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Treadwell&Rollo

MAR 2 2001

7 March 2001
Project 2543.01

Ms. Faye Beverett
Page Street Properties, LLC
155 Filbert Street, Suite 250
Oakland, CA 94607

Subject: Ambient Air Sampling Results
2855 Mandela Parkway Property
Oakland, California

Dear Ms. Beverett:

As you requested, this report by Treadwell & Rollo, Inc. presents the ambient air sampling results for the 2855 Mandela Parkway Property in Oakland, California. The purpose for this investigation was to provide information supporting an ongoing evaluation of the potential soil vapor transport pathway between gasoline free product previously detected beneath the property and indoor air quality. The results of the evaluation, in conjunction with existing and proposed site investigation data, may be used to formulate appropriate site management strategies with the Alameda County Department of Environmental Health (ACDEH) and the San Francisco Bay Regional Water Quality Control Board (RWQCB). The ambient air sampling investigation and results are discussed below.

BACKGROUND

The existing building on the property is a 143,000 square foot, single-story industrial structure currently owned by 2855 Mandela Property (Figure 1). The building is currently occupied by a number of commercial tenants, mainly for warehousing and storage. The building was originally erected in 1941 and operated until approximately 1983 by International Harvester as a truck service and sales facility. An underground gasoline storage tank was removed from property in 1991 by a previous owner, Wareham Property Group.

Geologic conditions at the site consist of approximately two to eight feet of relatively sandy fill material underlain by Bay Mud to a depth of at least 24 feet below grade. The clayey Bay Mud appears to include heterogeneous zones of more sandy soil and organic matter. The stabilized groundwater depth is approximately eight to ten feet and there are indications of a perched water zone at the interface between the fill and the Bay Mud.

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Environmental investigations have confirmed the presence of relatively old gasoline free product within the Bay Mud and potentially significant concentrations of the gasoline constituents benzene, toluene, ethylbenzene, and total xylenes (BTEX) in groundwater beneath a portion of the property, including under the existing building (the approximate lateral extent of the free product is indicated on Figure 1). However, a soil vapor survey in 1998 indicated only relatively low benzene concentrations beneath the building's floor slab. A sample of perched water was collected in 1999 above an area of groundwater known to contain detectable concentrations of BTEX. The perched water samples did not contain detectable BTEX concentrations.

The previous results suggested that vapors from the free product and dissolved groundwater concentrations may be retarded from upward migration into the fill zone beneath the building due to naturally occurring geologic conditions. These conditions might include the low-permeability clayey Bay Mud matrix and the presence of a perched water zone, as well as other factors. Additionally, the existing building foundation and concrete floor may further retard the vertical migration of BTEX vapors into the building.

AIR SAMPLING METHODS

On Sunday, November 12, 2000, Mr. Glenn Leong of SOMA Corporation (SOMA) collected six ambient air samples from the Site using 6-liter Summa Canisters provided by the analytical laboratory, Air Toxics Ltd. The canisters were "low-level certified", indicating that they were individually checked by the laboratory to verify that any residual chemicals in the canisters were below the sample quantitation limits desired for the field sample analyses. The six air samples included two outdoor locations and three indoor locations (Figure 1). At the indoor location (A3) within the current AMG offices, a field duplicate (A4) was collected.

Samples A-1 and A-2 were collected from a storage area for the current cardboard box distributor. Both of these locations inside the building are within the apparent extent of gasoline free product. Although no activities were observed in this area, it should be noted that this area is connected by large vehicle access openings to a loading area where motor vehicles were parked. While at the property on Thursday, November 9, 2000, Mr. Leong observed that vehicles were left idling in this loading area.

Samples A-3 and A-4 were collected from the AMG offices. While these locations were outside the apparent limit of the free product, they were selected because the enclosed office space might be an area of higher human exposure than the large open warehouse spaces. Although samples were not collected from AMG's adjacent warehouse area, a pair of double swinging doors is the primary access from the office to the warehouse area. It should be noted that a worker arrived at

the warehouse and had driven his car partway into the warehouse during the beginning of sample collection and janitors were observed in the offices at the end of sample collection.

Samples A-5 and A-6 were collected along the chain-link fence along the 28th Street border of the property to measure ambient outdoor air concentrations for comparison to the indoor air results. No motor vehicle activity was observed in the asphalt covered parking area.

