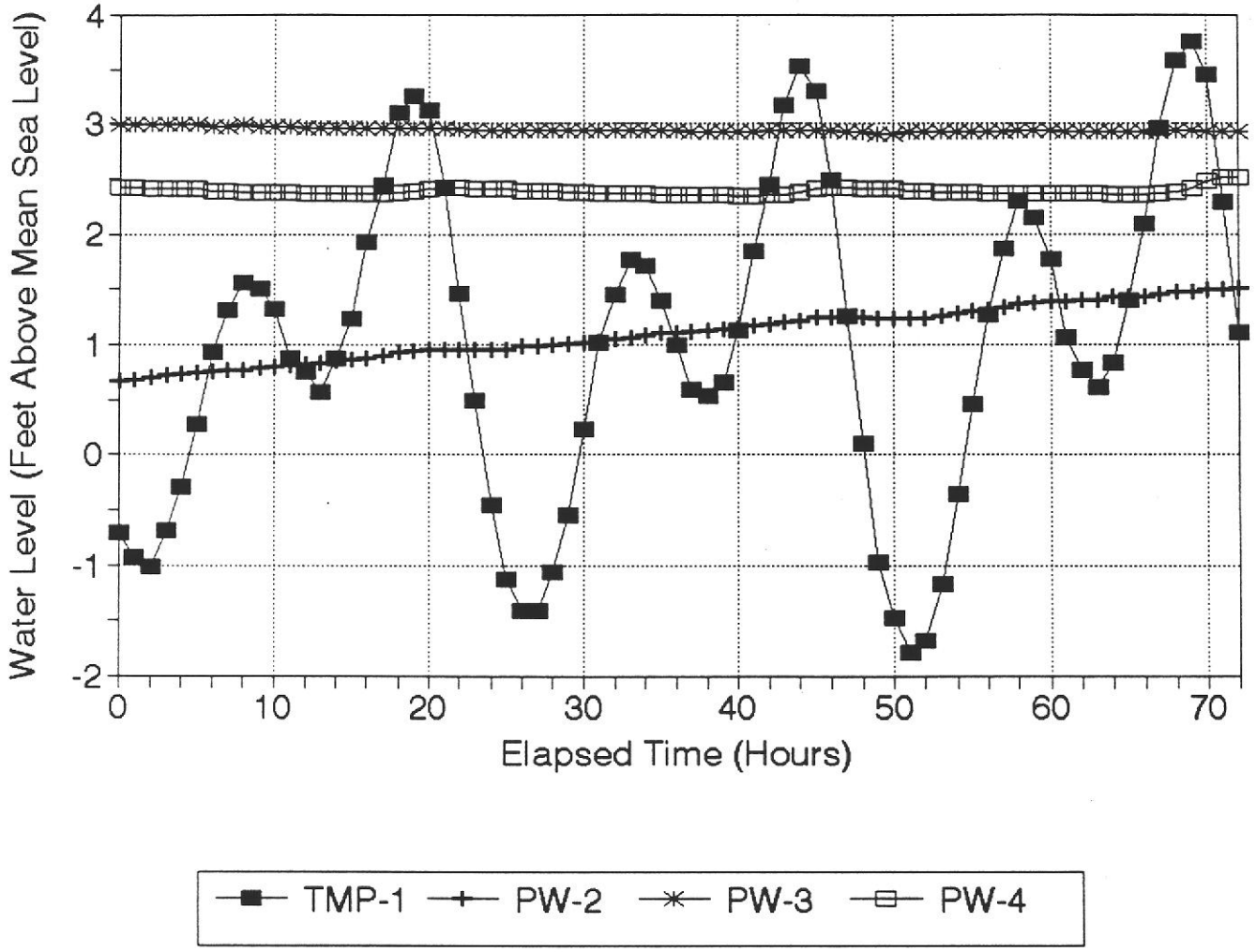


Figure 3: TIDAL STUDY RESULTS FOR ALL WELLS

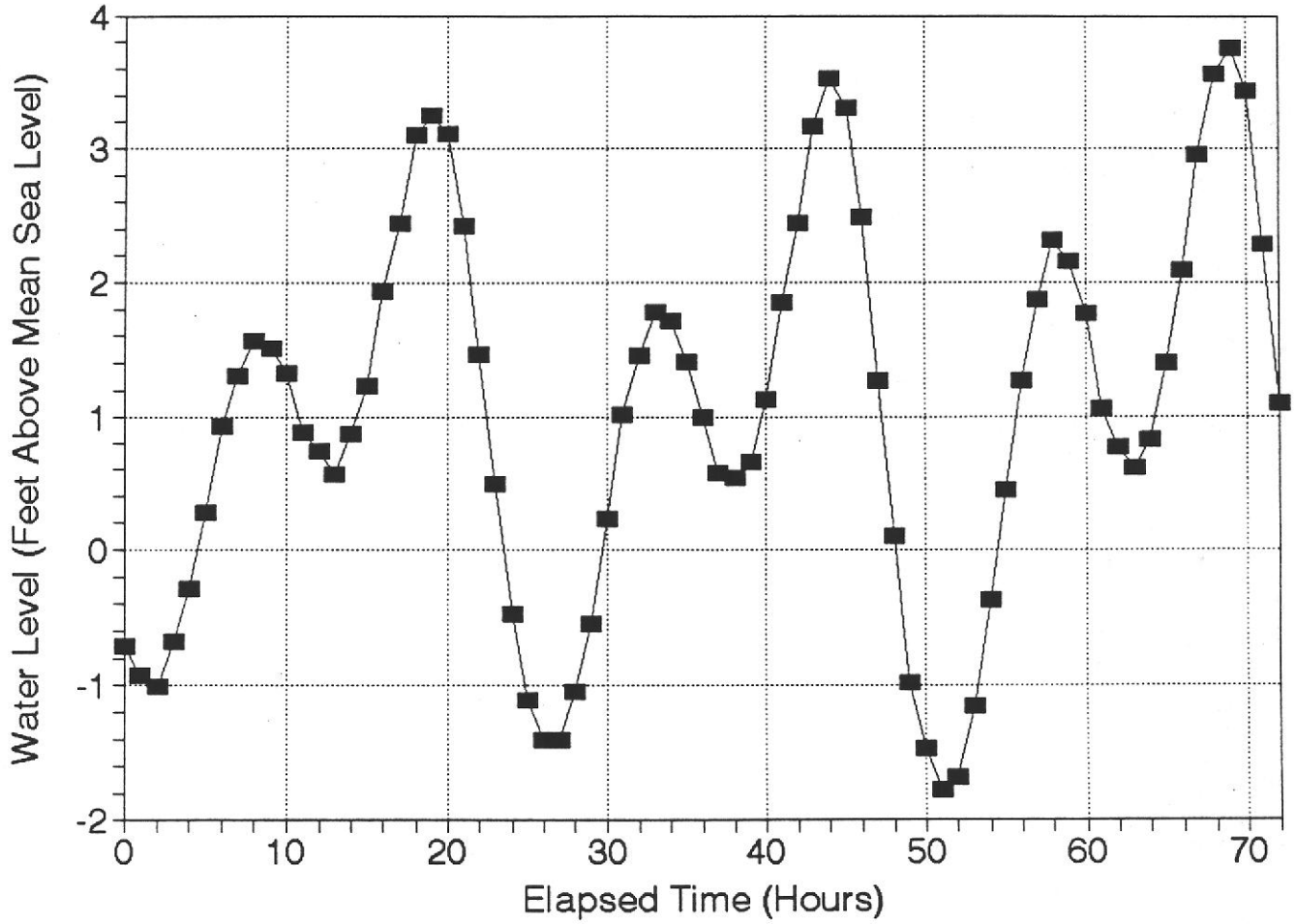


Figure 4: TIDAL STUDY RESULTS FOR TMP-1

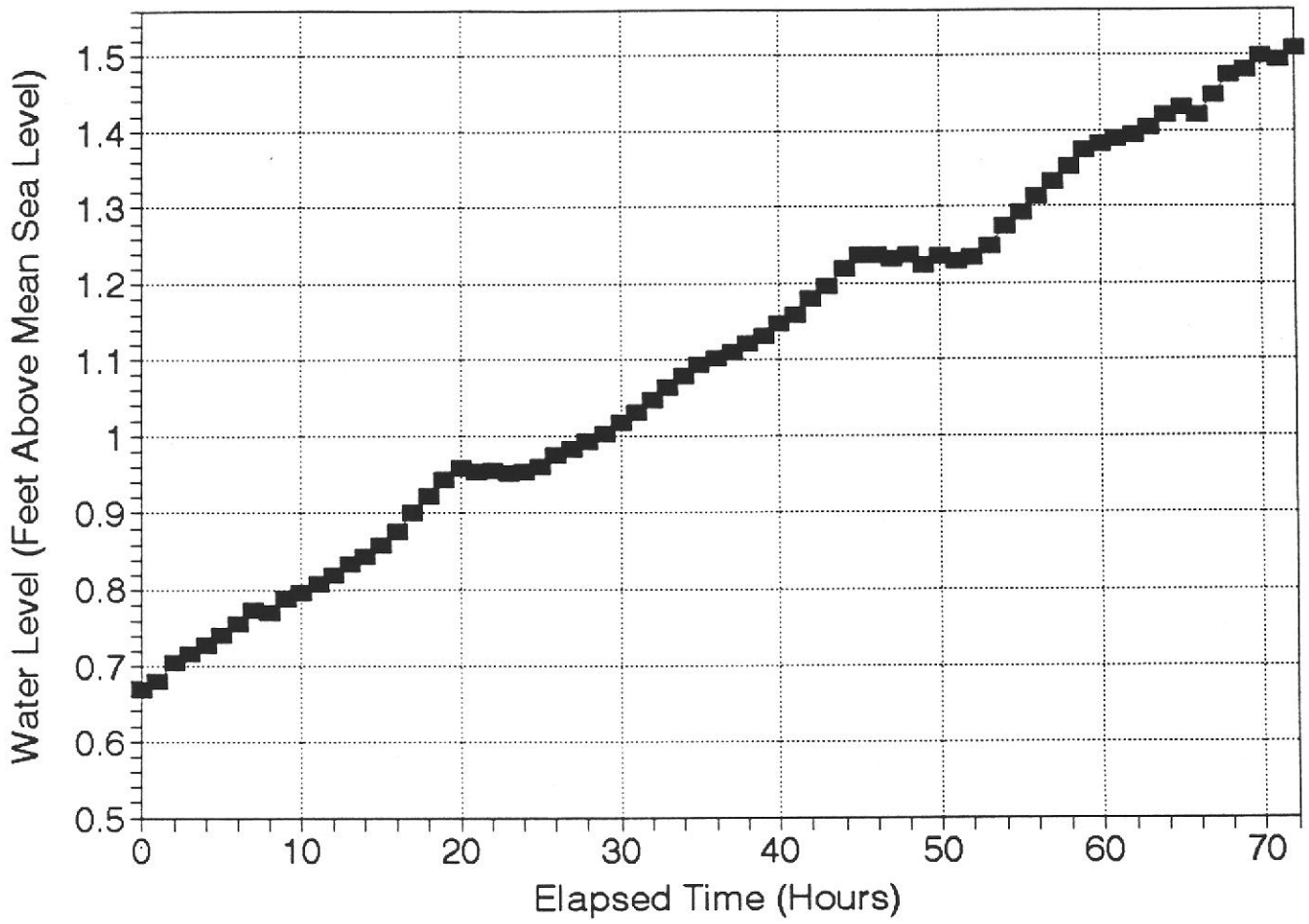


Figure 5: TIDAL STUDY RESULTS FOR PW-2

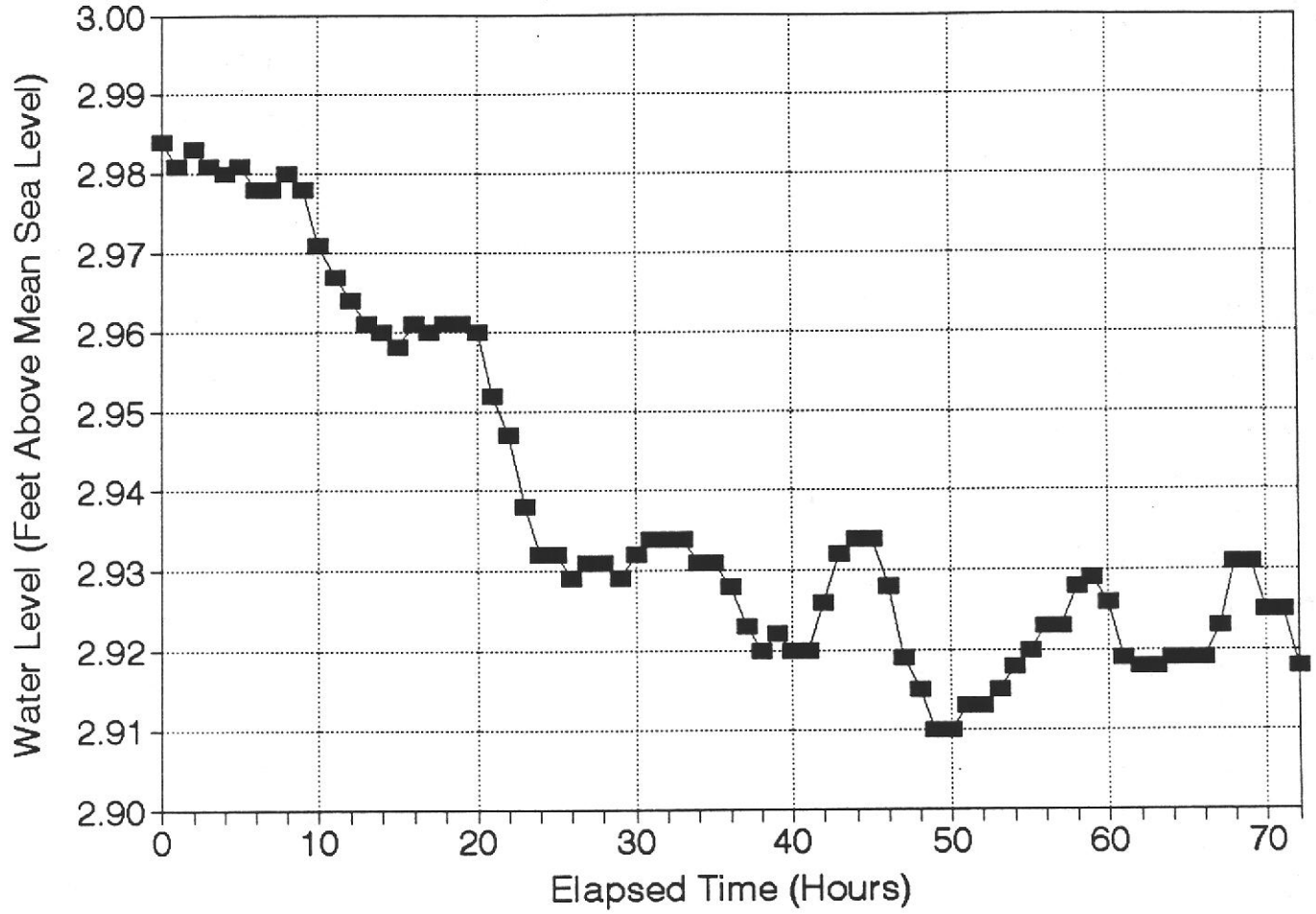


Figure 6: TIDAL STUDY RESULTS FOR PW-3

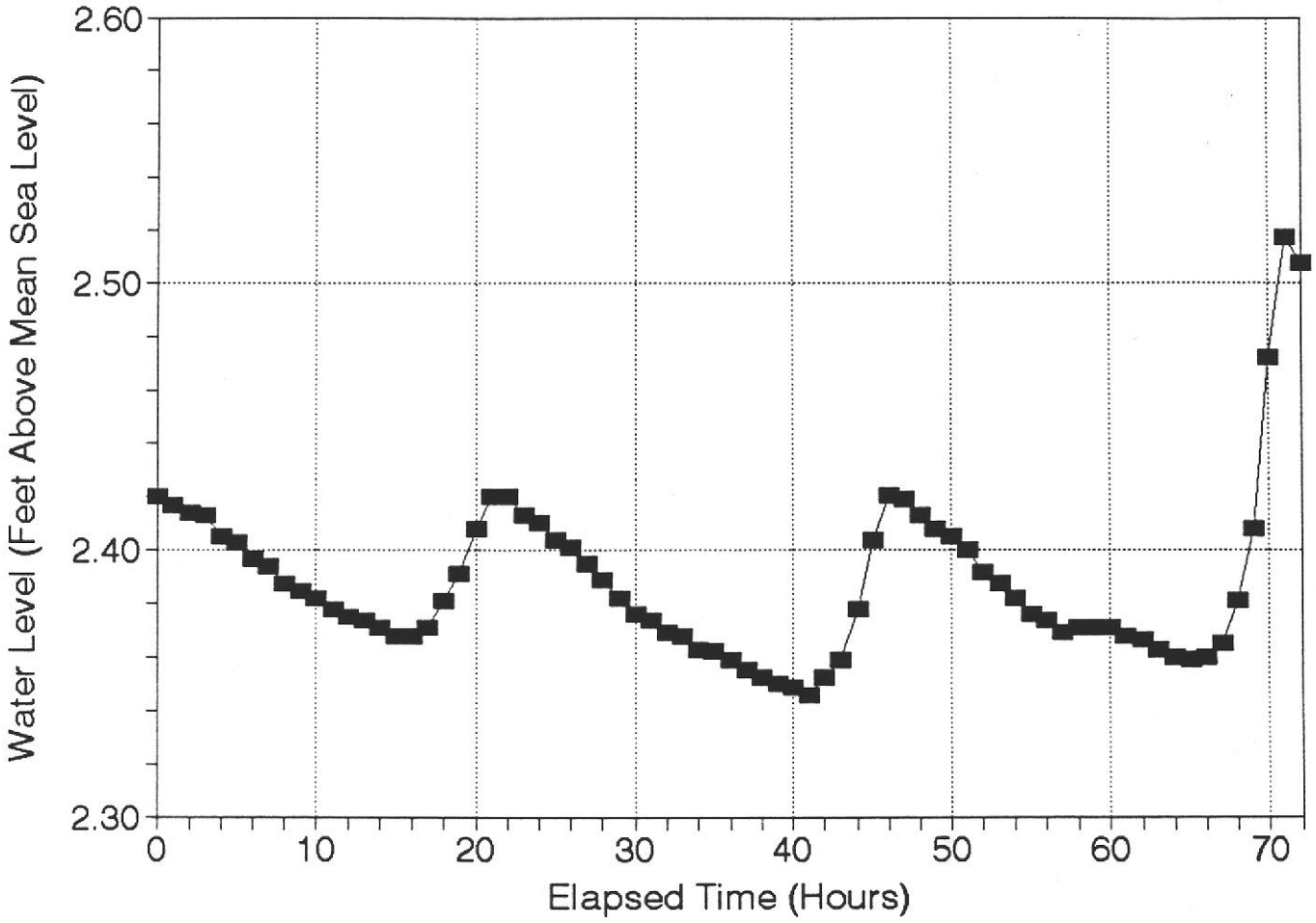
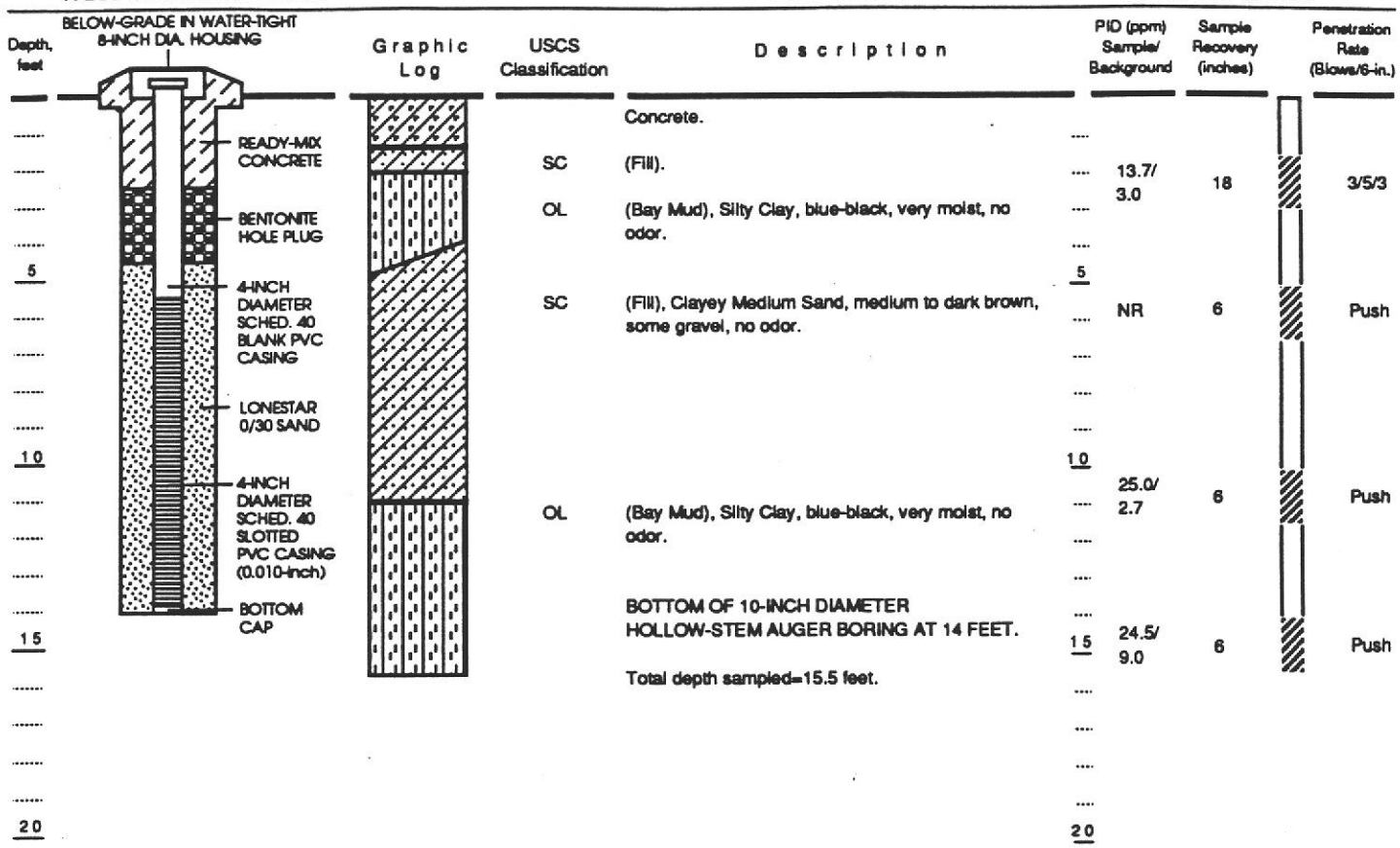


Figure 7: TIDAL STUDY RESULTS FOR PW-4

APPENDIX A

MONITORING WELL LOGS AND SURVEY DATA



EXPLANATION

Clay
Silt
Sand
Gravel

Sampled Interval

PID (ppm) Photoionization detector reading in parts per million

Date well drilled: January 31, 1995
Drilling Co.: Bayland Drilling
Driller: John
Sampling method: Split Spoon Sampler
Hammer Weight: 140 lbs.
Well Elevations (feet MSL): Top of Casing: 6.43
Ground Elevation: 6.60
Field Geologist: Ben Wells
Registered Geologist: John M. Faustini

John M. Faustini
CA R.G. #5873

Figure A-1: FIELD OF WELL CONSTRUCTION AND LITHOLOGY FOR PW-1 *(page 1 of 1)*

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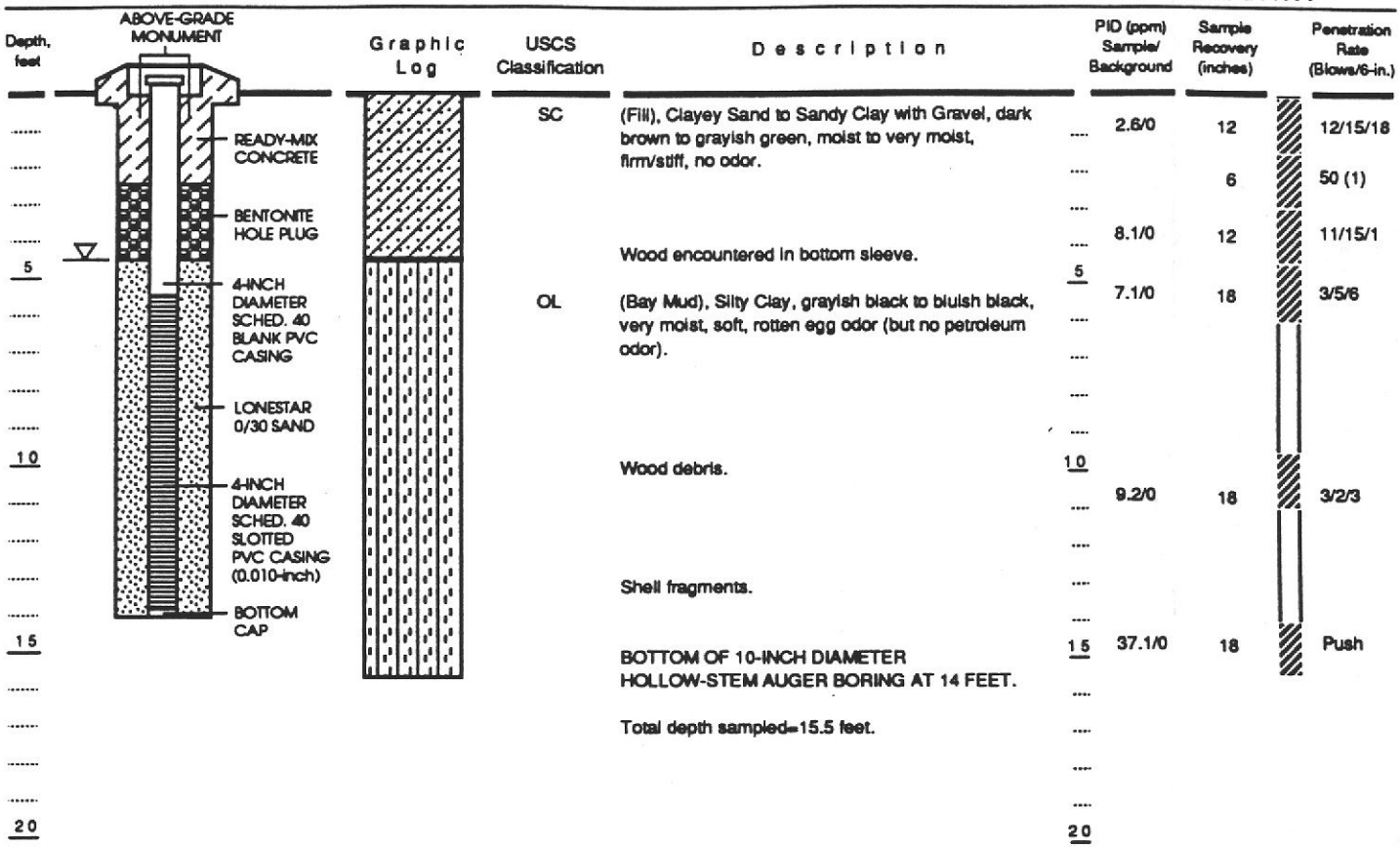

EXPLANATION

Clay
Silt
Sand
Gravel

Sampled interval

PID (ppm) Photoionization detector reading in parts per million

Ground-water level

Date well drilled: January 30, 1995
Drilling Co.: Bayland Drilling
Driller: John
Sampling method: Split Spoon Sampler
Hammer Weight: 140 lbs.
Well Elevations (feet MSL): Top of Casing: 6.57
Ground Elevation: 5.56
Field Geologist: Tim Boyer
Registered Geologist: John M. Faustini

John M. Faustini
CA R.G. # 5873

Figure A-2: FIELD LOG OF WELL CONSTRUCTION AND LITHOLOGY FOR PW-2 *(page 1 of 1)*

