

April 22, 1993
SCI 820.001

Mr. Brian Oliva
Alameda County Health Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Work Plan
Soil Vapor Extraction System Decommissioning and
Groundwater Monitoring
6707 Bay Street
Emeryville, California

Dear Mr. Oliva:

Presented herein is a proposed work plan to decommission a soil vapor extraction system and re-initiate groundwater monitoring near a previous underground storage tank area at the referenced site. Previous site assessments have been performed by others. A brief site history is presented below.

Site History

The site was part of San Francisco Bay until 1947. From 1947 through the 1950s, the site was gradually filled. A municipal landfill was operated on the parcel immediately to the south of the site. Previous investigators' review of aerial photographs, test boring logs and analytical test results, indicate that at least a portion of the site was part of the municipal landfill.

From 1963 to 1979, Dymo Industries, Inc., a label tape and label tape puncher manufacturer owned by Esselte Pendeflex Corporation, operated on-site. During this time, virgin methyl isobutyl ketone (MIBK, or 4-methyl-2-pentanone) and methyl ethyl ketone (MEK) were reportedly stored in underground storage tanks (UST) on site. The tank locations are shown on Plate 1.

From 1979 to 1989, Mike Roberts Color Productions (MRCP) operated on-site. MRCP manufactured and printed color postcards and expanded into color printing, lithography and off-set printing operations. The UST's were not used during this period. In 1989 two monitoring wells (MW1 and MW3) were installed in the tank area vicinity to evaluate soil and groundwater quality. The analytical test results indicated that soils from the well borings contained

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detectable concentrations of petroleum hydrocarbons including oil and grease, diesel and gasoline. In addition, heavy metals were detected in soil from MW1.

In October 1989, the UST's (1-2000 gallon, 1-1650 gallon, and 1-3200 gallon) were removed from the site and disposed of by LW Environmental Services, Inc. Upon tank removal, soil samples (SS-1 through SS-6) were obtained from the ends of each tank, under the supervision of the Alameda County Health Care Services Agency. Analytical test results indicated that petroleum hydrocarbons and volatile organic chemicals were present in the soils beneath the tanks. The analytical tests were conducted using EPA 8010 scans. Hence, MIBK and MEK were not among the chemicals included in the screening.

Nady System, Inc. purchased the property from MRCP in 1990. The site is presently occupied by two buildings connected by an enclosed corridor. One of the buildings is a warehouse used by others for distribution and packing; it occupies approximately 55000 square feet. The other is a 15000 square foot two-story office building. The area around the buildings is paved with asphalt.

MW8 was installed downgradient of the previous tank area in 1990 to satisfy Regional Water Quality Control Board UST investigation requirements. MIBK, oil and grease, pyrene, PCB-1260 and various heavy metals were present in the soil and groundwater samples obtained from MW8. ~~The petroleum hydrocarbons, oil and grease, pyrene, PCB-1260 and heavy metals were judged not related to the UST system.~~ However, since the tanks reportedly stored MIBK and the contaminant concentrations were sufficiently high, a treatment system was designed to remediate the MIBK and other volatile organic chemicals.

The system included a soil vapor extraction system (SVES) and a groundwater treatment system. The SVES consisted of two (2) vapor extraction wells, two (2) passive recharge wells, a blower and two (2) carbon canisters. The SVES operated from July 1990 to February 1991. The groundwater treatment system consisted of one extraction well (MW8), a well pump and three granular activated carbon canisters. The effluent from the treatment system was discharged to the local sanitary sewer system. The groundwater treatment system operated from October 1990 to March 1991.

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On September 5, 1991, two test borings (PB-1 and PB-2) were drilled in the previous tank area. Four soil samples obtained from the vadose zone were analyzed for volatile organic chemicals (EPA 8240). Analytical test results indicated that MIBK concentrations were below reporting limits, however relatively low concentrations of 1,3-dichlorobenzene and 1,4-dichlorobenzene were present.

Work Plan

The ACHCSA was petitioned by PES Environmental, Inc. in a letter dated December 9, 1991 to approve a "No Further Action" status with respect to soil characterization and remediation in the former tank area. Summaries of pertinent analytical test results are presented in Tables 1 through 6. At this time, we request that the ACHCSA approve this work plan to decommission the SVES and initiate groundwater monitoring.