Following a canister vacuum check for canister leakage before sample collection, each of the canisters were fitted in the field with a flow restrictor provided by the laboratory to allow for air flow into the pre-evacuated canisters at a rate that would preserve the canister vacuum over an eight-hour period. Initial canister vacuums were recorded on chain-of-custody forms. In addition to the flow restrictors, a 7-micron particulate filter was attached to each canister to keep particulates from the air samples. The main valves of the canisters were opened for approximately seven hours each for sample collection. The canisters were placed on the ground during sample collection. Following sample collection, the main valves of each canister was closed and the final vacuum of the canisters was checked and recorded on the sample chain-of-custody forms. Each of the canisters was under a vacuum following sample collection in the field and upon receipt by the laboratory.

Following sample collection, the canisters were shipped to the laboratory under Chain-of-Custody protocol via Federal Express overnight delivery on November 13, 2000. The samples were analyzed by the laboratory using EPA Method TO-14 (low-level quantitation). Sample quantitation limits vary between each sample due to either the presence of selected chemicals in the samples requiring sample dilution or the amount of residual vacuum in each of the canisters. Because the laboratory must place each canister under a slight amount of positive pressure to extract an aliquot of air sample, the dilution of each sample will vary depending upon the amount of residual vacuum.

DISCUSSION OF LABORATORY RESULTS

Laboratory test results are summarized on Table 1. The laboratory Test Method TO-14 analyzes for 60 different organic compounds. A total of 24 organic compounds were detected in the air samples collected during this investigation. None of the reported 24 organic compounds were detected exclusively in the outside air samples. However, 10 of the organic compounds were detected only in the indoor air samples. The compounds detected only in the indoor air samples include: 1,1,1-trichloroethane, 1,2-dichloroethane, styrene, 1,3,5-trimethylbenzene, 1,2-dichlorobenzene, methyl ethyl ketone, hexane, cyclohexane, methyl tert-butyl ether and heptane.

Organic compounds typically associated with gasoline vapors include: benzene, ethylbenzene, toluene, and xylene (BTEX) and methyl tert-butyl ether (MTBE). Detectable concentrations of BTEX were measured in the indoor and outdoor air samples. Concentrations of MTBE were detected in only the indoor air samples. The gasoline free product beneath the property does not contain MTBE because of its age. However, gasoline-powered vehicles are stored and used in the existing warehouse. Through normal operations, the gasoline tanks of these vehicles produce vapors that are vented into the indoor air space.

With the exception of MTBE, which is a recent gasoline additive, the other organic compounds detected in the indoor air samples are typically associated with industrial solvents or sources other than gasoline. These other sources would typically include cleaning and degreasing solutions, adhesives, office supplies, and motor exhaust.

The concentrations of the detected organic compounds are very low. Most concentrations were near (i.e., within an order-of-magnitude) of the Test Method TO-14 detection limits, which are low-level quantitation limits. The concentrations of the organic compounds detected in the air samples are between 4 and 6 orders-of-magnitude below the Occupational Safety and Health Administration's (OSHA's) Permissible Exposure limits (PEL) for these compounds.

Table 1 also presents a summary of Annual Toxics Data for ambient air quality in Alameda County for the years 1990 through 1998. The annual data (maximum, minimum, and average) for some of the same organic compounds detected at the Site are available for comparison purposes. As indicated on Table 1, the concentrations of organic compounds detected in air samples for this investigation are near or slightly above reported Alameda County background concentrations. The property is located in an industrial, heavily trafficked area.

CONCLUSIONS

Based on the air sample results obtained during this investigation, it appears that gasoline vapors, specifically BTEX, are not migrating in significant concentrations from the free-product in the subsurface into the building. The available data suggests that the naturally occurring geologic conditions, as well as the building floor slab may be retarding significant upward migration of vapors.

Previous investigations have demonstrated that the subsurface gasoline free product does not contain MTBE. As such, the detection of MTBE in the current ambient air samples suggests that a gasoline source other than the subsurface free product is the source for MTBE and potentially the detected BTEX. Because the current facility operations include the use of gasoline powered vehicles inside and immediately adjacent to the warehouse portion of the building, it is likely that the fuel for those vehicles is the source for most of the BTEX and MTBE detected above the background (outside air samples) concentrations.