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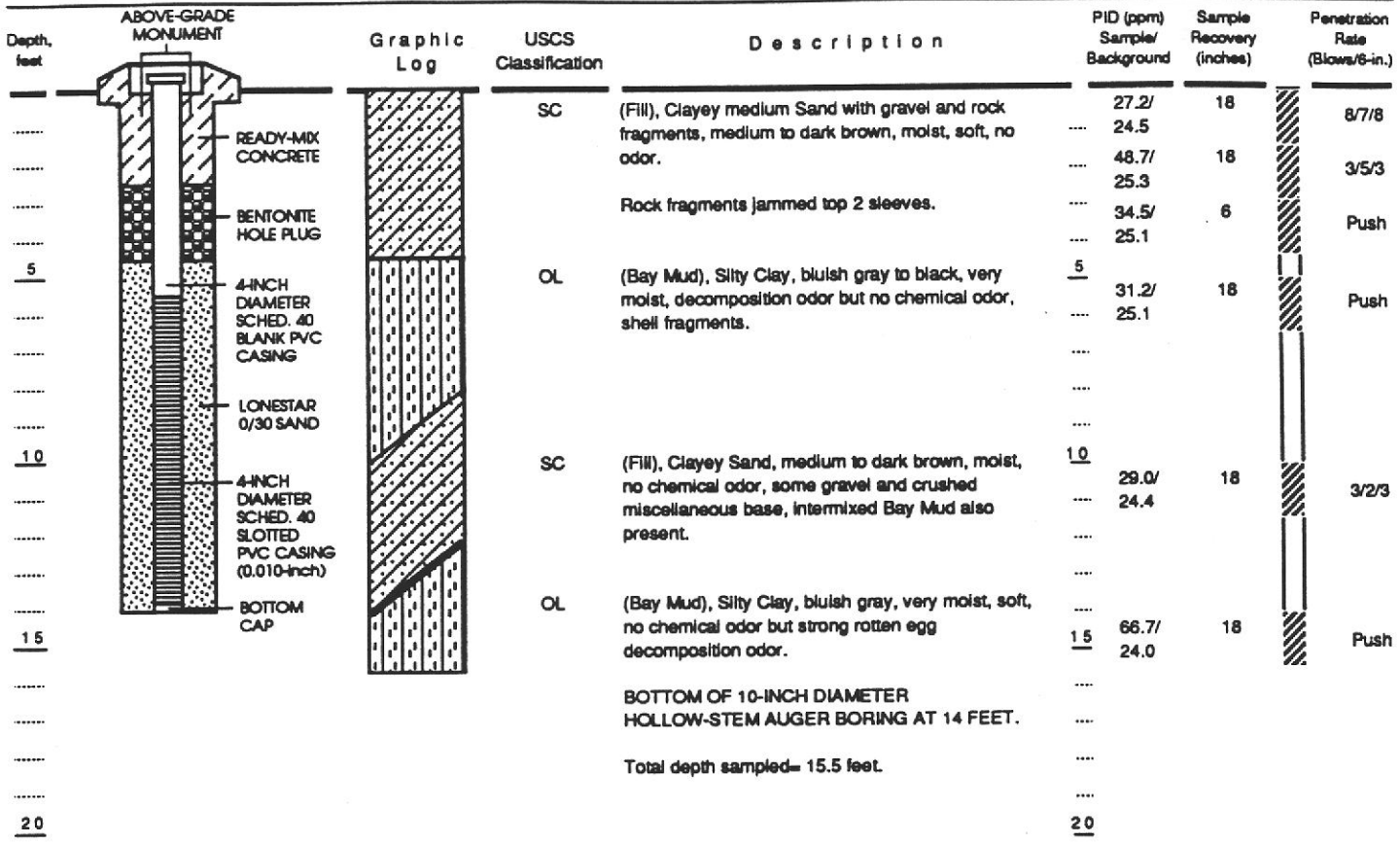

Date well drilled: January 31, 1995
Drilling Co.: Bayland Drilling
Driller: John
Sampling method: Split Spoon Sampler
Hammer Weight: 140 lbs.
Well Elevations (feet/msl): Top of Casing: 7.81
Ground Elevation: 6.36
Field Geologist: Tim Boyer
Registered Geologist: John M. Faustini

EXPLANATION

Clay
Silt
Sand
Gravel

Sampled interval

PID (ppm) Photoionization detector reading in parts per million

John M. Faustini
CA R.G. # 5873

Figure A-3: FIELD OF WELL CONSTRUCTION AND LITHOLOGY FOR PW-3 *(page 1 of 1)*

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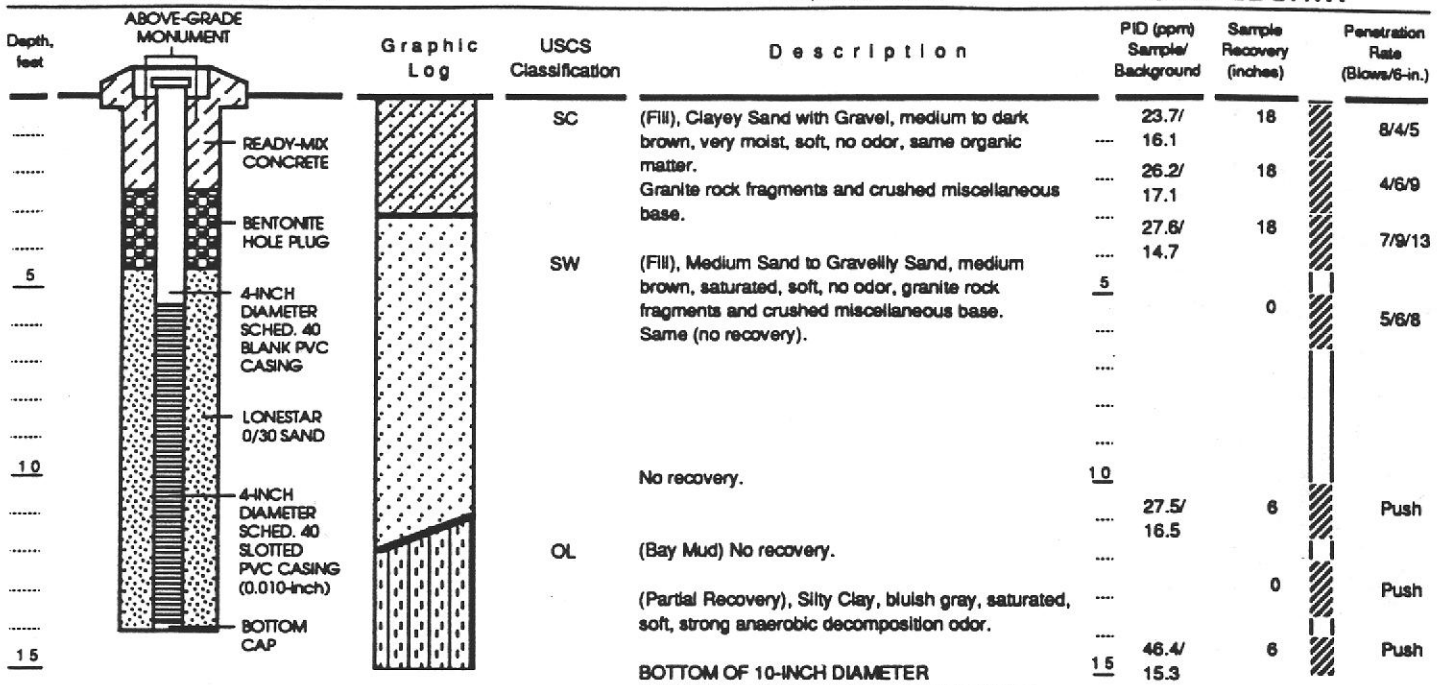

EXPLANATION

Clay
Silt
Sand
Gravel

Sampled interval

PID (ppm) Photoionization detector reading in parts per million

Date well drilled: January 30, 1995
Drilling Co.: Bayland Drilling
Driller: John
Sampling method: Split Spoon Sampler
Hammer Weight: 140 lbs.
Well Elevations (feet/msl): Top of Casing: 7.32
Ground Elevation: 6.22
Field Geologist: Tim Boyer
Registered Geologist: John M. Faustini

John M. Faustini
CA R.G. # 5873

Figure A-4: FIELD OF WELL CONSTRUCTION AND LITHOLOGY FOR PW-4 *(page 1 of 1)*

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P.O. BOX 592
BERKELEY, CA 94701-0592

February 8, 1995

MONITOR WELLS AT 280 6TH AVENUE, OAKLAND, CALIFORNIA

Station	N.Coord.	E. Coord	T.C. Elev.	Ground Elev.
PW - 1	806.5	781.1	6.43	6.60
PW - 2	739.2	885.9	6.57	5.56
PW - 3	691.7	751.5	7.81	6.36
PW - 4	616.7	725.1	7.32	6.22
Pt. on Pier*	719.0	957.1	6.88 **	6.90
SB - 1	830.1	858.3	7.25	
SB - 3	699.0	813.0	8.10	

* TMP-1

** Top of casing is 0.02 ft below surveyed elevation on pier

ELEVATIONS BASED ON N. G. V. D.