Treatment System Decommissioning

The SVES will be decommissioned and the four vapor extraction/recharge wells will be abandoned in accordance with the Regional Water Quality Control Board requirements. Prior to well abandonment, the appropriate permits will be obtained. Well abandonment will consist of over-drilling the existing wells and backfilling the borings with cement grout. Cuttings generated during well destruction will be stored on-site in 55 gallon drums. The disposal method of the drummed materials will be determined based on a review of the analytical tests for the material.

Quarterly Groundwater Monitoring

Groundwater from the site has not been analyzed for the past 1½ years. For this reason, we propose to evaluate groundwater quality in the tank area by sampling and analyzing monitoring wells MW1, MW3 and MW8, over the next three consecutive quarters.

Prior to sampling, the depth to groundwater will be measured from the top of the well casing. ✓ The direction and gradient of groundwater flow in the tank area will be determined. The wells will then be purged of at least three well volumes of water using a bailer. Measurements of water pH, conductivity and temperature will be made during purging. Once the wells recharge to within 80 percent of their initial volume they will be sampled using a clean

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sampling device. The samples will be retained in containers precleaned by the supplier and refrigerated until delivery to the analytical laboratory. The water samples will be analyzed for volatile organic chemicals (EPA 8240). The results of each monitoring event will be summarized in a letter report, which will include a discussion of field activities, analytical test reports and Chain-of-Custody documents.

At the end of three quarters of groundwater monitoring, the need for further monitoring and/or remediation will be evaluated.

We look forward to your favorable response to our proposed work plan. If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.



R. William Rudolph
Geotechnical Engineer 741 (expires 12/31/96)

MK:RWR:egh

cc: Mr. Brian Berger
Pettit and Martin

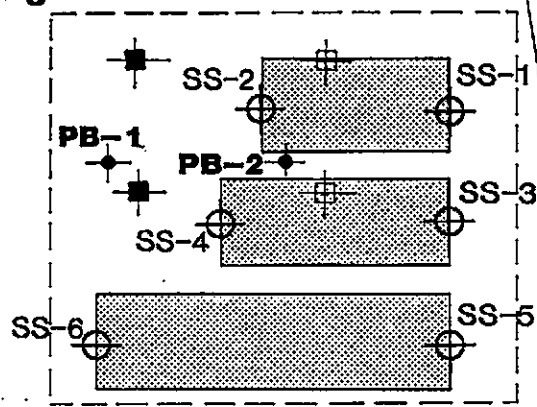
Mr. James McClay
MRCP Realty

Attachments: Site Plan
Tables 1 through 6

MW-1

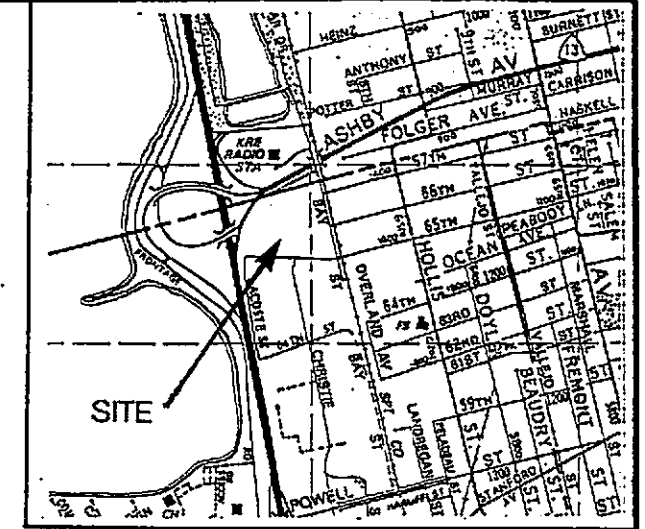
MW-8

MW-3



BAY STREET

WAREHOUSE FACILITY



VICINITY MAP

- SOIL SAMPLE LOCATION
- MONITORING WELL
- TEST BORING
- VAPOR EXTRACTION WELL
- PASSIVE VAPOR RECHARGE WELL
- APPROXIMATE LOCATION OF PREVIOUS UNDERGROUND STORAGE TANK
- APPROXIMATE EXTENT OF TANK EXCAVATION
- PROPERTY LINE