The source or sources of the other organic compounds detected in air samples was not evaluated in this investigation. A previous soil gas survey did not detect these compounds. Therefore it is likely that the low levels of these other organic compounds detected are caused by other facility operations or from offsite (background) sources.

If you have any questions, please call.

Sincerely yours,
TREADWELL & ROLLO, INC.

Michael P. McGuire, P.E.
Associate Engineer

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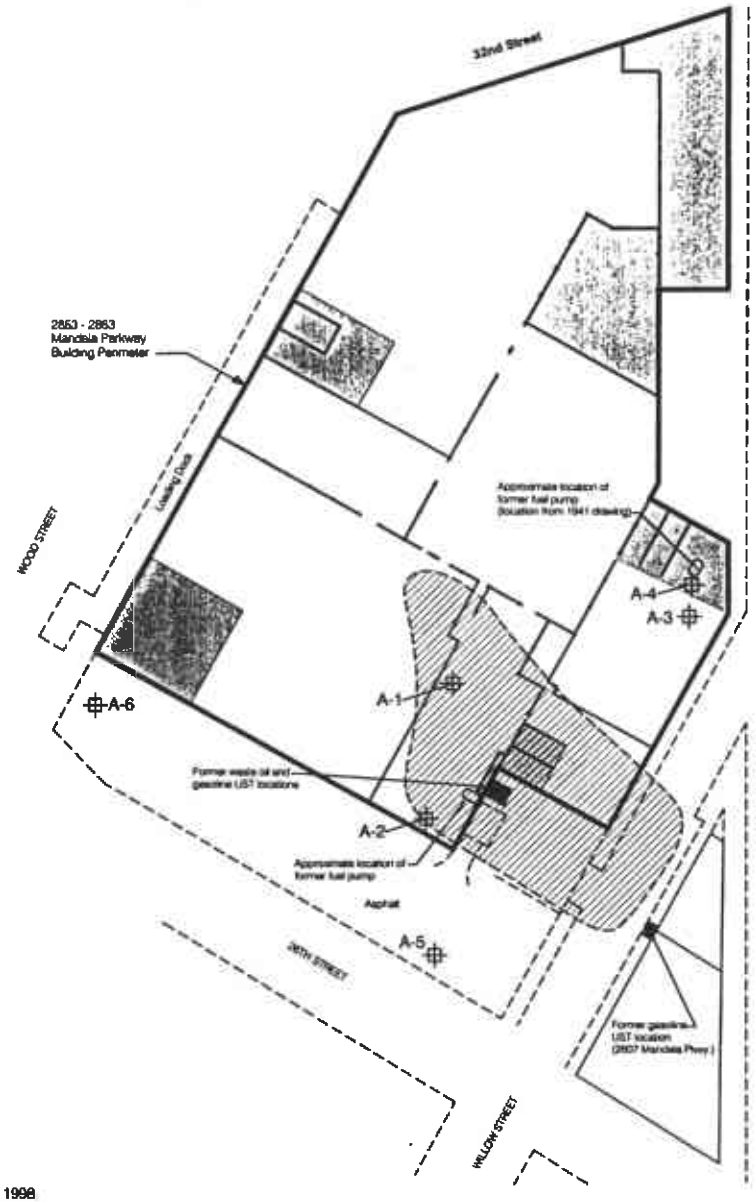
cc: Barney Chan – ACDEH

Attachments



References: Ceres Associates, 1998
Interactive Resources, 1999

FILE: AIR SAMPLE.DWG

EXPLANATION

A-1 ⊕ Air sample location SOMA 11/12/00

Free product extent based on:
1 - direct observation of product
2 - benzene >2000 µg/L

Note:
Free product may not necessarily be present at all locations within the extent envelope indicated.