APPENDIX B

MONITORING WELL DEVELOPMENT AND SAMPLING FIELD LOGS

WELL DEVELOPMENT FORM

Project Name: 6th ave Oakland	[redacted] Mgr: John F.	Well ID: PW-1
Project Number: 95-2120	Date: 2.1.95	Well Yield:
Site Address: 6th ave Oakland	Development Method: Pump / bailer / plunger	Well Diameter: 4"
		Technician(s): Ben Wells
Initial Depth to Water: .70	Total Well Depth: 14'	Water Column Height: 13.3
Volume/ft: .65	1 Casing Volume: 10	10 Casing Volumes: ~~40~~ 100 Gal.
Purging Device: pump/bailer	Did Well Dewater?: yes	Total Gallons Purged: 40

1 Casing Volume = $\frac{13.3}{\text{Water column height}} \times \text{Volume/ ft.}$

Well Diam.	Volume/ft (gallons)
2"	0.16
(4")	0.65
6"	1.47

Time	Activity	Water Depth	Gallons Purged	Comments
10:00	bailer	.70	0	slight odor, gas sheen on top
10:15		14.10	10	water is dark gray no odor
10:30	pump /	14.10	15	recharge @ 30 min
11:15	bailer	14.10	20	Dewater
11:45			25	
12:15			30	
12:45			35	Recharge
1:30			40	Dewater, no odor, light brown

\TEMPLATE\FORMS\FIELD\WELL-DEV.WPD
SM 5/24/94

WELL DEVELOPMENT FORM

⊕ PW-1
PW-2 ⊕

Project Name: 6th ave, Oakland	[redacted] Mgr: John F.	Well ID: PW-2
Project Number: 95-2120	Date: 2-1.95	Well Yield:
Site Address: 6th ave, Oakland	Development Method: bailer/plunger	Well Diameter: 4"
		Technician(s): Ben Wells
Initial Depth to Water: 11'-1' sheen = 10'	Total Well Depth: 14'	Water Column Height: 4
Volume/ft:	1 Casing Volume: 3 Gal	10 Casing Volumes: 30 gal.
Purging Device: bailer	Did Well Dewater?: yes	Total Gallons Purged: 30 gal.+

1 Casing Volume = Water column height x Volume/ ft. = 4 × 0.65 = 2.6

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Activity	Water Depth	Gallons Purged	Comments
10:40	bailer/plunger 10'	0		no odor or sheen
11:05		14	6	Dewater, recharge 30 min.
11:30		11	10	Dewater
12:00		11	15	Dewater
12:30		11	20	Dewater
1:00		11	25	Dewater
1:35		11	30+	Dewater, water salty, clear no odor

WELL DEVELOPMENT FORM

Project Name: 6th ave, Oakland	[redacted] Mgr: John F.	Well ID: PW-3
Project Number: 95-2120	Date: 2.1.95	Well Yield:
Site Address: 6th ave, Oakland	Development Method: bailer/plunger	Well Diameter: 4"
		Technician(s): Ben Wells
Initial Depth to Water: 6.7-1 (pickup) = 5.7	Total Well Depth: 14.0'	Water Column Height: 8.3
Volume/ft:	1 Casing Volume: ~~4~~ 5.7 gal	10 Casing Volumes: 40 gal
Purging Device:	Did Well Dewater?: yes	Total Gallons Purged: 40 (7 v.)

1 Casing Volume = Water column height (8.3) x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Activity	Water Depth	Gallons Purged	Comments
4:00	bailer/plunger	5.7	0	no odor
		13'	10	light brown color, no odor
4:40		14	15	Dewater, recharge 15 mins
		12	20	
		14	25	Dewater
		12	30	
6:10		14	40	Dewater, no odor. light brown

WELL DEVELOPMENT FORM

Project Name: 6th ave, Oakland	[redacted] Mgr: John F.	Well ID: PW-4
Project Number: 95-2120	Date: 2 1.95	Well Yield:
Site Address: 6th ave., Oakland	Development Method: bailing/plunging	Well Diameter: 4"
		Technician(s): Ben Wells
Initial Depth to Water: 6.5-1'=5.5 (sock up)	Total Well Depth: 14'	Water Column Height: 8.5' (5.5 - 14)
Volume/ft:	1 Casing Volume: ~~16~~ gal.	10 Casing Volumes: ~~60~~ gal.
Purging Device: bailer/plunger	Did Well Dewater?: yes	Total Gallons Purged: 40 gal.

1 Casing Volume = Water column height (8.5) x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
(4")	0.65
6"	1.47

7 vols

Time	Activity	Water Depth	Gallons Purged	Comments
2:00	bailing/plunging	5.5'	0	No odor, light brown
	"	7.8	10	
3:00	"	12'	20	Dewater 30 min recharge
3:40		11'	30+	Dewater, no odor light cream

\TEMPLATE\FORMS\FIELD\WELL-DEV.WPD
SM 5/24/94

Site 6th St. OAKland

Well No PW-1

Date(s) 2-2-95

Geologist Ben Wells

Purging Bailer

Equipment Used

Sampling Baller

Measurement Reference Datum

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft.): Before Purging: 1.0' After Purging: 11.70'

Total purging time (min.): After Sampling: ---

Depth to sediment in well (ft.): Before Purging: After Purging

	Time Since Purging Started (min)	Time	Cumulative Volume Removed (1)	Water Temp °F °C	pH of Water	X1000 Conductivity (umhos/cm)	Water* Appearance	Primary** Particulates	Date
Before		3:60	0	=					
During			4	68.6	7.60	1.95			
During			8	69.0	7.49	2.76			
During		4:00	12	69.3	7.52	2.78			
During									
During									
During									
After									

*CL = clear
CO = cloudy
TU = turbid

**Particle
S = sand
ML = silt
CL = clay

Settle Time
1 min
1-2 hr
hrs

Comments No odor, slight gas sheen on top of well

Site 6th St. in Oakland, SOMA

Date(s) 1.2.95

Purging Bailer 1 bailer

Sampling Bailer weighted bailer with pump filter

Well No. PW-2

Geologist Ben Wells

Equipment Used →

Measurement Reference Datum Ø

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft): Before Purging: 12.80 After Purging: 13.50

After Sampling: ---

Total purging time (min.):

Depth to sediment in well (ft.): Before Purging: After Purging

	Time Since Purging Started (min)	Time	Cumulative Volume Removed (1)	Water Temp °F	pH of Water	Conductivity (μmhos/cm)	Water* Appearance	Primary** Particulates	Date
Before		10:00	Ø	→			clear		1/2/95
During			3	65.1	6.80	off scale			
During			6	67.0	7.10	"			
During		11:00	9	67.7	7.11	"			
During									
During									
During									
After									

*CL = clear
CO = cloudy
TU = turbid

**Particle
S = sand
ML = silt
CL = clay

Settle Time
1 min
1-2 hr
hrs

Comments NO odor, NO F.P.
conductivity = off scale (too salty), Dewater after 8 gal.

= conductivity > 1 to 1000

Site 6th St. Oakland, SOMA Well No PW-3

Date(s) 2.2.95 Geologist Ben Wells

Purging Bailer 1 Equipment Used

Sampling Bailer 1 purge for Metals Measurement Reference Datum

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft): Before Purging: 7.40 After Purging: 9.90

Total purging time (min.): After Sampling:

Depth to sediment in well (ft.): Before Purging: After Purging

	Time Since Purging Started (min)	Time	Cumulative Volume Removed (1)	Water Temp °F	pH of Water	X 1000 Conductivity (µmhos/cm)	Water* Appearance	Primary** Particulates	Date
Before		1:30	0						
During			4	67.3	7.25	13.90			
During			8	68.4	7.96	13.90			
During		2:30	12	68.0	7.85	13.97			
During									
During									
During									
After									

*CL = clear
CO = cloudy
TU = turbid

**Particle
S = sand
ML = silt
CL = clay

Settle Time
1 min
1-2 hr
hrs

Comments No odor

Site 6th St. Oakland, SoMA

Well No PW-4

Date(s) 2.2.95

Geologist Ben Wells

Purging Bailer

Equipment Used bailer

Sampling Bailer pump / filter

Measurement Reference Datum

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft.): Before Purging: 6.85 After Purging: 10.98

Total purging time (min.): After Sampling:

Depth to sediment in well (ft.): Before Purging: After Purging

	Time Since Purging Started (min)	Time	Cumulative Volume Removed (1)	Water Temp °F °C	pH of Water	x1000 Conductivity (µmhos/cm)	Water* Appearance	Primary** Particulates	Date
Before		12:00	0						2/2/95
During			3	68.3	8.04	7.62			
During			6	67.3	7.84	7.47			
During		1:00	9	67.5	7.80	7.48			
During									
During									
During									
After									

*CL = clear
CO = cloudy
TU = turbid

**Particle
S = sand
ML = silt
CL = clay

Settle Time
1 min
1-2 hr
hrs

Comments ND odor

APPENDIX C

DRUM INVENTORY

BASELINE

MEMORANDUM

Date: 10 March 1995

To: Michele Heffes and Dan Schoenholz, Port of Oakland

From: Yane Nordhav and Julie Pettijohn, BASELINE

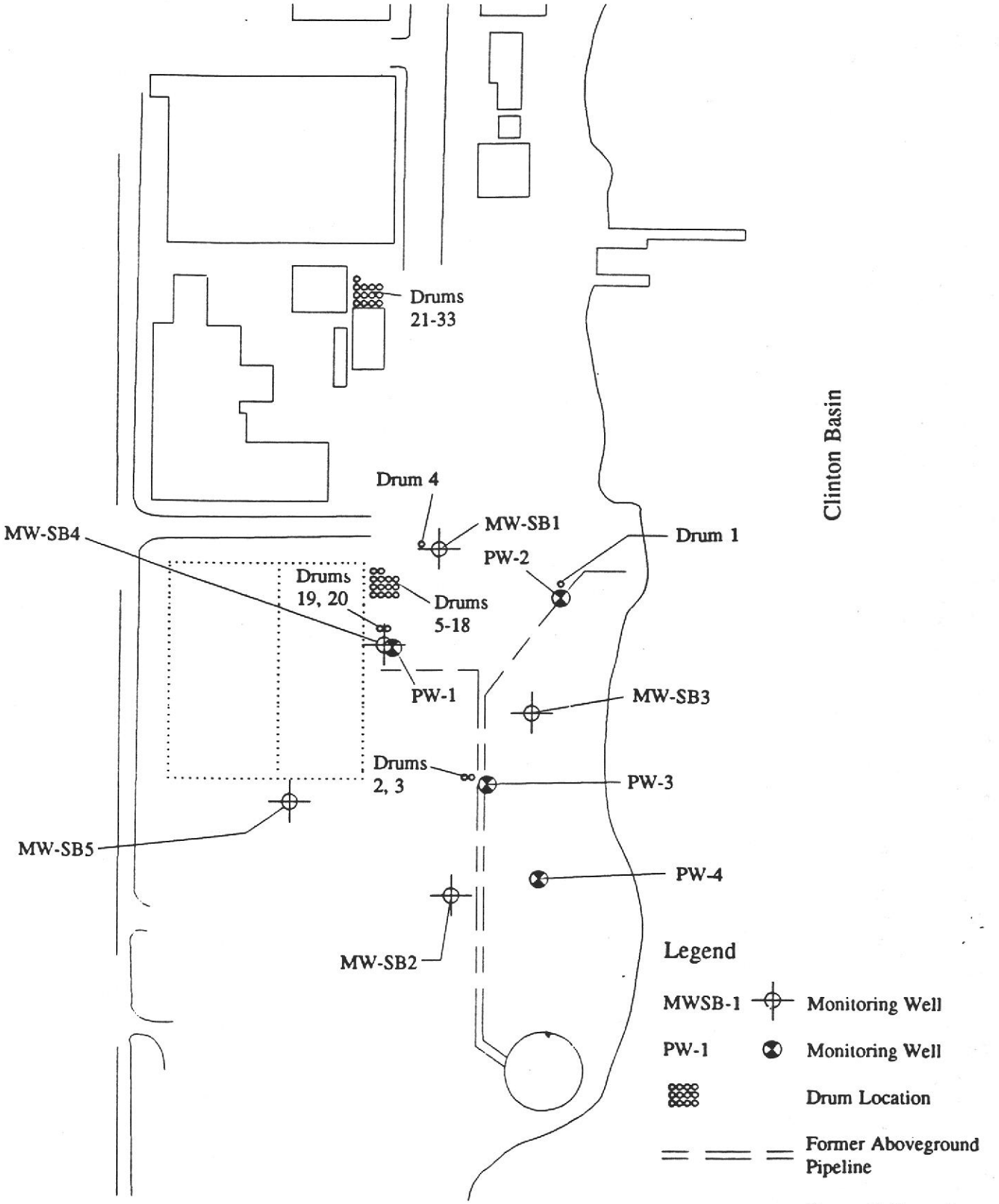
Subject: Drum Inventory, Seabreeze Yacht Center, 280 Sixth Avenue, Oakland

The purpose of this memorandum is to provide an inventory of on-site drums. The drum inventory was taken on the morning of 6 March 1995 by BASELINE personnel. Thirty-three drums were observed during the inventory. The contents of the drums recorded during the inventory are listed below. The location of the drums is presented in Figure 1. Note that some of the drums included in this inventory may have been transported off-site by Dillard Trucking, under the direction of the Port, during the removal of debris material from the site on the afternoon of 6 March 1995.

Map ID	Date	Approximate Volume (gallons)	Contents
1	2/1/95	30	Well development water from PW-2 (SOMA)
2	2/1/95	50	Well development water from PW-3 (SOMA)
3	3/3/95	55	Purge water from MW-SB1, MW-SB2, MW-SB3, PW-3, PW-4 (BASELINE)
4	4/11/91	55	Purge water from MW-SB1, MW-SB2 (BASELINE)
5	1/31/95	55	Decontamination water from PW-1, PW-3 (SOMA)
6	1/30/95	55	Decontamination water (SOMA)
7	1/30/95	55	Soil cuttings from PW-2 (SOMA)
8	1/30/95	55	Soil cuttings from PW-2 (SOMA)
9	1/30/95	55	Soil cuttings from PW-4 (SOMA)
10	1/30/95	55	Decontamination water (SOMA)
11	1/31/95	55	Soil cuttings from PW-1 (SOMA)
12	1/31/95	55	Soil cuttings from PW-3 (SOMA)
13	--	55	Unlabeled (SOMA?)
14	1/31/95	55	Soil cuttings from PW-3 (SOMA)
15	3/3/95	55	Purge water from PW-1, MW-SB4 (BASELINE)
16	2/1/95	55	Well development water from PW-4 (SOMA)
17	--	0	Unlabeled, empty
18	--	--	Unlabeled, rusty (possibly not related to sampling activities)
19	2/1/95	55	Well development water from PW-1 (SOMA)

Map ID	Date	Approximate Volume (gallons)	Contents
20	11/10/94 3/3/95	55	Purge water from MW-SB3; BD-1, BD-2, BD-4 (BASELINE)
21	11/10/94 11/22/94	55	Soil cuttings from MW-SB4, BD-4 (BASELINE)
22	11/22/94	55	Soil cuttings from MW-SB4, BD-3 (BASELINE)
23	11/22/94	55	Soil cuttings from MW-SB5, BD-5 (BASELINE)
24	11/22/94	55	Soil cuttings from MW-SB5 (BASELINE)
25	11/10/94	55	Soil cuttings from BD-2, BD-2A, MW-SB3 (BASELINE)
26	8/15/94	10	Steam cleaning rinsate from B1-B17 (BASELINE)
27	11/10/94	55	Soil cuttings from BD-1, BD-2, and BD-4 (BASELINE)
28	1/7/94	55	Soil cuttings from SB-9 (BASELINE)
29	1/7/94	55	Soil cuttings from SB-6, SB-9 (BASELINE)
30	1/7/94	55	Soil cuttings from SB-12, SB-14, and SB-6 (BASELINE)
31	1/7/94	55	Steam cleaning water (BASELINE)
32	3/6/96	27.5	Soil cuttings from TP-1, TP-1A, TP-2, TP-3, TP-4 (BASELINE)
33	3/6/95	14	Decontamination rinsate from TP-1, TP-1A, TP-2, TP-3, TP-4 (BASELINE)

DRUM INVENTORY, MARCH 1995



Seabreeze Yacht Center
Sixth Avenue
Oakland, California

S9171-00.01 3/10/95 Cadd-file K-disk 2 and C:/- drum191

APPENDIX D

GROUNDWATER SAMPLING FORMS
February 1995

Site 6th St. OAKland

Well No. PW-1

Date(s) 2-2-95

Geologist Ben Wells

Purging Bailer

Equipment Used

Sampling Bailer

Measurement Reference Datum

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft.): Before Purging: 1.0' After Purging: 11.70'

Total purging time (min.): After Sampling: ---

Depth to sediment in well (ft.): Before Purging: After Purging

	Time Since Purging Started (min)	Time	Cumulative Volume Removed (1)	Water Temp °F °C	pH of Water	x1000 Conductivity (µmhos/cm)	Water* Appearance	Primary** Particulates	Date
Before		3:60	0	=					
During			4	68.6	7.60	1.95			
During			8	69.0	7.49	2.76			
During		4:00	12	69.3	7.52	2.78			
During									
During									
During									
After									

*CL = clear
CO = cloudy
TU = turbid

**Particle
S = sand
ML = silt
CL = clay

Settle Time
1 min
1-2 hr
hrs

Comments NO odor, slight gas sheen on top of well

Site 6th St. in Oakland, SOMA

Date(s) 1.2.95

Purging Bailer 1 bailer

Sampling Bailer 1 weighted bailer with pump filter

Well No. PW-2

Geologist Ben Wells

Equipment Used →

Measurement Reference Datum Ø

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft): Before Purging: 12.80 After Purging: 13.50

Total purging time (min.): After Sampling: ---

Depth to sediment in well (ft.): Before Purging: After Purging

	Time Since Purging Started (min)	Time	Cumulative Volume Removed (1)	Water Temp °F °C	pH of Water	Conductivity (µmhos/cm)	Water* Appearance	Primary** Particulates	Date
Before		10:00	Ø	→			Clear		1/2/95
During			3	65.1	6.80	off scale			
During			6	67.0	7.10	"			
During		11:00	9	67.7	7.11	"			
During									
During									
During									
After									

*Cl = clear
CO = cloudy
TU = turbid

**Particle
S = sand
ML = silt
CL = clay

Settle Time
1 min
1-2 hr
hrs

Comments NO odor, NO F.P.
conductivity = off scale (too salty), Dewater after 8 gal

* = conductivity >1 to >1000 | . — —

Site 6th St. Oakland, SSMA Well No. FW-3

Date(s) 2.2.95 Geologist Ben Wells

Purging Bailer 1 Equipment Used

Sampling Bailer 1 pump for Metals Measurement Reference Datum

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft.): Before Purging: 7.40 After Purging: 9.90

Total purging time (min.): After Sampling:

Depth to sediment in well (ft.): Before Purging: After Purging

13900 µmhos/cm - non-drinking water

	Time Since Purging Started (min)	Time	Cumulative Volume Removed (l)	Water Temp °F	pH of Water	X 1000 Conductivity (µmhos/cm)	Water* Appearance	Primary** Particulates	Date
Before		1:30	0						
During			4	67.3	7.25	13.90			
During			8	68.4	7.90	13.90			
During		2:30	12	68.0	7.85	13.97			
During									
During									
During									
After									

*CL = clear
CO = cloudy
TU = turbid

**Particle
S = sand
ML = silt
CL = clay

Settle Time
1 min
1-2 hr
hrs

Comments UG odor

Site 6th St. Oakland, SoMA

Well No PW-4

Date(s) 2.2.95

Geologist Ben Wells

Purging Bailer

Equipment Used bailer

Sampling Baller pump / filter

Measurement Reference Datum

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft.): Before Purging: 6.85 After Purging: 10.98

Total purging time (min.): After Sampling:

Depth to sediment in well (ft.): Before Purging: After Purging

	Time Since Purging Started (min)	Time	Cumulative Volume Removed (gal.) (1)	Water Temp °F °C	pH of Water	x1000 Conductivity (µmhos/cm)	Water* Appearance	Primary** Particulates	Date
Before		12:00	0						2/2/95
During			3	68.3	8.04	7.62			
During			6	67.3	7.84	7.47			
During		1300	9	67.5	7.80	7.48			
During									
During									
During									
After									

*CL = clear
CO = cloudy
TU = turbid

**Particle
S = sand
ML = silt
CL = clay

Settle Time
1 min
1-2 hr
hrs

Comments NO odor

APPENDIX E

GROUNDWATER SAMPLING FORMS
March 1995

GROUNDWATER SAMPLING

Project no.:	S9171-B0	Well no.:	MW-SB1	Date:	3/3/95
Project name:	Seabreeze Yacht Center	Depth of well from TOC (feet):	10.5		
Location:	260 6th Avenue	Well diameter (inch):	2		
	Oakland, CA	Screened interval from TOC (feet):	4.3-10.5		
Recorded by:	WKS/JCP	TOC elevation (feet):	7.25		
Weather:	Cloudy	Water level from TOC (feet):	4.94	Time	9:05
Precip in past		Product level from TOC (feet):	None	Time	9:05
5 days (inch):	~1.25	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(10.5 ft) - (4.94 ft)] × (0.083 ft)² × 3.14 × 7.48 =

Well depth Water level Well radius

0.9 gallons in one well volume
4.6 gallons in 5 well volumes
3.5 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:			7.00-10.01	10,000
Before Purging:	9:10	13.0	7.00-10.01	7,500
After Purging:	12:25	18.5	7.12-10.02	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
11:20	14.1	7.78	4,800	2.5	Clear with black algae particles
11:29	15.5	7.82	4,700	3.0	Clear with black algae particles
11:33	14.7	7.82	4,700	3.5	Clear with black algae particles
	WELL PUMPED DRY				

Water level after purging prior to sampling (feet):	5.45			Time	14:05
Appearance of sample:	Clear			Time	14:11
Duplicate/blank number:	None			Time	--
Purge method:	Double diaphragm pump				
Sampling equipment:	Disposable PVC bailer	VOC attachment:	None		
Sample containers:	Two one-liter amber glass, one 40-ml clear glass				
Sample analyses:	TEH-Bunker C, -diesel, -motor oil, turbidity	Laboratory:	Curtis & Tompkins, Ltd.		
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:			

S9171MAR.XLW (3/17/95)

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GROUNDWATER SAMPLING

Project no.:	S9171-B0	Well no.:	MW-SB2	Date:	3/3/95
Project name:	Seabreeze Yacht Center	Depth of well from TOC (feet):	11.0		
Location:	260 6th Avenue	Well diameter (inch):	2		
	Oakland, CA	Screened interval from TOC (feet):	3-11		
Recorded by:	WKS/JCP	TOC elevation (feet):	7.18		
Weather:	Cloudy	Water level from TOC (feet):	2.84	Time	8:50
Precip in past		Product level from TOC (feet):	None	Time	8:50
5 days (inch):	~1.25	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(11.0 ft) - (2.84 ft)] × (0.083 ft)² × 3.14 × 7.48 =
Well depth Water level Well radius

1.3 gallons in one well volume
6.5 gallons in 5 well volumes
6.5 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:			7.00-10.01	10,000
Before Purging:	9:10	13.0	7.00-10.01	7,500
After Purging:	12:25	18.5	7.12-10.02	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
10:41	14.8	6.93	9,500	1	Clear, sulfur smell
10:46	14.4	6.92	9,000	3	Clear, sulfur smell
10:50	14.4	6.98	10,000	6	Clear, sulfur smell
	WELL PUMPED DRY				

Note: Recharge rate too slow to allow 80% recharge before sampling on 3/3/95. Sample collected on 3/6/95.

Water level after purging prior to sampling (feet):	6.48	Time	3/6/95 9:50
Appearance of sample:	Clear	Time	3/6/95 10:25
Duplicate/blank number:	MWSB2-duplicate	Time	3/6/95 10:45
Purge method:	Double diaphragm pump		
Sampling equipment:	Disposable PVC bailer	VOC attachment:	None
Sample containers:	Two one-liter amber glass, one 40-ml clear glass		
Sample analyses:	TEH-Bunker C, -diesel, -motor oil, turbidity	Laboratory:	Curtis & Tompkins, Ltd.
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	

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GROUNDWATER SAMPLING

Project no.:	S9171-B0	Well no.:	MW-SB3	Date:	3/3/95
Project name:	Seabreeze Yacht Center	Depth of well from TOC (feet):	11.06		
Location:	280 6th Street	Well diameter (inch):	2		
	Oakland, CA	Screened interval from TOC (feet):	4.86-11.06		
Recorded by:	WKS/JCP	TOC elevation (feet):	8.10		
Weather:	Cloudy	Water level from TOC (feet):	6.78	Time	8:40
Precip in past		Product level from TOC (feet):	None	Time	8:40
5 days (inch):	~1.25	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(11.06 ft) - (6.78 ft)] × (0.083 ft)² × 3.14 × 7.48 =

Well depth Water level Well radius

0.70 gallons in one well volume
3.5 gallons in 5 well volumes
3.5 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:			7.00-10.01	10,000
Before Purging:	9:10	13.0	7.00-10.01	7,500
After Purging:	12:25	10.4	7.12-10.02	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
9:55	15.1	6.96	19,000	1	Clear with slight amber color
10:00	15.7	6.98	21,500	2.5	Clear with slight amber color
10:05	15.8	7.24	24,500	3.3	Clear with slight amber color
				3.5	

Note: Recharge rate too slow to allow 80% recharge before sampling on 3/3/95. Sample collected on 3/6/95.

Water level after purging prior to sampling (feet):	6.98		Time 3/6/95 10:55
Appearance of sample:	Clear to very slightly turbid		Time 3/6/95 11:05
Duplicate/blank number:	None		Time --
Purge method:	Double diaphragm pump		
Sampling equipment:	Disposable PVC bailer	VOC attachment:	None
Sample containers:	Two one-liter amber glass, one 40-ml clear glass		
Sample analyses:	TEH-Bunker C, -diesel, -motor oil, turbidity	Laboratory:	Curtis & Tompkins, Ltd.
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	

S9171MAR.XLW (3/17/95)

GROUNDWATER SAMPLING

Project no.:	S9171-B0	Well no.:	MW-SB4	Date:	3/3/95
Project name:	Seabreeze Yacht Center	Depth of well from TOC (feet):	14.75		
Location:	260 6th Avenue	Well diameter (inch):	2		
	Oakland, CA	Screened interval from TOC (feet):	2.55-14.75		
Recorded by:	WKS/JCP	TOC elevation (feet):	6.39		
Weather:	Cloudy	Water level from TOC (feet):	0.90	Time	8:35
Precip in past		Product level from TOC (feet):	Slight sheen	Time	8:35
5 days (inch):	~1.25	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(14.75 ft) - (0.90 ft)] × (0.083 ft)² × 3.14 × 7.48 =
Well depth Water level Well radius

2.2 gallons in one well volume
11.2 gallons in 5 well volumes
7.0 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:			7.00-10.01	10,000
Before Purging:	9:10	13.0	7.00-10.01	7,500
After Purging:	12:25	18.5	7.12-10.02	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
11:39	15.8	7.43	1,300	2.0	Clear to very slightly turbid
11:42	15.1	7.54	900	3.75	Clear to very slightly turbid
11:47	14.7	7.59	900	6.0	Clear to very slightly turbid
11:52				7.0	Clear to very slightly turbid

Water level after purging prior to sampling (feet):	0.91	Time	13:33
Appearance of sample:	Clear - very slightly turbid	Time	13:35
Duplicate/blank number:	None	Time	--
Purge method:	Double diaphragm pump		
Sampling equipment:	Disposable PVC bailer	VOC attachment:	None
Sample containers:	Two one-liter amber glass, one 40-ml clear glass		
Sample analyses:	TEH-Bunker C, -diesel, -motor oil, turbidity	Laboratory:	Curtis & Tompkins, Ltd.
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	

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GROUNDWATER SAMPLING

Project no.:	S9171-B0	Well no.:	MW-SB5	Date:	3/3/95
Project name:	Seabreeze Yacht Center	Depth of well from TOC (feet):	14.75		
Location:	260 6th Avenue	Well diameter (inch):	2		
	Oakland, CA	Screened interval from TOC (feet):	2.55-14.75		
Recorded by:	WKS/JCP	TOC elevation (feet):	6.30		
Weather:	Cloudy	Water level from TOC (feet):	2.54	Time	9:00
Precip in past		Product level from TOC (feet):	None	Time	9:00
5 days (inch):	~1.25	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(14.75 ft) - (2.54 ft)] × (0.083 ft)² × 3.14 × 7.48 =
Well depth Water level Well radius

2.0 gallons in one well volume
10.0 gallons in 5 well volumes
6.0 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:			7.00-10.01	10,000
Before Purging:	9:10	13.0	7.00-10.01	7,500
After Purging:	12:25	18.5	7.12-10.02	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
12:12	16.1	6.81	25,000	1.0	Light amber color
12:13	15.4	6.78	24,000	2.0	Light amber color
12:14	15.4	6.77	24,000	3.0	Light amber color
12:16	15.1	6.83	24,000	3.5	Light amber color
12:20	15.6	6.90	25,000	5.5	Light amber color
12:22	16.7	6.98	26,000	6.0	Light amber color

Note: Recharge rate too slow to allow 80% recharge before sampling on 3/3/95. Sample collected on 3/6/95.

Water level after purging prior to sampling (feet):	2.5	Time	3/6/95 12:45
Appearance of sample:	Light amber color	Time	3/6/95 12:50
Duplicate/blank number:	MWSB5-duplicate	Time	3/6/95 12:55
Purge method:	Double diaphragm pump		
Sampling equipment:	Disposable PVC bailer	VOC attachment:	None
Sample containers:	Two one-liter amber glass, one 40-ml clear glass		
Sample analyses:	TEH-Bunker C, -diesel, -motor oil, turbidity	Laboratory:	Curtis & Tompkins, Ltd.
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	

S9171MAR.XLW (3/17/95)

GROUNDWATER SAMPLING

Project no.:	S9171-B0	Well no.:	PW-1	Date:	3/3/95
Project name:	Seabreeze Yacht Center	Depth of well from TOC (feet):	13.8		
Location:	260 6th Avenue	Well diameter (inch):	4		
	Oakland, CA	Screened interval from TOC (feet):	5.3-13.8		
Recorded by:	WKS/JCP	TOC elevation (feet):	6.43		
Weather:	Cloudy	Water level from TOC (feet):	1.34	Time	8:35
Precip in past		Product level from TOC (feet):	None	Time	8:35
5 days (inch):	~1.25	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(13.8 ft) - (1.34 ft)] × (0.166 ft)² × 3.14 × 7.48 =

(Well depth — Water level — Well radius)

8.1 gallons in one well volume
40.5 gallons in 5 well volumes
9 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:			7.00-10.01	10,000
Before Purging:	9:10	13.0	7.00-10.01	7,500
After Purging:	12:25	18.5	7.12-10.02	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
11:12	15.7	7.21	12,000	1	Clear
11:15	14.9	7.61	2,600	5	Clear
11:22	15.5	7.33	6,500	8	Clear
	WELL PUMPED DRY			9	

Water level after purging prior to sampling (feet):	1.35			Time	13:33
Appearance of sample:	Clear to very slightly turbid			Time	13:40
Duplicate/blank number:	None			Time	--
Purge method:	Double diaphragm pump				
Sampling equipment:	Disposable PVC bailer	VOC attachment:	None		
Sample containers:	Two one-liter amber glass, one 40-ml clear glass				
Sample analyses:	TEH-Bunker C, -diesel, -motor oil, turbidity	Laboratory:	Curtis & Tompkins, Ltd.		
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:			

S9171MAR.XLW (3/17/95)

GROUNDWATER SAMPLING

Project no.:	S9171-B0	Well no.:	PW-2	Date:	3/3/95
Project name:	Seabreeze Yacht Center	Depth of well from TOC (feet):	15		
Location:	260 6th Avenue	Well diameter (inch):	4		
	Oakland, CA	Screened interval from TOC (feet):	6.5-15.0		
Recorded by:	WKS/JCP	TOC elevation (feet):	6.57		
Weather:	Cloudy	Water level from TOC (feet):	3.90	Time	9:10
Precip in past		Product level from TOC (feet):	None	Time	9:10
5 days (inch):	~1.25	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(15 ft) - (3.90 ft)] × (0.166 ft)² × 3.14 × 7.48 =

(Well depth — Water level — Well radius)

7.2 gallons in one well volume
36.1 gallons in 5 well volumes
13 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:			7.00-10.01	10,000
Before Purging:	9:10	13.0	7.00-10.01	7,500
After Purging:	12:25	18.5	7.12-10.02	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
9:30	15.8	6.98	25,000	5.0	Very slightly turbid
9:38	15.0	7.12	24,000	10.0	Very slightly turbid
9:45	16.4	7.25	28,500	13.0	Very slightly turbid
	WELL PUMPED DRY				

Note: Recharge rate too slow to allow 80% recharge before sampling on 3/3/95. Sample collected on 3/6/95.

Water level after purging prior to sampling (feet):	6.36	Time	3/6/95 9:50
Appearance of sample:	Clear to very slightly turbid	Time	3/6/95 10:10
Duplicate/blank number:	None	Time	--
Purge method:	Double diaphragm pump		
Sampling equipment:	Disposable PVC bailer	VOC attachment:	None
Sample containers:	Two one-liter amber glass, one 40-ml clear glass		
Sample analyses:	TEH-Bunker C, -diesel, -motor oil, turbidity	Laboratory:	Curtis & Tompkins, Ltd.
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	

S9171MAR.XLW (3/17/95)

GROUNDWATER SAMPLING

Project no.:	S9171-B0	Well no.:	PW-3	Date:	3/3/95
Project name:	Seabreeze Yacht Center	Depth of well from TOC (feet):	15.5		
Location:	280 6th Avenue	Well diameter (inch):	4		
	Oakland, CA	Screened interval from TOC (feet):	7-15.5		
Recorded by:	WKS/JCP	TOC elevation (feet):	7.81		
Weather:	Cloudy	Water level from TOC (feet):	4.76	Time	8:45
Precip in past		Product level from TOC (feet):	None	Time	8:45
5 days (inch):	~1.25	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(15.5 ft) - (4.76 ft)] × (0.166 ft)² × 3.14 × 7.48 =
Well depth Water level Well radius

7 gallons in one well volume
35.0 gallons in 5 well volumes
8.0 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:			7.00-10.01	10,000
Before Purging:	9:10	13	7.00-10.01	7,500
After Purging:	12:25	12	7.12-10.02	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
10:20	16.6	7.15	17,000	2	Slightly turbid - greenish gray color
10:23	15.7	7.12	14,000	5	Slightly turbid - greenish gray color
10:26	15.4	7.13	14,000	8	Slightly turbid - greenish gray color
	WELL PUMPED DRY				

Note: Recharge rate too slow to allow 80% recharge before sampling on 3/3/95. Sample collected on 3/6/95.

Water level after purging prior to sampling (feet):	4.75	Time	3/6/95 11:24
Appearance of sample:	Clear	Time	3/6/95 11:24
Duplicate/blank number:	None	Time	--
Purge method:	Double diaphragm pump		
Sampling equipment:	Disposable PVC bailer	VOC attachment:	None
Sample containers:	Two one-liter amber glass, one 40-ml clear glass		
Sample analyses:	TEH-Bunker C, -diesel, -motor oil, turbidity	Laboratory:	Curtis & Tompkins, Ltd.
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	

BASELINE · 5900 Hollis Street, Suite D · Emeryville, CA 94608 · (510) 420-8686 · Fax (510) 420-1707

GROUNDWATER SAMPLING

Project no.:	S9171-B0	Well no.:	PW-4	Date:	3/3/95
Project name:	Seabreeze Yacht Center	Depth of well from TOC (feet):	15.1		
Location:	260 6th Avenue	Well diameter (inch):	4		
	Oakland, CA	Screened interval from TOC (feet):	6.6-15.1		
Recorded by:	WKS/JCP	TOC elevation (feet):	7.32		
Weather:	Cloudy	Water level from TOC (feet):	4.71	Time	8:57
Precip in past		Product level from TOC (feet):	None	Time	8:57
5 days (inch):	~1.25	Water level measurement:	Dual interface probe		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

[(15.1 ft) - (4.71 ft)] × (0.166 ft)² × 3.14 × 7.48 =
Well depth Water level Well radius

6.8 gallons in one well volume
33.8 gallons in 5 well volumes
19.0 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:			7.00-10.01	10,000
Before Purging:	9:10	13.0	7.00-10.01	7,500
After Purging:	12:25	18.5	7.12-10.02	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
10:23	16.0	7.26	19,000	1	Slightly turbid
10:27	15.1	7.59	9,000	3	Slightly turbid
10:35	15.2	7.80	8,000	5.5	Clear
10:40	14.8	7.80	8,000	7.0	Clear
10:43	14.5	7.81	7,500	10.0	Clear
10:50	14.5	7.93	7,000	12.0	Clear
10:57	14.4	7.91	6,000	15.0	Clear
11:05	14.6	7.80	6,000	18.0	Clear
				19.0	

Water level after purging prior to sampling (feet):	4.67			Time	13:49
Appearance of sample:	Clear			Time	13:55
Duplicate/blank number:	None			Time	--
Purge method:	Double diaphragm pump				
Sampling equipment:	Disposable PVC bailer	VOC attachment:	None		
Sample containers:	Two one-liter amber glass, one 40-ml clear glass				
Sample analyses:	TEH-Bunker C, -diesel, -motor oil, turbidity	Laboratory:	Curtis & Tompkins, Ltd.		
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:			

S9171MAR.XLW (3/17/95)

APPENDIX F

LABORATORY REPORTS, GROUNDWATER
February 1995

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

SOMA Environmental Engineering Inc.
2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Date: 17-FEB-95
Lab Job Number: 119799
Project ID: 95-2120
Location: 6th St., Oakland

Reviewed by: _____

Reviewed by: _____

Curtis & Tompkins, Ltd.