APPROXIMATE SCALE (feet)



SITE PLAN

6707 BAY STREET - EMERYVILLE, CA

PLATE

Subsurface Consultants

JOB NUMBER
820.001

DATE
4/12/93

APPROVED
Me

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Table 1
Petroleum Hydrocarbon Concentrations in Soils

<u>Date</u>	<u>Boring</u>	<u>Depth (feet)</u>	<u>Oil & Grease (mg/kg)¹</u>	<u>Diesel (mg/kg)</u>	<u>Gasoline (mg/kg)</u>
07/05/89	MW1	5.5	845	12	<10
		10.5	<50	<10	<10
		16.0	1600	63	<10
		20.5	80	<10	<10
		25.5	95	<10	<10
		30.5	<50	<10	<10
08/28/89	MW3	5.0	1845	30	<10
		12.0	95	20	<10
		15.0	625	260	120
		20.0	<20	<10	<10
		25.0	20	<10	<10
10/05/89	SS-1	3	-- ²	12	12
	SS-2	3	--	11	<10
	SS-3	3	--	<10	<10
	SS-4	3	--	60	240
	SS-5	3	--	35	115
	SS-6	3	--	700	460
01/03/90	MW8	4.0	2000	<10	<10
		9.0	20000	<10	<10

¹ milligrams per kilogram

² Test not requested

³ Chain-of-Custody indicates samples obtained from beneath tank.

Table 2
Volatile Organic Concentrations in Soils

<u>Date</u>	<u>Boring</u>	<u>Depth (feet)</u>	<u>4Methyl-2 Pentanone (MIBK) (ug/kg)¹</u>	<u>1,3 Dichloro-benzene (ug/kg)</u>	<u>1,4 Dichloro-benzene (ug/kg)</u>	<u>1,2 Dichloro-ethane (ug/kg)¹</u>	<u>Tri-chloro-ethene (ug/kg)</u>	<u>Chloro-benzene (ug/kg)</u>	<u>8080 Com-pounds (ug/kg)</u>	<u>8270 Com-pounds (ug/kg)</u>	<u>Other Organic Com-pounds</u>
07/05/89	MW1	5.5	--- ²	--	--	<30	<30	<30	--	--	ND
		10.5	--	--	--	<30	<30	<30	--	--	ND
		16.0	--	--	--	<30	<30	<30	--	--	ND
		20.5	--	--	--	<30	<30	<30	--	--	ND
		25.5	--	--	--	<30	<30	<30	--	--	ND
		30.5	--	--	--	<30	<30	<30	--	--	ND
10/05/89	SS-1	³	--	--	--	120	<30	260	--	--	ND
	SS-2	³	--	--	--	<30	<30	<30	--	--	ND
	SS-3	³	--	--	--	<30	<30	<30	--	--	ND
	SS-4	³	--	--	--	2000	70	2400	--	--	ND
	SS-5	³	--	--	--	<30	<30	<30	--	--	ND
	SS-6	³	--	--	--	<30	<30	<30	--	--	ND
01/03/90	MW8	4	<30	<10	<10	--	--	--	ND	ND	ND
		9	8300	<100	<100	--	--	--	PCB-1260 (2300)	PYRENE (410)	ND
09/05/91	PB-1	6	<10	<5	2	--	--	--	--	--	ND
		8.5	<10	3	4	--	--	--	--	--	ND
09/05/91	PB-2	5.5	<10	<5	<5	--	--	--	--	--	ND
		8	<10	4	4	--	--	--	--	--	ND