Office space (remaining building area is warehouse or light manufacturing)

N

0 80 Feet

Approximate scale

2855 MANDELA PARKWAY PROPERTY
Oakland, California

SITE PLAN

Date 12/22/00	Project No. 2543.01	Figure 1

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TABLE 1
Summary of Air Data
Mandela Parkway Project
Oakland, California
(All units in ug/m3)

Sample Name	Sample Date	Freon 12	Chloromethane	Freon 11	Methylene Chloride	1,1,1-Trichloroethane	Benzene	1,2-Dichloroethane	Toluene	Ethylbenzene	m,p-xylene	o-xylene	Styrene	1,3,5-Trimethylbenzene
A-1	11/12/00	6.6	2.5	1.2	2.0	0.82 J	10	<0.61	56	4.4	17	4.3	0.96	0.96
A-2	11/12/00	6.1	1.2	1.2	2.2	1.1	8.0	<0.65	42	3.4	12	3.4	<0.68	0.78 J
A-3	11/12/00	6.1	1.4	1.1	5.8	1.3	7.4	<0.66	18	2.0	6.4	1.9	<0.70	<0.80
A-4	11/12/00	5.8	2.2	1.1	5.5	1.3	6.5	0.72	18	1.8	8.0	2.4	<0.73	0.87
A-5	11/12/00	4.8	1.3	1.2	0.70	<0.93	3.7	<0.69	6.4	0.82	2.8	1.2	<0.73	<0.84
A-6	11/12/00	6.0	1.3	<1.0	0.61 J	<0.97	2.9	<0.72	4.4	<0.77	2.2	1.3	<0.76	<0.87
OSHA PEL		4.95×10^6	2.07×10^5	5.6×10^6	8.7×10^4	1.9×10^6	3.19×10^4	1.8×10^5	7.5×10^5	4.35×10^5	4.35×10^5	4.35×10^5	8.5×10^5	None
NIOSH PEL														1.3×10^5
California Air Quality Data Annual Toxics Data - Alameda County														
1990	Average	--	--	--	2.72	--	5.13	--	12.10	1.89	--	2.29	1.08	--
	Maximum	--	--	--	9.53	--	14.61	--	24.12	3.97	--	4.85	2.16	--
	Minimum	--	--	--	1.76	--	0.81	--	2.30	1.32	--	0.22	0.22	--
1991	Average	--	--	--	2.12	--	4.45	--	11.79	1.72	--	2.29	0.78	--
	Maximum	--	--	--	12.00	--	13.31	--	33.31	3.53	--	6.61	1.73	--
	Minimum	--	--	--	1.76	--	0.81	--	1.91	1.32	--	0.44	0.22	--
1992	Average	--	--	--	1.87	--	2.99	--	10.03	1.32	--	1.85	0.56	--
	Maximum	--	--	--	4.59	--	10.71	--	35.99	1.32	--	3.97	1.30	--
	Minimum	--	--	--	1.76	--	0.81	--	3.45	1.32	--	0.44	0.22	--
1993	Average	--	--	--	3.14	--	3.31	--	10.64	1.41	--	2.38	0.73	--
	Maximum	--	--	--	38.82	--	11.36	--	38.29	3.08	--	7.49	3.89	--
	Minimum	--	--	--	1.76	--	0.81	--	0.38	1.32	--	0.22	0.22	--
1994	Average	--	--	--	1.76	--	3.34	--	9.65	1.32	5.46	1.72	0.61	--
	Maximum	--	--	--	1.76	--	10.71	--	29.48	1.32	8.81	3.97	3.03	--
	Minimum	--	--	--	1.76	--	0.81	--	2.30	1.32	1.32	0.22	0.22	--
1995	Average	--	--	--	2.26	--	3.28	--	8.84	1.63	4.76	1.63	0.26	--
	Maximum	--	--	--	4.59	--	8.77	--	25.27	3.97	14.10	4.85	0.86	--
	Minimum	--	--	--	1.76	--	0.81	--	1.53	1.32	1.32	0.22	0.22	--
1996	Average	--	--	--	1.76	--	1.49	--	5.86	1.41	3.04	1.15	0.22	--
	Maximum	--	--	--	1.76	--	5.19	--	23.74	3.08	11.46	3.53	0.43	--
	Minimum	--	--	--	1.76	--	0.81	--	1.53	1.32	1.32	0.22	0.22	--
1997	Average	--	--	--	1.76	--	1.66	--	5.86	1.32	2.60	0.84	0.22	--
	Maximum	--	--	--	1.76	--	4.87	--	17.23	1.32	9.25	3.08	0.43	--
	Minimum	--	--	--	1.76	--	0.65	--	1.91	1.32	1.32	0.22	0.22	--
1998	Average	--	--	--	1.87	--	1.82	--	8.16	1.32	3.00	1.01	0.30	--
	Maximum	--	--	--	5.29	--	11.69	--	27.57	1.32	10.14	3.08	0.86	--
	Minimum	--	--	--	1.76	--	0.32	--	1.53	1.32	1.32	0.22	0.22	--