SAMPLE ID: PW-1B
LAB ID: 119799-005
CLIENT: SOMA Environmental Engineering Inc.
PROJECT ID: 95-2120
LOCATION: 6th St., Oakland
MATRIX: Water

DATE SAMPLED: 02/02/95
DATE RECEIVED: 02/02/95
DATE REPORTED: 02/17/95

RCRA Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	QC Batch	Method	Analysis Date
Arsenic	19	5.0	19006	EPA 6010A	02/13/95
Barium	18	10	19006	EPA 6010A	02/13/95
Cadmium	ND	5.0	19006	EPA 6010A	02/13/95
Chromium (total)	ND	10	19006	EPA 6010A	02/13/95
Lead	6.0	3.0	19006	EPA 6010A	02/13/95
Mercury	ND	0.20	18917	EPA 7470	02/07/95
Selenium	ND	5.0	19006	EPA 6010A	02/13/95
Silver	ND	10	19006	EPA 6010A	02/13/95

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

SAMPLE ID: PW-2B
LAB ID: 119799-006
CLIENT: SOMA Environmental Engineering Inc.
PROJECT ID: 95-2120
LOCATION: 6th St., Oakland
MATRIX: Water

DATE SAMPLED: 02/02/95
DATE RECEIVED: 02/02/95
DATE REPORTED: 02/17/95

RCRA Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	QC Batch	Method	Analysis Date
Arsenic	14	5.0	19006	EPA 6010A	02/13/95
Barium	100	10	19006	EPA 6010A	02/13/95
Cadmium	ND	5.0	19006	EPA 6010A	02/13/95
Chromium (total)	ND	10	19006	EPA 6010A	02/13/95
Lead	4.3	3.0	19006	EPA 6010A	02/13/95
Mercury	ND	0.20	18917	EPA 7470	02/07/95
Selenium	11	5.0	19006	EPA 6010A	02/13/95
Silver	ND	10	19006	EPA 6010A	02/13/95

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

SAMPLE ID: PW-3B
LAB ID: 119799-007
CLIENT: SOMA Environmental Engineering Inc.
PROJECT ID: 95-2120
LOCATION: 6th St., Oakland
MATRIX: Water

DATE SAMPLED: 02/02/95
DATE RECEIVED: 02/02/95
DATE REPORTED: 02/17/95

RCRA Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	QC Batch	Method	Analysis Date
Arsenic	15	5.0	19006	EPA 6010A	02/13/95
Barium	84	10	19006	EPA 6010A	02/13/95
Cadmium	ND	5.0	19006	EPA 6010A	02/13/95
Chromium (total)	ND	10	19006	EPA 6010A	02/13/95
Lead	ND	3.0	19006	EPA 6010A	02/13/95
Mercury	ND	0.20	18917	EPA 7470	02/07/95
Selenium	ND	5.0	19006	EPA 6010A	02/13/95
Silver	ND	10	19006	EPA 6010A	02/13/95

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

SAMPLE ID: PW-4B
LAB ID: 119799-008
CLIENT: SOMA Environmental Engineering Inc.
PROJECT ID: 95-2120
LOCATION: 6th St., Oakland
MATRIX: Water

DATE SAMPLED: 02/02/95
DATE RECEIVED: 02/02/95
DATE REPORTED: 02/17/95

RCRA Metals

Compound	Result (ug/L)	Reporting Limit (ug/L)	QC Batch	Method	Analysis Date
Arsenic	14	5.0	19006	EPA 6010A	02/13/95
Barium	81	10	19006	EPA 6010A	02/13/95
Cadmium	ND	5.0	19006	EPA 6010A	02/13/95
Chromium (total)	ND	10	19006	EPA 6010A	02/13/95
Lead	ND	3.0	19006	EPA 6010A	02/13/95
Mercury	ND	0.20	18917	EPA 7470	02/07/95
Selenium	ND	5.0	19006	EPA 6010A	02/13/95
Silver	ND	10	19006	EPA 6010A	02/13/95

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

CLIENT: SOMA Environmental Engineering Inc.
JOB NUMBER: 119799

DATE REPORTED: 02/17/95

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	QC Batch	Method	Analysis Date
Arsenic	ND	5	ug/L	19006	EPA 6010A	02/13/95
Barium	ND	10	ug/L	19006	EPA 6010A	02/13/95
Cadmium	ND	5	ug/L	19006	EPA 6010A	02/13/95
Chromium (total)	ND	10	ug/L	19006	EPA 6010A	02/13/95
Lead	ND	3	ug/L	19006	EPA 6010A	02/13/95
Mercury	ND	0.2	ug/L	18917	EPA 7470	02/07/95
Selenium	ND	5	ug/L	19006	EPA 6010A	02/13/95
Silver	ND	10	ug/L	19006	EPA 6010A	02/13/95

ND = Not Detected at or above reporting limit

Curtis & Tompkins, Ltd.

CLIENT: SOMA Environmental Engineering Inc. DATE REPORTED: 02/17/95
JOB NUMBER: 119799

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS % Recovery	BSD % Recovery	Average Recovery	RPD	QC Batch	Method	Analysis Date
Arsenic	2000	1750	1760	ug/L	88	88	88	1	19006	EPA 6010A	02/13/95
Barium	2000	1780	1780	ug/L	89	89	89	0	19006	EPA 6010A	02/13/95
Cadmium	50	44.1	44.2	ug/L	88	88	88	0	19006	EPA 6010A	02/13/95
Chromium (total)	200	174	173	ug/L	87	87	87	1	19006	EPA 6010A	02/13/95
Lead	500	441	441	ug/L	88	88	88	0	19006	EPA 6010A	02/13/95
Mercury	4	4.431	4.436	ug/L	111	111	111	0	18917	EPA 7470	02/07/95
Selenium	2000	1770	1790	ug/L	89	90	90	1	19006	EPA 6010A	02/13/95
Silver	50	41.7	41.3	ug/L	83	83	83	1	19006	EPA 6010A	02/13/95

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 119799-001
CLIENT: SOMA Environmental Engineering, Inc.
PROJECT ID: 95-2120
LOCATION: 6th St., Oakland
SAMPLE ID: PW-1A

DATE SAMPLED: 02/02/95
DATE RECEIVED: 02/02/95
DATE EXTRACTED: 02/07/95
DATE ANALYZED: 02/09/95
DATE REPORTED: 02/17/95
BATCH #: 18944

EPA 8270: Base/Neutral and Acid Extractables in Water
Extraction Method: EPA 3520 Continuous Liquid/Liquid

	RESULT ug/L	REPORTING LIMIT ug/L
ACID COMPOUNDS		
Phenol	ND	9.4
2-Chlorophenol	ND	9.4
Benzyl Alcohol	ND	9.4
2-Methylphenol	ND	9.4
4-Methylphenol	ND	9.4
2-Nitrophenol	ND	47
2,4-Dimethylphenol	ND	9.4
Benzoic Acid	ND	47
2,4-Dichlorophenol	ND	9.4
4-Chloro-3-methylphenol	ND	9.4
2,4,6-Trichlorophenol	ND	9.4
2,4,5-Trichlorophenol	ND	47
2,4-Dinitrophenol	ND	47
4-Nitrophenol	ND	47
4,6-Dinitro-2-methylphenol	ND	47
Pentachlorophenol	ND	47
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	9.4
Aniline	ND	9.4
Bis(2-chloroethyl)ether	ND	9.4
1,3-Dichlorobenzene	ND	9.4
1,4-Dichlorobenzene	ND	9.4
1,2-Dichlorobenzene	ND	9.4
Bis(2-chloroisopropyl)ether	ND	9.4
N-Nitroso-di-n-propylamine	ND	9.4
Hexachloroethane	ND	9.4
Nitrobenzene	ND	9.4
Isophorone	ND	9.4
Bis(2-chloroethoxy)methane	ND	9.4
1,2,4-Trichlorobenzene	ND	9.4
Naphthalene	ND	9.4
4-Chloroaniline	ND	9.4
Hexachlorobutadiene	ND	9.4
2-Methylnaphthalene	ND	9.4
Hexachlorocyclopentadiene	ND	9.4
2-Chloronaphthalene	ND	9.4
2-Nitroaniline	ND	47

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 119799-001
SAMPLE ID: PW-1A

EPA 8270

BASE/NEUTRAL COMPOUNDS	RESULT ug/L	REPORTING LIMIT ug/L
Dimethylphthalate	ND	9.4
Acenaphthylene	ND	9.4
2,6-Dinitrotoluene	ND	9.4
3-Nitroaniline	ND	47
Acenaphthene	ND	9.4
Dibenzofuran	ND	9.4
2,4-Dinitrotoluene	ND	9.4
Diethylphthalate	ND	9.4
4-Chlorophenyl-phenylether	ND	9.4
Fluorene	ND	9.4
4-Nitroaniline	ND	47
N-Nitrosodiphenylamine	ND	9.4
Azobenzene	ND	9.4
4-Bromophenyl-phenylether	ND	9.4
Hexachlorobenzene	ND	9.4
Phenanthrene	ND	9.4
Anthracene	ND	9.4
Di-n-butylphthalate	ND	9.4
Fluoranthene	ND	9.4
Pyrene	ND	9.4
Butylbenzylphthalate	ND	9.4
3,3'-Dichlorobenzidine	ND	47
Benzo(a)anthracene	ND	9.4
Chrysene	ND	9.4
Bis(2-ethylhexyl)phthalate	38	9.4
Di-n-octylphthalate	ND	9.4
Benzo(b)fluoranthene	ND	9.4
Benzo(k)fluoranthene	ND	9.4
Benzo(a)pyrene	ND	9.4
Indeno(1,2,3-cd)pyrene	ND	9.4
Dibenzo(a,h)anthracene	ND	9.4
Benzo(g,h,i)perylene	ND	9.4

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: % SURROGATE RECOVERIES

2-Fluorophenol	89	Nitrobenzene-d5	81
Phenol-d5	97	2-Fluorobiphenyl	86
2,4,6-Tribromophenol	75	Terphenyl-d14	49
2-Chlorophenol-d4	90	1,2-Dichlorobenzene-d4	73

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 119799-Method Blank
CLIENT: SOMA Environmental Engineering, Inc.
PROJECT ID: 95-2120
LOCATION: 6th St., Oakland
SAMPLE ID: N/A

DATE EXTRACTED: 02/07/95
DATE ANALYZED: 02/09/95
DATE REPORTED: 02/17/95
BATCH #: 18944

EPA 8270: Base/Neutral and Acid Extractables in Water
Extraction Method: EPA 3520 Continuous Liquid/Liquid

ACID COMPOUNDS	RESULT ug/L	REPORTING LIMIT ug/L
Phenol	ND	10
2-Chlorophenol	ND	10
Benzyl Alcohol	ND	10
2-Methylphenol	ND	10
4-Methylphenol	ND	10
2-Nitrophenol	ND	50
2,4-Dimethylphenol	ND	10
Benzoic Acid	ND	50
2,4-Dichlorophenol	ND	10
4-Chloro-3-methylphenol	ND	10
2,4,6-Trichlorophenol	ND	10
2,4,5-Trichlorophenol	ND	50
2,4-Dinitrophenol	ND	50
4-Nitrophenol	ND	50
4,6-Dinitro-2-methylphenol	ND	50
Pentachlorophenol	ND	50
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	10
Aniline	ND	10
Bis(2-chloroethyl)ether	ND	10
1,3-Dichlorobenzene	ND	10
1,4-Dichlorobenzene	ND	10
1,2-Dichlorobenzene	ND	10
Bis(2-chloroisopropyl)ether	ND	10
N-Nitroso-di-n-propylamine	ND	10
Hexachloroethane	ND	10
Nitrobenzene	ND	10
Isophorone	ND	10
Bis(2-chloroethoxy)methane	ND	10
1,2,4-Trichlorobenzene	ND	10
Naphthalene	ND	10
4-Chloroaniline	ND	10
Hexachlorobutadiene	ND	10
2-Methylnaphthalene	ND	10
Hexachlorocyclopentadiene	ND	10
2-Chloronaphthalene	ND	10
2-Nitroaniline	ND	50

119799

CHAIN OF CUSTODY FORM

Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

Page 1 of 1

Sampler: Ben Wells

Report to: John Faustini

Project No: 95-2120 Company: SOMA

Project Name: 6th St. Oakland Telephone: 510-244-6600

Turnaround Time: Normal Fax: 510-244-6601

Laboratory Number	Sample ID.	Sampling Date	Sampling Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCL	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Field Notes	Analyses: RCRA metals (EPA 6010/7000)	Analyses: EPA 8270
-1	PW-1A	2/2/95	9:00		X		1							X
-2	PW-2A		11:00		X		1					Hold		X
-3	PW-3A		2:30		X		1					Hold		X
-4	PW-4A	↓	1:00		X		1					Hold		X
-5	PW-1B	2/2/95	9:00		X					X			X	
-6	PW-2B		11:00		X					X			X	
-7	PW-3B		2:30		X					X			X	
-8	PW-4B	↓	1:00		X					X			X	

FOR LABORATORY USE ONLY

NOTES:

RELINQUISHED BY:

Ben Wells 2.2.95 18:00 DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED BY:

DATE/TIME

DATE/TIME

Teresa L. Morris 2/2/95 18:00 DATE/TIME

Signature on this form constitutes a [illegible] purchase order [illegible] the services [illegible]

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 119799-Method Blank
SAMPLE ID: N/A

EPA 8270

BASE/NEUTRAL COMPOUNDS	RESULT ug/L	REPORTING LIMIT ug/L
Dimethylphthalate	ND	10
Acenaphthylene	ND	10
2,6-Dinitrotoluene	ND	10
3-Nitroaniline	ND	50
Acenaphthene	ND	10
Dibenzofuran	ND	10
2,4-Dinitrotoluene	ND	10
Diethylphthalate	ND	10
4-Chlorophenyl-phenylether	ND	10
Fluorene	ND	10
4-Nitroaniline	ND	50
N-Nitrosodiphenylamine	ND	10
Azobenzene	ND	10
4-Bromophenyl-phenylether	ND	10
Hexachlorobenzene	ND	10
Phenanthrene	ND	10
Anthracene	ND	10
Di-n-butylphthalate	ND	10
Fluoranthene	ND	10
Pyrene	ND	10
Butylbenzylphthalate	ND	10
3,3'-Dichlorobenzidine	ND	50
Benzo(a)anthracene	ND	10
Chrysene	ND	10
Bis(2-ethylhexyl)phthalate	ND	10
Di-n-octylphthalate	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(a)pyrene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Dibenzo(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: % SURROGATE RECOVERIES

2-Fluorophenol	93	Nitrobenzene-d5	86
Phenol-d5	109	2-Fluorobiphenyl	91
2,4,6-Tribromophenol	91	Terphenyl-d14	131
2-Chlorophenol-d4	96	1,2-Dichlorobenzene-d4	76

APPENDIX G

LABORATORY REPORTS, GROUNDWATER
March 1995

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

A N A L Y T I C A L R E P O R T

Prepared for:

Baseline Environmental
5900 Hollis Street
Suite D
Emeryville, CA 94608

Date: 13-MAR-95
Lab Job Number: 120141
Project ID: S9171-BO
Location: Seabreeze Yacht Center

Reviewed by: Teresa K Morrison

Reviewed by: Cynthia E Gallaz

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120141
CLIENT: Baseline Environmental
PROJECT ID: S9171-BO
LOCATION: Seabreeze Yacht Center

DATE SAMPLED: 03/06/95
DATE RECEIVED: 03/06/95
DATE ANALYZED: 03/08/95
DATE REPORTED: 03/09/95

ANALYSIS: TURBIDITY
ANALYSIS METHOD: EPA 180.1

LAB ID	SAMPLE ID	RESULT	UNITS
120141-002	MWSB2	130	NTU
120141-003	MWSB2-DUP	100	NTU
120141-004	PW-2	84	NTU
120141-005	MW-SB3	76	NTU
120141-006	PW-3	6.8	NTU
120141-007	MW-SB5	180	NTU
120141-008	MW-SB5-DUP	190	NTU

ND = Not detected at or above reporting limit.

QA/QC SUMMARY:

RPD, %	< 1

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120141
CLIENT: BASELINE ENVIRONMENTAL
PROJECT ID: S9171-B0
LOCATION: SEABREEZE YACHT CENTER

DATE SAMPLED: 03/06/95
DATE RECEIVED: 03/06/95
DATE EXTRACTED: 03/08/95
DATE ANALYZED: 03/09/95
DATE REPORTED: 03/09/95
BATCH NO:19355

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)	MOTOR OIL RANGE (ug/L)	BUNKER C RANGE (ug/L)
120141-002	MWSB2	**	16,000*	4,900*	28,000*
120141-003	MWSB2-DUP	**	18,000*	ND(25,000)	33,000*
120141-004	PW-2	**	1,700*	1,100*	4,400*
120141-005	MW-SB 3	**	2,300*	1,500*	5,800*
120141-006	PW-3	**	5,800*	1,200*	9,400*
120141-007	MW-SB 5	**	16,000*	8,100*	34,000*
120141-008	MW-SB 5-DUP	**	15,000*	6,900*	31,000*
METHOD BLANK	N/A	ND(50)	ND(50)	ND(1300)	ND(1300)

ND = Not detected at or above reporting limit. Reporting limit applies to all analytes.

* Sample chromatogram does not resemble hydrocarbon standard.
** Kerosene range not reported due to overlap of hydrocarbon ranges.

QA/QC SUMMARY: BS/BSD

RPD, %	2
RECOVERY, %	99

BASELINE
5900 Hollis Street, Suite D
Emeryville, CA 94608
(510) 420-8686

120141

CHAIN OF CUSTODY RECORD

Turn-around Time: 5day
Lab: Curtis & Tompkins
BASELINE Contact Person: Jane Nadkarni / Julie Pettijohn

Project No.	Project Name and Location
9171-BO	Seabreeze Yacht Center 2806th Ave. Oakland, CA

Samplers: (Signature) Julie C. Pettijohn

Sample ID No. Station	Date	Time	Media	Depth	No. of Containers	TEH, Diesel, mo. Bunker	(TPH with BTX&E)	Oil & Grease	Motor Oil	PNAs	Title 22 Metals	Total Lead	PCBs (8080)	Turbidity					Remarks/ Composite	Detection Limits
1 MWSB4-grab	11/22/94		soil	4.75-5.0	1							X							Return ✓	
2 MWB2	3/6/95	10:25	water		3	X								X						
3 MWB2-duplicate	3/6/95	10:45	water		3	X								X					③ centrifuge duplicate prior to analysis	
4 PW-2	3/6/95	10:10	water		3	X								X						
5 MW-SB 3	3/6/95	11:05	water		3	X								X						
6 PW-3	3/6/95	11:34	water		3	X								X						
7 MW-SB5	3/6/95	12:50	water		3	X								X						
8 MWSB5-duplicate	3/6/95	12:55	water		3	X								X					③ centrifuge duplicate prior to analysis	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Conditions of Samples Upon Arrival at Laboratory:
Julie C. Pettijohn	3/6/95		3/6/95 2:47p	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Remarks: 1) Return sample to BASELINE
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	2) also submit chromatograms 3) centrifuge duplicate prior to analysis

CCSTRCDE.FM2

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

Baseline Environmental
5900 Hollis Street
Suite D
Emeryville, CA 94608

Date: 10-MAR-95
Lab Job Number: 120129
Project ID: S9171-BO
Location: Seabreeze Yacht Center

Reviewed by: _____

Reviewed by: _____

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120129
CLIENT: Baseline Environmental
PROJECT ID: S9171-BO
LOCATION: Seabreeze Yacht Center

DATE SAMPLED: 03/03/95
DATE RECEIVED: 03/03/95
DATE ANALYZED: 03/03/95
DATE REPORTED: 03/09/95

ANALYSIS: TURBIDITY
ANALYSIS METHOD: EPA 180.1

LAB ID	SAMPLE ID	RESULT	UNITS
120129-001	MW-SB4	130	NTU
120129-002	PW-1	60	NTU
120129-003	PW-4	4.4	NTU
120129-004	MW-SB1	23	NTU

ND = Not detected at or above reporting limit.