¹ micrograms per kilogram

² Test not requested

³ Chain-of-Custody indicates samples obtained from beneath tank

Table 3
Heavy Metal Concentrations in Soils

	<u>MW1-5.5</u> <u>(mg/kg)</u>	<u>MW1-10.5</u> <u>(mg/kg)</u>	<u>MW1-16</u> <u>(mg/kg)</u>	<u>MW1-20.5</u> <u>(mg/kg)</u>	<u>MW1-25.5</u> <u>(mg/kg)</u>	<u>MW1-30.5</u> <u>(mg/kg)</u>	<u>MW8-4</u> <u>(mg/kg)</u>	<u>MW8-9</u> <u>(mg/kg)</u>
Antimony	<1	<1	4	<1	<1	<1	<10	<10
Arsenic	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<16	<16
Barium	92	21	78	61	67	23	42	85
Beryllium	<0.025	<0.02	<0.025	<0.025	<0.025	<0.025	0.016	0.015
Cadmium	1.4	0.6	12	2.4	2.0	1.2	<0.7	<0.7
Chromium	13	12.5	42	15	10	9.9	27	9.6
Cobalt	5.7	2.6	12.4	4.5	8	3.6	2.8	<2
Copper	28	4	15.3	23	13	7.4	18	41
Lead	61	3	160	77	8	4.5	<12	24
Mercury	<5	<5	<5	<5	<5	<5	<0.009	0.36
Molybdenum	<1	<1	2.4	<1	<1	<1	<1	<1
Nickel	14	12.7	30	19	24	22	18	6.8
Selenium	<5	<5	<5	<5	<5	<5	<0.2	0.2
Silver	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.4	<0.4
Thallium	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<10	<10
Vanadium	15	7	32	12	12	6.7	15	8.5
Zinc	94	5.4	6040	106	27	15	75	120

Table 4
Petroleum Hydrocarbon Concentrations in Groundwater

<u>Well</u>	<u>Date</u>	<u>Total Recoverable Hydrocarbons (mg/l)¹</u>	<u>Oil and Grease (mg/l)</u>	<u>Diesel (mg/l)</u>	<u>Gasoline (mg/l)</u>
MW-1	07/06/89	--	-- ²	<0.5	<0.5
	09/05/89	--	<10	<0.5	<0.5
	01/10/90	0.5	--	<10	<10
MW-3	09/07/89	--	<10	<0.5	<0.5
	01/10/90	0.6	--	<10	<10
MW-8	01/10/90	103	--	<10	<10
	12/10/90	10.5	--	--	--

¹ milligrams per liter
² Test not requested

Table 5
Organic Chemical Concentrations in Groundwater

<u>Well</u>	<u>Date</u>	<u>4-Methyl- 2 Pentanone (ug/l)¹</u>	<u>Vinyl Chloride (ug/l)</u>	<u>Trans 1,2- Dichloro- Ethane (ug/l)</u>	<u>Acetone (ug/l)</u>	<u>2-Butanone (ug/l)</u>	<u>4- Methyl-2 Pentanol (ug/l)</u>	<u>Benzene (ug/l)</u>	<u>Toluene (ug/l)</u>	<u>Bis (2-Ethyl Hexyl) Phthalate (ug/l)</u>	<u>Other Organic Chemicals (ug/l)</u>
MW1	07/06/89	NR ³	<0.3	<0.3	NR	NR	NR	<0.3	<0.3	-- ⁴	ND ²
	09/07/89	<20	<4	<3	<20	<20	NR	<2	<2	40	ND
	01/10/90	NR	<30	<3	NR	NR	NR	<5	<5	<100	ND
	09/07/91	<10	<10	<5	<20	<20	NR	7	8	--	ND
MW3	09/07/89	<20	<4	<3	<20	<20	NR	<2	<2	80	ND
	01/10/90	NR	<30	<5	NR	NR	NR	<5	<5	<100	ND
	09/07/91	<10	<10	<5	<20	<20	40	<5	<5	--	ND
MW8	01/10/90	160,000	<6,000	<1,000	NR	NR	NR	2,100	<1,000	<100	ND
	12/10/90	47,000	<150	<25	3,200	10,000	130,000	160	<25	--	ND
	09/05/91	150,000	<10,000	<5,000	<5,000	<20,000	NR	<10,000	<10,000	--	ND

¹ micrograms per liter

² Not detected above reporting limits

³ Not reported

⁴ Test not requested

Table 6
Heavy Metals in Groundwater

	<u>MW1 7/6/89</u> <u>(mg/l)</u>
Antimony	<0.04
Arsenic	<0.088
Barium	0.60
Beryllium	<0.001
Cadmium	0.013
Chromium	0.064
Cobalt	0.021
Copper	0.040
Lead	0.063
Mercury	<0.2
Molybdenum	<0.04
Nickel	<0.1
Selenium	<0.2
Silver	0.022
Thallium	<0.088
Vanadium	0.06
Zinc	0.18