Notes:
uG/m3 = Micro grams per meter-cubed
J = Estimated value
< = Indicates chemical is not detected, or detected at a level less than the given detection limit
- = Not available

TABLE 1
Summary of Air Data
Mandela Parkway Project
Oakland, California
(All units in ug/m3)

Sample Name	Sample Date	1,2,4-Trimethylbenzene	1,2-Dichlorobenzene	Acetone	2-Propanol	Methyl Ethyl Ketone	Hexane	1,4-Dioxane	Cyclohexane	Ethanol	Methyl tert-Butyl Ether	Heptane
A-1	11/12/00	3.5	<0.91	18	5.5	<2.2	11	<2.7	4.6	12	5.4	4.9
A-2	11/12/00	2.8	<0.96	16	5.6	<2.4	9.8	<2.9	3.7	12	4.4	3.7
A-3	11/12/00	0.92	3.0	15	4.4	3.0	5.2	<2.9	2.9	16	7.7	<0.34
A-4	11/12/00	2.8	<1.0	14	2.1 J	<2.5	4.4	6.1	<2.9	14	6.6	<3.5
A-5	11/12/00	<0.84	<1.0	11	<2.1	<2.5	<3.0	<3.1	<2.9	8.1	<3.1	<3.5
A-6	11/12/00	1.1	<1.1	14	<2.2	<2.6	<3.1	8.6	<3.1	3.6	<3.2	<3.6
OSHA PEL		None	1.8×10^3	2.4×10^6	9.8×10^5	5.9×10^5	1.8×10^6	3.6×10^4	1.05×10^6	1.9×10^6	NA	2.0×10^6
NIOSH PEL		1.3×10^5										
California Air Quality Data Annual Toxics Data - Alameda												
1990	Average	--	--	--	--	--	--	--	--	--	--	--
	Maximum	--	--	--	--	--	--	--	--	--	--	--
	Minimum	--	--	--	--	--	--	--	--	--	--	--
1991	Average	--	--	--	--	1.89	--	--	--	--	--	--
	Maximum	--	--	--	--	5.69	--	--	--	--	--	--
	Minimum	--	--	--	--	0.15	--	--	--	--	--	--
1992	Average	--	--	--	--	2.27	--	--	--	--	--	--
	Maximum	--	--	--	--	7.78	--	--	--	--	--	--
	Minimum	--	--	--	--	0.90	--	--	--	--	--	--
1993	Average	--	--	--	--	1.59	--	--	--	--	--	--
	Maximum	--	--	--	--	4.19	--	--	--	--	--	--
	Minimum	--	--	--	--	0.15	--	--	--	--	--	--
1994	Average	--	--	--	--	1.35	--	--	--	--	--	--
	Maximum	--	--	--	--	6.29	--	--	--	--	--	--
	Minimum	--	--	--	--	0.15	--	--	--	--	--	--
1995	Average	--	--	--	--	0.33	--	--	--	--	--	--
	Maximum	--	--	--	--	1.50	--	--	--	--	--	--
	Minimum	--	--	--	--	0.15	--	--	--	--	--	--
1996	Average	--	--	--	--	0.21	--	--	--	--	--	--
	Maximum	--	--	--	--	1.20	--	--	--	--	--	--
	Minimum	--	--	--	--	0.15	--	--	--	--	--	--
1997	Average	--	--	--	--	0.27	--	--	--	--	6.69	--
	Maximum	--	--	--	--	1.20	--	--	--	--	12.80	--
	Minimum	--	--	--	--	0.15	--	--	--	--	3.66	--
1998	Average	--	--	--	--	0.39	--	--	--	--	5.60	--
	Maximum	--	--	--	--	2.10	--	--	--	--	13.54	--
	Minimum	--	--	--	--	0.15	--	--	--	--	1.46	--

Notes:
uG/m3 = Micro grams per meter-c
J = Estimated value
< = Indicates chemical is not dete
- = Not available