QA/QC SUMMARY:

RPD, %	4

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120129
CLIENT: BASELINE ENVIRONMENTAL
PROJECT ID: S9171-B0
LOCATION: SEABREEZE YACHT CENTER

DATE SAMPLED: 03/03/95
DATE RECEIVED: 03/03/95
DATE EXTRACTED: 03/08/95
DATE ANALYZED: 03/09/95
DATE REPORTED: 03/09/95
BATCH NO:19359

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

LAB ID	CLIENT ID	DIESEL RANGE (ug/L)	MOTOR OIL RANGE (ug/L)	BUNKER C RANGE (ug/L)
120129-001	MWSB-4	1,400*	660*	3,000*
120129-002	PW-1	1,700*	1,000*	3,900*
120129-003	PW-4	610*	ND(1300)	1,600*
120129-004	MW-SB1	1,800*	1,400*	4,800*
METHOD BLANK	N/A	ND(50)	ND(1300)	ND(1300)

ND = Not detected at or above reporting limit. Reporting limit applies to all analytes.

* Sample chromatogram does not resemble hydrocarbon standard.

QA/QC SUMMARY: BS/BSD

RPD, %	2
RECOVERY, %	99

BASELINE
5900 Hollis Street, Suite D
Emeryville, CA 94608
(510) 420-8686

CHAIN OF CUSTODY RECORD

Turn-around Time: 5 day
Lab: CHAIN + Tanglewood
BASELINE Contact Person: Jane Nodhal / Julie Pettijohn

Project No.	Project Name and Location
59171-80	Seabreeze Yacht Center 280 6th

Samplers: (Signature) [signature] / Julie C. Pettijohn

Sample ID No. Station	Date	Time	Media	Depth	No. of Containers	TEH as Diesel + motor oil	(TPH with BTX&E)	Oil & Grease	Motor Oil	PNAs	Title 22 Metals	Total Lead	Turbidity	Remarks/ Composite
MWSB-4	3/3/95	1:35	water		3	X							X	
PW-1	3/3/95	1:40	water		3	X							X	
PW-4	3/3/95	1:55	water		3	X							X	
MW-SB1	3/3/95	2:11	water		3	X							X	

↑ diesel + motor oil added 3/6/95.

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Conditions of Samples Upon Arrival at Laboratory:
Julie C. Pettijohn	3/3/95 4:43 pm			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Remarks:
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	
		[signature]	3/3/95 4:55	

BASELINE
5900 Hollis Street, Suite D
Emeryville, CA 94608
(510) 420-8686

CHAIN OF CUSTODY RECORD

Turn-around Time: 5 day
Lab: Curtis & Tompkins Ltd.
BASELINE Contact Person: Jane Nachar / Julie Pettijohn

Project No.	Project Name and Location
59171-80	Seabreeze Yacht Center 280 6th

Samplers: (Signature) [signature] / Julie C. Pettijohn

	Sample ID No. Station	Date	Time	Media	Depth	No. of Containers	TEH as Bunker C	(TPH with BTX&E)	Oil & Grease	Motor Oil	PNAs	Title 22 Metals	Total Lead	Turbidity						Remarks/ Composite	Detection Limits
1	MWSB-4	3/3/95	1:35	water		3	X							X							
2	PW-1	3/3/95	1:40	water		3	X							X							
3	PW-4	3/3/95	1:55	water		3	X							X							
4	MW-SB1	3/3/95	2:11	water		3	X							X							

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Conditions of Samples Upon Arrival at Laboratory:
Julie C. Pettijohn	3/3/95 4:43 pm			10°
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Remarks:
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	
		[signature]	3/3/95 4:55	

CCSTRCDE.FM2

ADMIN(AD4)-5/27/92

APPENDIX H

BORING LOGS TP1-TP4 and T1-T4
March 1995

DRILLING LOG

Location	Seabreeze Yacht Center, Port of Oakland	Boring no.	TP-1
Driller	Clear Heart Drilling	Project no.	S9171
Method	Hollow-stem auger	Date	3/6/95
Logger	BBA Datum -- Bore size 4 "	Casing size	--

Depth (ft.)	Graphic	Lithology	Notes
0			Standard pen (18") sampler lined with 1.5" x 6" brass liners
1	SP	Brown, gravelly SAND, minor fines, angular fragments up to 1-inch diameter, moist (Fill).	
2			28-20-13
3			Poor recovery (8")
			Rock in shoe
	SP	Blue-gray, gravelly SAND, angular gravel fragments up to 3/4-inch diameter, moist to wet (Fill).	6-8-13
4			Poor recovery (8")
	SC	Black, clayey, gravelly SAND, angular gravel fragments up to 1-inch diameter, wet (Fill).	
5		Total depth = 5.0 feet.	No sample retrieved
			Moved one foot away and redrilled (TP-1A)
6			
7			
8			
9			
10			

S9171-DL.XLW (3/16/95)

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DRILLING LOG

Location	Seabreeze Yacht Center, Port of Oakland	Boring no.	TP-1A
Driller	Clear Heart Drilling	Project no.	S9171
Method	Hollow-stem auger	Date	3/6/95
Logger	BBA	Datum --	Bore size 4 "	Casing size	--

Depth (ft.)	Graphic	Lithology	Notes
0	SP	Brown, gravelly SAND, angular gravel fragments up to 1-inch diameter, moist (Fill).	Standard pen (18") sampler lined with 1.5" x 6" brass liners
1			
2			18-12-9-18 (recovery 14")
3	SP	Blue-gray, gravelly SAND, angular gravel fragments up to 3/4-inch diameter, moist to wet (Fill).	
4	SC	Black, clayey, gravelly SAND, angular gravel fragments up to 1-inch diameter, wet (Fill).	
5			
6			
7			
8			
9			
10			

S9171-DL.XLW (3/16/95)

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DRILLING LOG

Location	Seabreeze Yacht Center, Port of Oakland	Boring no.	TP-2
Driller	Clear Heart Drilling	Project no.	S9171
Method	Hollow-stem auger	Date	3/6/95
Logger	BBA Datum -- Bore size 4 "	Casing size	--

Depth (ft.)	Graphic	Lithology	Notes
0	SP	Gray, gravelly, SAND with minor fines, gravel fragments up to 1/2-inch diameter, moist (Fill).	Standard pen (18") sampler lined with 1.5" x 6" brass liners
1			
2			32-38-8-8
3	SP	Blue-gray, gravelly SAND, medium-grained, moist (Fill).	
	SP	Black, gravelly SAND, minor fines, rock and glass fragments up to 1-inch diameter, moist (Fill).	
4		White granular material, 6 inches thick.	2-2-2-2
	SP	Medium gray, gravelly SAND, medium-grained, wet (Fill).	
5			
6		Total depth = 6.0 feet.	Woody material in shoe
7			
8			
9			
10			

S9171-DL.XLW (3/16/95)

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DRILLING LOG

Location	Seabreeze Yacht Center, Port of Oakland	Boring no.	TP-3
Driller	Clear Heart Drilling	Project no.	S9171
Method	Hollow-stem auger	Date	3/6/95
Logger	BBA Datum -- Bore size 4 "	Casing size	--

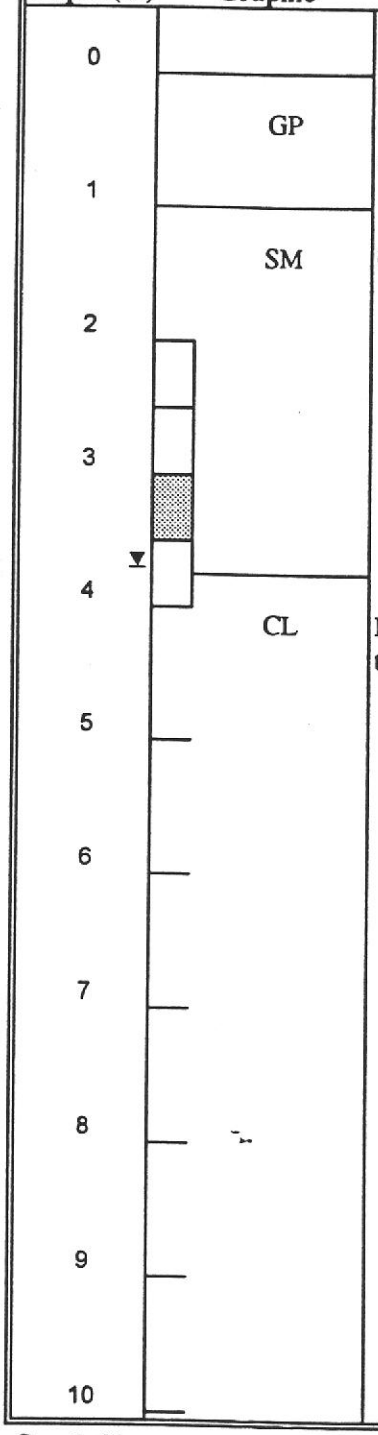
Depth (ft.)	Graphic	Lithology	Notes
0	GP	Brown/rust, sandy GRAVEL, moist (Fill).	Standard pen (18") sampler lined with 1.5" x 6" brass liners
1	CL	Black, sandy, gravelly, silty CLAY, moderately plastic, moist (Fill).	
2	SP	Brown, gravelly SAND, medium-grained, moist (Fill).	9-8-8-9
3			
▼	SC	Black, clayey, gravelly SAND, angular fragments up to 3/4-inch diameter, moist to wet (Fill).	
4	SP	Gray, gravelly SAND, minor fines, medium-grained, wet (Fill).	
		Total depth = 4.0 feet.	
5			
6			
7			
8			
9			
10			

S9171-DL.XLW (3/16/95)

BASELINE · 5900 Hollis Street, Suite D · Emeryville, CA 94608 · (510) 420-8686 · Fax (510) 420-1707

DRILLING LOG

Location	Seabreeze Yacht Center, Port of Oakland	Boring no.	TP-4
Driller	Clear Heart Drilling	Project no.	S9171
Method	Hollow-stem auger	Date	3/6/95
Logger	BBA Datum -- Bore size 4 "	Casing size	--



Depth (ft.)	Graphic	Lithology	Notes
0	GP	Brown, sandy GRAVEL, rounded gravel fragments up to 1.5-inch diameter, moist (Fill).	Standard pen (18") sampler lined with 1.5" x 6" brass liners
1			
2	SM	Gray, silty SAND, medium-grained, moist (Fill?).	41-22-16-11
3			
4	CL	Dark gray, gravelly, sandy, silty CLAY, moderately plastic, moist to wet (Fill).	
5		Total depth = 4.0 feet.	
6			
7			
8			
9			
10			

S9171-DL.XLW (3/16/95)

BASELINE · 5900 Hollis Street, Suite D · Emeryville, CA 94608 · (510) 420-8686 · Fax (510) 420-1707

DRILLING LOG

Location	Seabreeze Yacht Center, Port of Oakland	Boring no.	T-1
Driller	Clear Heart Drilling	Project no.	S9171
Method	Hollow-stem auger	Date	3/6/95
Logger	BBA Datum -- Bore size 4 "	Casing size	--

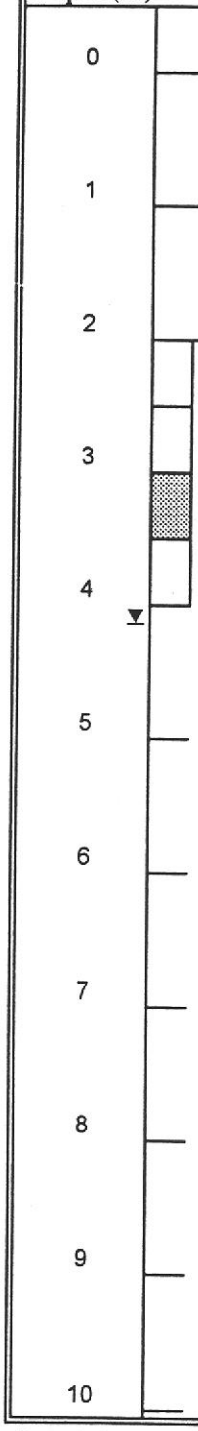
Depth (ft.)	Graphic	Lithology	Notes
0			Standard pen (18") sampler lined with 1.5" x 6" brass liners
1	GP	Gray, sandy GRAVEL, minor fines, rounded gravel fragments up to 1-inch diameter, wet (poor drainage, small amount of standing water) (Fill).	
2	SP	Brown, gravelly SAND, medium-grained, gravel fragments up to 3/4-inch diameter, moist (Fill).	
3	SP	Gray, SAND, medium-grained, well-sorted, moist (Fill).	26-28-43-18
4	▼		4-10-7-6
5	CH	Black, mottled, silty CLAY, highly plastic, wet (Bay Mud).	
6		Total depth = 6.0 feet.	
7			
8			
9			
10			

S9171-DL.XLW (3/16/95)

BASELINE · 5900 Hollis Street, Suite D · Emeryville, CA 94608 · (510) 420-8686 · Fax (510) 420-1707

DRILLING LOG

Location	Seabreeze Yacht Center, Port of Oakland	Boring no.	T-2
Driller	Clear Heart Drilling	Project no.	S9171
Method	Hollow-stem auger	Date	3/6/95
Logger	BBA Datum -- Bore size 4 "	Casing size	--



Depth (ft.)	Lithology	Notes
0–1	Gray, sandy GRAVEL, minor fines, rounded gravel fragments up to 1-inch diameter, moist to wet (Fill).	Standard pen (18") sampler lined with 1.5" x 6" brass liners
1–2	Brown, gravelly SAND, medium-grained, gravel fragments up to 3/4-inch diameter, moist (Fill).	
2–4	Medium-brown, SAND, medium-grained, well-sorted, moist (Fill).	35-28-17-15
4	Total depth = 4.0 feet.	

S9171-DL.XLW (3/16/95)

BASELINE · 5900 Hollis Street, Suite D · Emeryville, CA 94608 · (510) 420-8686 · Fax (510) 420-1707

DRILLING LOG

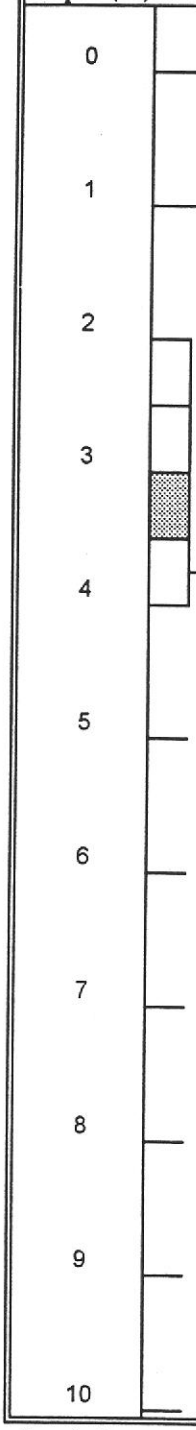
Location	Seabreeze Yacht Center, Port of Oakland	Boring no.	T-3
Driller	Clear Heart Drilling	Project no.	S9171
Method	Hollow-stem auger	Date	3/6/95
Logger	BBA Datum -- Bore size 4 "	Casing size	--

Depth (ft.)	Graphic	Lithology	Notes
0			Standard pen (18") sampler lined with 1.5" x 6" brass liners
1	GP	Gray, sandy GRAVEL, minor fines, rounded gravel fragments up to 1.5-inch diameter, moist (Fill).	
2	SP	Medium-brown, SAND, medium-grained, well-sorted, moist (Fill).	27-17-16-17
3			
4		Brick fragment in shoe. Total depth = 4.0 feet.	
5			
6			
7			
8			
9			
10			

BASELINE · 5900 Hollis Street, Suite D · Emeryville, CA 94608 · (510) 420-8686 · Fax (510) 420-1707

DRILLING LOG

Location	Seabreeze Yacht Center, Port of Oakland	Boring no.	T-4
Driller	Clear Heart Drilling	Project no.	S9171
Method	Hollow-stem auger	Date	3/6/95
Logger	BBA Datum -- Bore size 4 "	Casing size	--



Depth (ft.)	Graphic	Lithology	Notes
0			Standard pen (18") sampler lined with 1.5" x 6" brass liners
	GP	Blue-gray, sandy GRAVEL, moist (Fill).	
1			
	SM	Medium-brown, silty SAND, with minor gravel, moist (Fill).	
2			14-8-5-6
3			
4	CH	Black, mottled, silty CLAY, highly plastic, moist (Bay Mud).	
		Total depth = 4.0 feet.	
5			
6			
7			
8			
9			
10			

S9171-DL.XLW (3/16/95)

BASELINE · 5900 Hollis Street, Suite D · Emeryville, CA 94608 · (510) 420-8686 · Fax (510) 420-1707

APPENDIX I

LABORATORY REPORTS, SOIL
February and March 1995

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

SOMA Environmental Engineering Inc.
2680 Bishop Dr.
Suite 203
San Ramon, CA 94583

Date: 15-FEB-95
Lab Job Number: 119768
Project ID: 95-2120
Location: 6th Ave, Oakland

Reviewed by: _____

Reviewed by: _____

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 119768
CLIENT: SOMA ENVIRONMENTAL ENGINEERING
PROJECT ID: 95-2120
LOCATION: 6TH AVE, OAKLAND

DATE SAMPLED: 01/30/95
DATE RECEIVED: 01/31/95
DATE ANALYZED: 02/08/95
DATE REPORTED: 02/15/95

ANALYSIS: PERCENT MOISTURE
ANALYSIS METHOD: EPA CLP

LAB ID	SAMPLE ID	RESULT	UNITS
119768-008	PW2 10'	52	%
119768-012	PW3 10'	13	%

ND = Not detected at or above reporting limit.

QA/QC SUMMARY:

RPD, %

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 119768
CLIENT: SOMA ENVIRONMENTAL ENGINEERING
LOCATION: 6TH AVE, OAKLAND

DATE SAMPLED: 01/30/95
DATE RECEIVED: 01/31/95
DATE ANALYZED: 02/08/95
DATE REPORTED: 02/15/95

ANALYSIS: TOTAL ORGANIC CARBON
ANALYSIS METHOD: EPA 9060

LAB ID	SAMPLE ID	RESULT	UNITS	REPORTING LIMIT
119768-008	PW2 10'	3,900	mg/Kg	500
119768-012	PW3 10'	1,200	mg/Kg	150
METHOD BLANK		ND	mg/Kg	10

ND = Not detected at or above reporting limit.

QA/QC SUMMARY:

RPD, %	2
RECOVERY, %	80

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 119825
CLIENT: SOMA ENVIRONMENTAL ENGINEERING
PROJECT ID: 95-2120
LOCATION: 6TH AVE, OAKLAND

DATE SAMPLED: 01/30/95
DATE RECEIVED: 01/31/95
DATE ANALYZED: 02/02,03/95
DATE REPORTED: 02/15/95

ANALYSIS: DENSITY
ANALYSIS METHOD: ASTM D854

LAB ID	SAMPLE ID	RESULT	UNITS
119825-008	PW2 10′	2.0	g/ml
119825-012	PW3 10′	2.1	g/ml

ND = Not detected at or above reporting limit.

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 119768-001
CLIENT: SOMA ENVIRONMENTAL ENGINEERING
PROJECT ID:95-2120
LOCATION: 6TH AVE, OAKLAND
SAMPLE ID: PW1 36"

DATE SAMPLED: 01/31/95
DATE RECEIVED: 01/31/95
DATE EXTRACTED:02/06/95
DATE ANALYZED: 02/08/95
DATE REPORTED: 02/15/95
BATCH NO.: 18905

EPA 8270: Base/Neutral and Acid Extractables in Soils & Wastes
Extraction Method: EPA 3550 Sonication

	RESULT ug/Kg	REPORTING LIMIT ug/Kg
ACID COMPOUNDS		
Phenol	ND	1,700
2-Chlorophenol	ND	1,700
Benzyl Alcohol	ND	1,700
2-Methylphenol	ND	1,700
4-Methylphenol	ND	1,700
2-Nitrophenol	ND	8,300
2,4-Dimethylphenol	ND	1,700
Benzoic Acid	ND	8,300
2,4-Dichlorophenol	ND	8,300
4-Chloro-3-methylphenol	ND	1,700
2,4,6-Trichlorophenol	ND	1,700
2,4,5-Trichlorophenol	ND	8,300
2,4-Dinitrophenol	ND	8,300
4-Nitrophenol	ND	8,300
4,6-Dinitro-2-methylphenol	ND	8,300
Pentachlorophenol	ND	8,300
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	1,700
Aniline	ND	1,700
Bis(2-chloroethyl)ether	ND	1,700
1,3-Dichlorobenzene	ND	1,700
1,4-Dichlorobenzene	ND	1,700
1,2-Dichlorobenzene	ND	1,700
Bis(2-chloroisopropyl)ether	ND	1,700
N-Nitroso-di-n-propylamine	ND	1,700
Hexachloroethane	ND	1,700
Nitrobenzene	ND	1,700
Isophorone	ND	1,700
Bis(2-chloroethoxy)methane	ND	1,700
1,2,4-Trichlorobenzene	ND	1,700
Naphthalene	ND	1,700
4-Chloroaniline	ND	1,700
Hexachlorobutadiene	ND	1,700
2-Methylnaphthalene	ND	1,700
Hexachlorocyclopentadiene	ND	1,700
2-Chloronaphthalene	ND	1,700
2-Nitroaniline	ND	8,300

Curtis & Tompkins, Ltd.

EPA 8270

LABORATORY NUMBER: 119768-001
SAMPLE ID: PW1 36"

BASE/NEUTRAL COMPOUNDS	RESULT ug/Kg	REPORTING LIMIT ug/Kg
Dimethylphthalate	ND	1,700
Acenaphthylene	ND	1,700
2,6-Dinitrotoluene	ND	1,700
3-Nitroaniline	ND	8,300
Acenaphthene	ND	1,700
Dibenzofuran	ND	1,700
2,4-Dinitrotoluene	ND	1,700
Diethylphthalate	ND	1,700
4-Chlorophenyl-phenylether	ND	1,700
Fluorene	ND	1,700
4-Nitroaniline	ND	8,300
N-Nitrosodiphenylamine	ND	1,700
Azobenzene	ND	1,700
4-Bromophenyl-phenylether	ND	1,700
Hexachlorobenzene	ND	1,700
Phenanthrene	ND	1,700
Anthracene	ND	1,700
Di-n-butylphthalate	ND	1,700
Fluoranthene	ND	1,700
Pyrene	ND	1,700
Butylbenzylphthalate	ND	1,700
3,3'-Dichlorobenzidine	ND	8,300
Benzo(a)anthracene	ND	1,700
Chrysene	ND	1,700
Bis(2-ethylhexyl)phthalate	ND	1,700
Di-n-octylphthalate	ND	1,700
Benzo(b)fluoranthene	ND	1,700
Benzo(k)fluoranthene	ND	1,700
Benzo(a)pyrene	ND	1,700
Indeno(1,2,3-cd)pyrene	ND	1,700
Dibenzo(a,h)anthracene	ND	1,700
Benzo(g,h,i)perylene	ND	1,700

* High surrogate recovery due to matrix interference.

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: % SURROGATE RECOVERIES

2-Fluorophenol	74	Nitrobenzene-d5	65
Phenol-d5	77	2-Fluorobiphenyl	69
2,4,6-Tribromophenol	57	Terphenyl-d14	156 *
2-Chlorophenol-d4	72	1,2-Dichlorobenzene-d4	66

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 119768-MB
CLIENT: SOMA ENVIRONMENTAL ENGINEERING
PROJECT ID:95-2120
LOCATION: 6TH AVE, OAKLAND
SAMPLE ID: METHOD BLANK

DATE EXTRACTED:02/06/95
DATE ANALYZED: 02/09/95
DATE REPORTED: 02/15/95
BATCH NO.: 18905

EPA 8270: Base/Neutral and Acid Extractables in Soils & Wastes
Extraction Method: EPA 3550 Sonication

ACID COMPOUNDS	RESULT ug/Kg	REPORTING LIMIT ug/Kg
Phenol	ND	330
2-Chlorophenol	ND	330
Benzyl Alcohol	ND	330
2-Methylphenol	ND	330
4-Methylphenol	ND	330
2-Nitrophenol	ND	1,700
2,4-Dimethylphenol	ND	330
Benzoic Acid	ND	1,700
2,4-Dichlorophenol	ND	1,700
4-Chloro-3-methylphenol	ND	330
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	1,700
2,4-Dinitrophenol	ND	1,700
4-Nitrophenol	ND	1,700
4,6-Dinitro-2-methylphenol	ND	1,700
Pentachlorophenol	ND	1,700
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	330
Aniline	ND	330
Bis(2-chloroethyl)ether	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
1,2-Dichlorobenzene	ND	330
Bis(2-chloroisopropyl)ether	ND	330
N-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
Bis(2-chloroethoxy)methane	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	330
4-Chloroaniline	ND	330
Hexachlorobutadiene	ND	330
2-Methylnaphthalene	ND	330
Hexachlorocyclopentadiene	ND	330
2-Chloronaphthalene	ND	330
2-Nitroaniline	ND	1,700

Curtis & Tompkins, Ltd.

EPA 8270

LABORATORY NUMBER: 119768-MB
SAMPLE ID: METHOD BLANK

BASE/NEUTRAL COMPOUNDS	RESULT ug/Kg	REPORTING LIMIT ug/Kg
Dimethylphthalate	ND	330
Acenaphthylene	ND	330
2,6-Dinitrotoluene	ND	330
3-Nitroaniline	ND	1,700
Acenaphthene	ND	330
Dibenzofuran	ND	330
2,4-Dinitrotoluene	ND	330
Diethylphthalate	ND	330
4-Chlorophenyl-phenylether	ND	330
Fluorene	ND	330
4-Nitroaniline	ND	1,700
N-Nitrosodiphenylamine	ND	330
Azobenzene	ND	330
4-Bromophenyl-phenylether	ND	330
Hexachlorobenzene	ND	330
Phenanthrene	ND	330
Anthracene	ND	330
Di-n-butylphthalate	ND	330
Fluoranthene	ND	330
Pyrene	ND	330
Butylbenzylphthalate	ND	330
3,3'-Dichlorobenzidine	ND	1,700
Benzo(a)anthracene	ND	330
Chrysene	ND	330
Bis(2-ethylhexyl)phthalate	ND	330
Di-n-octylphthalate	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(k)fluoranthene	ND	330
Benzo(a)pyrene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Benzo(g,h,i)perylene	ND	330

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: % SURROGATE RECOVERIES

2-Fluorophenol	92	Nitrobenzene-d5	79
Phenol-d5	111	2-Fluorobiphenyl	83
2,4,6-Tribromophenol	83	Terphenyl-d14	107
2-Chlorophenol-d4	98	1,2-Dichlorobenzene-d4	85

Curtis & Tompkins, Ltd

8270 Laboratory Control Sample Report

Curtis & Tompkins, Ltd.

Lab No: QC84529 LCS Datafile: 5_lcs_18905re.d
Date Analyzed: 08-FEB-95
Matrix: SOIL Extraction Chemist: DC
Batch No: 18905 515039172005 MS Operator: KC
Dilution Factor : 1 Prep Final Vol : 1

Compound	Instrdg	SpikeAmt	% Rec	Limits	
Phenol	122	150	81 %	26-90%	
2-Chlorophenol	121	150	81 %	25-102%	
4-Chloro-3-methylphenol	132	150	88 %	26-103%	
4-Nitrophenol	34	150	23 %	11-114%	
Pentachlorophenol	101	150	68 %	17-109%	
1,4-Dichlorobenzene	79	100	79 %	28-104%	
N-Nitroso-di-n-propylamine	76	100	76 %	41-126%	
1,2,4-Trichlorobenzene	89	100	89 %	38-107%	
Acenaphthene	77	100	77 %	31-137%	
2,4-Dinitrotoluene	91	100	91 %	28-89%	*
Pyrene	94	100	94 %	35-142%	
Surrogate Recoveries					
2-Fluorophenol	127	150	85 %	25-121%	
Phenol-d5	137	150	91 %	24-113%	
2,4,6-Tribromophenol	148	150	99 %	19-122%	
Nitrobenzene-d5	90	100	90 %	23-120%	
2-Fluorobiphenyl	95	100	95 %	30-115%	
Terphenyl-d14	116	100	116 %	18-137%	
2-Chlorophenol-d4	135	150	90 %	20-130%	
1,2-Dichlorobenzene-d4	81	100	81 %	20-130%	

* Result is out of limits - Fail
Calculations based on On-Column amounts(ngs)

Curtis & Tompkins, Ltd.

Curtis & Tompkins, Ltd
8270 MS/MSD Report

Matrix Sample Number: 119768-001
Lab No: QC84531 QC84532
Matrix: SOIL
Batch No: 0208.b 515039180006 515039187007 515039194008
Instid: BNA02

Date Analyzed: 08-FEB-95
Spike File: 06_ms_18905.d
Spike Dup File: 07_msd_18905.d
Analyst: KC
Dilution factor: 5

	Instrdg	SpikeAmt	% Rec	Limits	
MS RESULTS					
Phenol	19	150	63 %	26-90%	
2-Chlorophenol	18	150	61 %	25-102%	
4-Chloro-3-methylphenol	17	150	56 %	26-103%	
4-Nitrophenol	3	150	11 %	11-114%	
Pentachlorophenol	11	150	38 %	17-109%	
1,4-Dichlorobenzene	11	100	57 %	28-104%	
N-Nitroso-di-n-propylamine	13	100	63 %	41-126%	
1,2,4-Trichlorobenzene	12	100	62 %	38-107%	
Acenaphthene	10	100	51 %	31-137%	
2,4-Dinitrotoluene	9	100	44 %	28-89%	
Pyrene	22	100	110 %	35-142%	
Surrogate Recoveries					
2-Fluorophenol	19	150	62 %	25-121%	
Phenol-d5	21	150	68 %	24-113%	
2,4,6-Tribromophenol	14	150	47 %	19-122%	
Nitrobenzene-d5	12	100	58 %	23-120%	
2-Fluorobiphenyl	13	100	64 %	30-115%	
Terphenyl-d14	26	100	130 %	18-137%	
2-Chlorophenol-d4	19	150	64 %	20-130%	
1,2-Dichlorobenzene-d4	12	100	61 %	20-130%	
MSD RESULTS					
Phenol	19	150	64 %	26-90%	
2-Chlorophenol	19	150	64 %	25-102%	
4-Chloro-3-methylphenol	17	150	58 %	26-103%	
4-Nitrophenol	3	150	11 %	11-114%	
Pentachlorophenol	12	150	39 %	17-109%	
1,4-Dichlorobenzene	12	100	62 %	28-104%	
N-Nitroso-di-n-propylamine	13	100	63 %	41-126%	
1,2,4-Trichlorobenzene	13	100	65 %	38-107%	
Acenaphthene	11	100	53 %	31-137%	
2,4-Dinitrotoluene	9	100	45 %	28-89%	
Pyrene	24	100	120 %	35-142%	
Surrogate Recoveries					
2-Fluorophenol	20	150	66 %	25-121%	
Phenol-d5	20	150	68 %	24-113%	
2,4,6-Tribromophenol	15	150	51 %	19-122%	
Nitrobenzene-d5	12	100	62 %	23-120%	
2-Fluorobiphenyl	13	100	65 %	30-115%	
Terphenyl-d14	29	100	145 %	18-137%	*
2-Chlorophenol-d4	20	150	67 %	20-130%	
1,2-Dichlorobenzene-d4	12	100	59 %	20-130%	

Curtis & Tompkins, Ltd.

SAMPLE ID: PW1 36"
LAB ID: 119768-001
CLIENT: SOMA Environmental Engineering Inc.
PROJECT ID: 95-2120
LOCATION: 6th Ave, Oakland
MATRIX: Soil

DATE SAMPLED: 01/31/95
DATE RECEIVED: 01/31/95
DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic	2.6	2.5	18956	EPA 7060	02/10/95
Barium	54	0.50	18957	EPA 6010A	02/10/95
Cadmium	ND	0.25	18957	EPA 6010A	02/10/95
Chromium (total)	48	0.50	18957	EPA 6010A	02/10/95
Lead	9.3	1.5	18956	EPA 7421	02/09/95
Mercury	ND	0.095	19024	EPA 7471	02/13/95
Selenium	ND	2.5	18956	EPA 7740	02/10/95
Silver	ND	0.50	18957	EPA 6010A	02/10/95

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

SAMPLE ID: PW1 B5'
LAB ID: 119768-002
CLIENT: SOMA Environmental Engineering Inc.
PROJECT ID: 95-2120
LOCATION: 6th Ave, Oakland
MATRIX: Soil

DATE SAMPLED: 01/31/95
DATE RECEIVED: 01/31/95
DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic	5.0	2.5	18956	EPA 7060	02/10/95
Barium	120	0.50	18957	EPA 6010A	02/10/95
Cadmium	0.49	0.25	18957	EPA 6010A	02/10/95
Chromium (total)	22	0.50	18957	EPA 6010A	02/10/95
Lead	38	1.5	18956	EPA 7421	02/09/95
Mercury	ND	0.091	19024	EPA 7471	02/13/95
Selenium	ND	2.5	18956	EPA 7740	02/10/95
Silver	ND	0.50	18957	EPA 6010A	02/10/95

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

SAMPLE ID: PW2 4.5-6B
LAB ID: 119768-006
CLIENT: SOMA Environmental Engineering Inc.
PROJECT ID: 95-2120
LOCATION: 6th Ave, Oakland
MATRIX: Soil

DATE SAMPLED: 01/30/95
DATE RECEIVED: 01/31/95
DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic	ND	2.5	18956	EPA 7060	02/10/95
Barium	28	0.50	18957	EPA 6010A	02/10/95
Cadmium	ND	0.25	18957	EPA 6010A	02/10/95
Chromium (total)	55	0.50	18957	EPA 6010A	02/10/95
Lead	6.4	1.5	18956	EPA 7421	02/09/95
Mercury	ND	0.10	19024	EPA 7471	02/13/95
Selenium	ND	2.5	18956	EPA 7740	02/10/95
Silver	ND	0.50	18957	EPA 6010A	02/10/95

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

SAMPLE ID: PW2 12"
LAB ID: 119768-007
CLIENT: SOMA Environmental Engineering Inc.
PROJECT ID: 95-2120
LOCATION: 6th Ave, Oakland
MATRIX: Soil

DATE SAMPLED: 01/30/95
DATE RECEIVED: 01/31/95
DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic	4.9	2.5	18956	EPA 7060	02/10/95
Barium	190	0.50	18957	EPA 6010A	02/10/95
Cadmium	0.53	0.25	18957	EPA 6010A	02/10/95
Chromium (total)	140	0.50	18957	EPA 6010A	02/10/95
Lead	210	5.0	18957	EPA 7420	02/13/95
Mercury	0.22	0.095	19024	EPA 7471	02/13/95
Selenium	ND	2.5	18956	EPA 7740	02/10/95
Silver	ND	0.50	18957	EPA 6010A	02/10/95

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

SAMPLE ID: PW3 12"
LAB ID: 119768-010
CLIENT: SOMA Environmental Engineering Inc.
PROJECT ID: 95-2120
LOCATION: 6th Ave, Oakland
MATRIX: Soil

DATE SAMPLED: 01/30/95
DATE RECEIVED: 01/31/95
DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic	5.7	2.5	18956	EPA 7060	02/10/95
Barium	140	0.50	18957	EPA 6010A	02/10/95
Cadmium	0.58	0.25	18957	EPA 6010A	02/10/95
Chromium (total)	35	0.50	18957	EPA 6010A	02/10/95
Lead	81	5.0	18957	EPA 7420	02/13/95
Mercury	ND	0.091	19024	EPA 7471	02/13/95
Selenium	ND	2.5	18956	EPA 7740	02/10/95
Silver	ND	0.50	18957	EPA 6010A	02/10/95

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

SAMPLE ID: PW3 5.6'
LAB ID: 119768-011
CLIENT: SOMA Environmental Engineering Inc.
PROJECT ID: 95-2120
LOCATION: 6th Ave, Oakland
MATRIX: Soil

DATE SAMPLED: 01/30/95
DATE RECEIVED: 01/31/95
DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic	4.4	2.5	18956	EPA 7060	02/10/95
Barium	61	0.50	18957	EPA 6010A	02/10/95
Cadmium	ND	0.25	18957	EPA 6010A	02/10/95
Chromium (total)	51	0.50	18957	EPA 6010A	02/10/95
Lead	28	1.5	18956	EPA 7421	02/09/95
Mercury	0.18	0.087	19024	EPA 7471	02/13/95
Selenium	ND	2.5	18956	EPA 7740	02/10/95
Silver	ND	0.50	18957	EPA 6010A	02/10/95

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

SAMPLE ID: PW4 12"
LAB ID: 119768-014
CLIENT: SOMA Environmental Engineering Inc.
PROJECT ID: 95-2120
LOCATION: 6th Ave, Oakland
MATRIX: Soil

DATE SAMPLED: 01/30/95
DATE RECEIVED: 01/31/95
DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic	5.5	2.5	18956	EPA 7060	02/10/95
Barium	86	0.50	18957	EPA 6010A	02/10/95
Cadmium	0.40	0.25	18957	EPA 6010A	02/10/95
Chromium (total)	31	0.50	18957	EPA 6010A	02/10/95
Lead	43	5.0	18957	EPA 7420	02/13/95
Mercury	ND	0.10	19024	EPA 7471	02/13/95
Selenium	ND	2.5	18956	EPA 7740	02/10/95
Silver	ND	0.50	18957	EPA 6010A	02/10/95

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

SAMPLE ID: PW4 42"
LAB ID: 119768-016
CLIENT: SOMA Environmental Engineering Inc.
PROJECT ID: 95-2120
LOCATION: 6th Ave, Oakland
MATRIX: Soil

DATE SAMPLED: 01/30/95
DATE RECEIVED: 01/31/95
DATE REPORTED: 02/15/95

RCRA Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	QC Batch	Method	Analysis Date
Arsenic	6.7	2.5	18956	EPA 7060	02/10/95
Barium	180	0.50	18957	EPA 6010A	02/10/95
Cadmium	0.25	0.25	18957	EPA 6010A	02/10/95
Chromium (total)	33	0.50	18957	EPA 6010A	02/10/95
Lead	63	5.0	18957	EPA 7420	02/13/95
Mercury	0.13	0.10	19024	EPA 7471	02/13/95
Selenium	ND	2.5	18956	EPA 7740	02/10/95
Silver	ND	0.50	18957	EPA 6010A	02/10/95

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

CLIENT: SOMA Environmental Engineering Inc. DATE REPORTED: 02/15/95
JOB NUMBER: 119768

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS % Recovery	BSD % Recovery	Average Recovery	RPD	QC Batch	Method	Analysis Date
Arsenic	40	403.5	419.4	ug/L	101	105	103	4	18956	EPA 7060	02/10/95
Barium	2000	1924	1981	ug/L	96	99	98	3	18957	EPA 6010A	02/09/95
Cadmium	50	53.63	54.91	ug/L	107	110	109	2	18957	EPA 6010A	02/09/95
Chromium (total)	200	190.7	196.2	ug/L	95	98	97	3	18957	EPA 6010A	02/09/95
Lead	30	308	300.8	ug/L	103	100	102	2	18956	EPA 7421	02/09/95
Lead	500	480	490	ug/L	96	98	97	2	18957	EPA 7420	02/13/95
Mercury	4	3.935	3.986	ug/L	98	100	99	1	19024	EPA 7470	02/13/95
Selenium	30	305.8	297.4	ug/L	102	99	101	3	18956	EPA 7740	02/10/95
Silver	50	42.54	44.13	ug/L	85	88	87	4	18957	EPA 6010A	02/09/95

Curtis & Tompkins, Ltd.

CLIENT: SOMA Environmental Engineering Inc.
JOB NUMBER: 119768

DATE REPORTED: 02/15/95

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	QC Batch	Method	Analysis Date
Arsenic	ND	2.5	mg/Kg	18956	EPA 7060	02/10/95
Barium	ND	0.5	mg/Kg	18957	EPA 6010A	02/09/95
Cadmium	ND	0.25	mg/Kg	18957	EPA 6010A	02/09/95
Chromium (total)	ND	0.5	mg/Kg	18957	EPA 6010A	02/09/95
Lead	ND	1.5	mg/Kg	18956	EPA 7421	02/09/95
Lead	ND	5	mg/Kg	18957	EPA 7420	02/13/95
Mercury	ND	0.1	mg/Kg	19024	EPA 7471	02/13/95
Selenium	ND	2.5	mg/Kg	18956	EPA 7740	02/10/95
Silver	ND	0.5	mg/Kg	18957	EPA 6010A	02/09/95

ND = Not Detected at or above reporting limit

CHAIN OF CUSTODY FORM

Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

Sampler: Ben Wells / Tim B

Report to: SOMA / John Faustini

Company: SOMA

Telephone: 510 244 6600

Fax: 244 6601

Project No: 95-2120

Project Name: 6th Ave Oakland

Turnaround Time: Normal

Laboratory Number	Sample ID.	Sampling Date	Sampling Time	Matrix: Soil	Matrix: Water	Matrix: Waste	Matrix:	# of Containers	Preservative: HCL	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Preservative:	Field Notes	Analyses: RCRA Metals
-1	PW1 36"	1/31		✓				1							✓
-2	PW1 B5'	1/31						1							
-3	PW1 10'M	1/31						1							
-4	PW1 10.5'B	1/31						1							
-5	PW1 M14'	1/31						1							
-6	PW2 4.5-6B	1/30						1							
-7	PW2 12"	1/30						1							
-8	PW2 10'	1/30						1							
-9	PW2 14'	1/30						1							
-10	PW3 12"	1/30						1							
-11	PW3 5.6'	1/30						1							
-12	PW3 10'	1/30						1							
-13	PW3 14'	1/30		✓				1							

NOTES:

Revised C-O-C
JQW 2/1/95

RELINQUISHED BY:

DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED BY:

DATE/TIME

DATE/TIME

DATE/TIME

CHAIN OF CUSTODY FORM

Page _____ of _____

Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

Sampler: _____

Report to: _____

Project No: _____ Company: _____

Project Name: _____ Telephone: _____

Turnaround Time: _____ Fax: _____

Laboratory Number	Sample ID.	Sampling Date Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCL	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Field Notes	Analyses: PCBs mt
-14	PW4 12"	1130	X									X
-15	PW4 18"											
-16	PW4 42"											
-17	PW4 14.5'											
-18	PW4 15'	↓	↓									↓

CHAIN OF CUSTODY SEAL

NOTES:

RELINQUISHED BY:	RECEIVED BY:
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME

Signature on this form constitutes a firm purchase order for the services requested above.

CHAIN OF CUSTODY FORM

Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

Sampler: Ben Wells / Tim B
Report to: SOMA / John Fantini
Company: SOMA
Telephone: 510 294 6600
Fax: 294 1101

Project No: 95-2120
Project Name: 6th Ave Oakland
Turnaround Time: Normal

Laboratory Number	Sample ID.	Sampling Date	Sampling Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCl	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Field Notes
	PW1 3.5'	1/30	1				1					
	PW1 6.5'	1/30	2				1					
	PW1 10'M	1/30	3				1					
	PW1 10.5'B	1/31	4				1					
	PW1 M14'	1/30	5				1					
	PW2 4.5-6B	1/30	6				1					
	PW2 12"	1/30	7				1					
	PW2 10'	1/30	8				1					
	PW2 14'	1/30	9				1					
	PW3 12"	1/30	10				1					
	PW3 5.5'	1/30	11				1					
	PW3 10'	1/30	12				1					
	PW3 14'	1/30	13				1					

Analyses

8240 Modified	RCRA Metals EPA 6010/7000	Moisture/Bulk Density	Total Organic Carbon	EPA 8270						HOLD
	X			X						
	X									
										X
										X
										X
	X									
	X									
		X	X							
										X
	X									
	X									
		X	X							

NOTES:
119768
Revised C-O-C
JGW 2/1/95

RELINQUISHED BY:
DATE/TIME
DATE/TIME
DATE/TIME

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DATE/TIME
DATE/TIME
DATE/TIME

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CHAIN OF CUSTODY FORM

Page _____ of _____

Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

Sampler: _____

Report to: _____

Project No: _____ Company: _____

Project Name: _____ Telephone: _____

Turnaround Time: _____ Fax: _____

Laboratory Number	Sample ID.	Sampling Date	Sampling Time	Matrix: Soil	Matrix: Water	Matrix: Wipe	# of Containers	Preservative: HCl	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: Ice	Field Notes	Analyses: RCRA Met.	Analyses: RCRA Metals EPA 6010/7000	Analyses: Moisture/Bulk Density	Analyses: Total Organic Carbon	Analyses: HOLD
	PW4 12"	2/2	14	X										X			
	PW4 18"		15														
	PW4 42"		16											X			X
	PW4 43.5'		17														X
	PW4 45'		18														X

NOTES:

Revised analyses requested 02/01/95

John M. Fantini

RELINQUISHED BY:

_____ DATE/TIME

_____ DATE/TIME

_____ DATE/TIME

RECEIVED BY:

_____ DATE/TIME

_____ DATE/TIME

_____ DATE/TIME

Signature on this form constitutes a firm purchase order for the services requested above.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

February 13, 1995

Michele Heffes, Deputy Port Attorney
Port of Oakland
P.O. Box 2064
Oakland, CA 94604

Dear Ms. Heffes:

Enclosed are the results from the additional testing of material submitted on February 1, 1995 from your project #95-2120, Seabreeze.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

James E. Bruya, Ph.D.
Chemist

jdp
Enclosures
FAX: (510) 444-2093
FAX: Jonathan Redding
(510) 451-1527

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 13, 1995
Date Received: February 1, 1995
Project: #95-2120, Seabreeze
Date Samples Extracted: February 8, 1995

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL BY GC/FID (Modified 8015)
Extended to Include Motor Oil Range Compounds
Results Reported as µg/g (ppm)

Sample ID	Diesel Extended	Surrogate Standard (% Recovery)
PW-1 18"	30	104%
PW-1 24"	410	111%
PW-2 .6"	1,000	108%
PW-2 @ 4.5-6'	620	117%
PW-3 @ 6"	<50	110%
PW-3 @ 5'	<50	104%
PW-4 @ .6	<50	111%
PW-4 @ 36"	<50	111%
Quality Assurance		
Blank	<10	94%
PW-4 @ 36" (Duplicate)	<50	93%
PW-4 @ 36" (Matrix Spike) % Recovery	105%	100%
PW-4 @ 36" (Matrix Spike Duplicate) % Recovery	117%	109%
Spike Blank % Recovery	98%	105%
Spike Level	500	

CHAIN OF CUSTODY FORM

Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

Page 1 of 1

02-01-95

Sampler: Ben Wells / Tim B.

Report to: John Fountain

Company: SOMA

Project No: 95-2120

Project Name: 6th ave Oakland, CA

Telephone: 510-244-6000

Turnaround Time: normal

Fax: 510-244-6601

Analyses: 11:45

Laboratory Number	Sample ID.	Sampling Date	Sampling Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCl	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: Ice	Field Notes
56683-84	PW-1 @ 18", 24"	1/30/95		X			2					
56685-86	PW-2 @ 6", 4.5'	1/30/95		X			2					
56687-88	PW-3 @ 6", 5'	1/30/95		X			2					
56689-90	PW-4 @ 6", 3.5'	1/30/95		X			2					
	correct Sample numbers BA	2/2/95										
56683	PW-1 18"											
56684	PW-1 24"											
56685	PW-2 .6'	95-2120										
56686	PW-2 @ 4.5-6'	95-2120										
56687	PW-3 @ 6"	95-2120										
56688	PW-3 @ 5'	95-2120										
56689	PW-4 @ .6	95-2120										
56690 BA	PW-4 @ 3.5'	95-2120										

NOTES: CALL office to ✓

RELINQUISHED BY:	RECEIVED BY:
Ben Wells 1/31/95 15:00 DATE/TIME	FedEx 02/01/95 11:42 Cathy Riggo DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME

Signature on this form ... terms and conditions ...

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

Baseline Environmental
5900 Hollis Street
Suite D
Emeryville, CA 94608

Date: 14-MAR-95
Lab Job Number: 120142
Project ID: S9171
Location: Seabreeze Yacht Oakland

Reviewed by: Teresa K. Morrison

Reviewed by: Kevin Hoelk

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 120142
CLIENT: BASELINE ENVIRONMENTAL
PROJECT ID: S9171
LOCATION: SEABREEZE YACHT, OAKLAND

DATE SAMPLED: 03/06/95
DATE RECEIVED:03/06/95
DATE EXTRACTED:03/09/95
DATE ANALYZED: 03/13/95
DATE REPORTED: 03/14/95
BATCH NO: 19385

Extractable Petroleum Hydrocarbons in Soil & Wastes
California DOHS Method
LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	MOTOR OIL RANGE (mg/Kg)	BUNKER C RANGE (mg/Kg)
120142-001	TP-1A 3.0-3.5	**	28*	200*	340*
120142-002	TP-2 3.0-3.5	ND(1.0)	ND(1.0)	ND(25)	ND(25)
120142-003	TP-2 5.5-6.0	ND(1.0)	14*	120*	190*
120142-004	TP-3 3.0-3.5	**	92*	190*	400*
120142-006	TP-4 3.0-3.5	ND(1.0)	ND(1.0)	ND(25)	ND(25)
METHOD BLANK	N/A	ND(1.0)	ND(1.0)	ND(25)	ND(25)

ND = Not detected at or above reporting limit. Reporting limit applies to all analytes.

* Sample chromatogram does not resemble hydrocarbon standard.
** Kerosene range not reported due to overlap of hydrocarbon ranges.

QA/QC SUMMARY: LCS

RECOVERY, %	88

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-007
CLIENT: BASELINE ENVIRONMENTAL
PROJECT ID: S9171
LOCATION: SEABREEZE YACHT, OAKLAND
SAMPLE ID: T-1 3.0-3.5

DATE SAMPLED: 03/06/95
DATE RECEIVED: 03/06/95
DATE EXTRACTED: 03/10/95
DATE ANALYZED: 03/13/95
DATE REPORTED: 03/14/95
BATCH NO: 19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)
ANALYSIS METHOD: EPA 8080
EXTRACTION METHOD: EPA 3550

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	20
AROCLOR 1232	ND	20
AROCLOR 1016	ND	20
AROCLOR 1242	ND	20
AROCLOR 1248	ND	20
AROCLOR 1254	ND	20
AROCLOR 1260	ND	20

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: MS/MSD

RPD, %	1
RECOVERY, %	108

QC Sample: 120142-007

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-008
CLIENT: BASELINE ENVIRONMENTAL
PROJECT ID: S9171
LOCATION: SEABREEZE YACHT, OAKLAND
SAMPLE ID: T-1 5.5-6.0

DATE SAMPLED: 03/06/95
DATE RECEIVED: 03/06/95
DATE EXTRACTED: 03/10/95
DATE ANALYZED: 03/12/95
DATE REPORTED: 03/14/95
BATCH NO: 19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)
ANALYSIS METHOD: EPA 8080
EXTRACTION METHOD: EPA 3550

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	20
AROCLOR 1232	ND	20
AROCLOR 1016	ND	20
AROCLOR 1242	ND	20
AROCLOR 1248	ND	20
AROCLOR 1254	ND	20
AROCLOR 1260	ND	20

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: MS/MSD

RPD, %	1
RECOVERY, %	108

QC Sample: 120142-007

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-009
CLIENT: BASELINE ENVIRONMENTAL
PROJECT ID: S9171
LOCATION: SEABREEZE YACHT, OAKLAND
SAMPLE ID: T-2 3.0-3.5

DATE SAMPLED: 03/06/95
DATE RECEIVED: 03/06/95
DATE EXTRACTED: 03/10/95
DATE ANALYZED: 03/12/95
DATE REPORTED: 03/14/95
BATCH NO: 19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)
ANALYSIS METHOD: EPA 8080
EXTRACTION METHOD: EPA 3550

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	20
AROCLOR 1232	ND	20
AROCLOR 1016	ND	20
AROCLOR 1242	ND	20
AROCLOR 1248	ND	20
AROCLOR 1254	150	20
AROCLOR 1260	65	20

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: MS/MSD

RPD, %	1
RECOVERY, %	108

QC Sample: 120142-007

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-010
CLIENT: BASELINE ENVIRONMENTAL
PROJECT ID: S9171
LOCATION: SEABREEZE YACHT, OAKLAND
SAMPLE ID: T-3 3.0-3.5

DATE SAMPLED: 03/06/95
DATE RECEIVED: 03/06/95
DATE EXTRACTED: 03/10/95
DATE ANALYZED: 03/12/95
DATE REPORTED: 03/14/95
BATCH NO: 19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)
ANALYSIS METHOD: EPA 8080
EXTRACTION METHOD: EPA 3550

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	20
AROCLOR 1232	ND	20
AROCLOR 1016	ND	20
AROCLOR 1242	ND	20
AROCLOR 1248	ND	20
AROCLOR 1254	ND	20
AROCLOR 1260	ND	20

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: MS/MSD

RPD, %	1
RECOVERY, %	108

QC Sample: 120142-007

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-011
CLIENT: BASELINE ENVIRONMENTAL
PROJECT ID: S9171
LOCATION: SEABREEZE YACHT, OAKLAND
SAMPLE ID: T-4 3.0-3.5

DATE SAMPLED: 03/06/95
DATE RECEIVED: 03/06/95
DATE EXTRACTED: 03/10/95
DATE ANALYZED: 03/12/95
DATE REPORTED: 03/14/95
BATCH NO: 19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)
ANALYSIS METHOD: EPA 8080
EXTRACTION METHOD: EPA 3550

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	20
AROCLOR 1232	ND	20
AROCLOR 1016	ND	20
AROCLOR 1242	ND	20
AROCLOR 1248	ND	20
AROCLOR 1254	ND	20
AROCLOR 1260	ND	20

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: MS/MSD

RPD, %	1
RECOVERY, %	108

QC Sample: 120142-007

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120142-MB
CLIENT: BASELINE ENVIRONMENTAL
PROJECT ID: S9171
LOCATION: SEABREEZE YACHT, OAKLAND
SAMPLE ID: METHOD BLANK

DATE SAMPLED: N/A
DATE RECEIVED: N/A
DATE EXTRACTED: 03/10/95
DATE ANALYZED: 03/12/95
DATE REPORTED: 03/14/95
BATCH NO: 19397

ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)
ANALYSIS METHOD: EPA 8080
EXTRACTION METHOD: EPA 3550

AROCLOR TYPE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)
AROCLOR 1221	ND	20
AROCLOR 1232	ND	20
AROCLOR 1016	ND	20
AROCLOR 1242	ND	20
AROCLOR 1248	ND	20
AROCLOR 1254	ND	20
AROCLOR 1260	ND	20

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: MS/MSD

RPD, %	1
RECOVERY, %	108

QC Sample: 120142-007

BASELINE
101 H Street, Suite L
Petaluma, CA 94952
(707) 762-5233

CHAIN OF CUSTODY RECORD

Turn-around Time: 5-DAY
Lab: Curtis & Tompkins
BASELINE Contact Person: YANE NORDHAV

Project No.	Project Name and Location
59171	Seabreeze, Port of Oakland

Samplers: (Signature) Brian Arm

Sample ID No. Station	Date	Time	Media	Depth	No. of Containers	TPH	TEH (45' DIESEL MOTOR OIL BLANKET C)	BTX&E	Oil & Grease	Motor Oil	PNAs	Title 22 Metals	Total Lead	PCBs EPA 8080				Remarks/ Composite	Detection Limits
TP-1A 3.0-3.5	3/6/95	10:10	Soil	3.0-3.5	1		X												
TP-2 3.0-3.5		10:35	Soil	3.0-3.5	1		X												
TP-2 5.5-6.0		10:50		5.5-6.0	1		X												
TP-3 3.0-3.5		11:10		3.0-3.5	1		X												
Shoe 2x		11:15		0.5-1.0	1								X						
TP-4 3.0-3.5		11:35		3.0-3.5	1		X												
T-1 3.0-3.5		12:20		3.0-3.5	1														
T-1 5.5-6.0		12:35		5.5-6.0	1								X						
T-2 3.0-3.5		12:45		3.0-3.5	1								X						
T-3 3.0-3.5		13:10		3.0-3.5	1								X						
T-4 3.0-3.5		13:30		3.0-3.5	1								X						
													X						

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Conditions of Samples Upon Arrival at Laboratory:
Brian Arm	3/6/95		3/6/95 3:47p	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Remarks: 5-days
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	

CCSTRCDP.FRM

ADMIN(AD4)-5/27

MAR 14 '95 16:49

P.20