



May 8, 1987

9382,005.02

City of Oakland  
Office of Public Works  
One City Hall Plaza  
Oakland, California 94612

Attention: Mr. Diego A. Garcia

Gentlemen:

Report  
Services Following Tank Removal  
Chinatown Redevelopment Project No. 97110  
Oakland, California

This letter documents Harding Lawson Associates' (HLA) observations during the removal of four underground storage tanks located on 11th Street near the corner of Webster Street in downtown Oakland, California, and presents the results of soil sampling following tank removal. The scope of our services included (1) observing and documenting the conditions of the tanks and subsurface soil conditions within the excavation; (2) collecting soil samples from beneath each tank and transporting the samples to an analytical laboratory; and (3) preparing this report. These services were performed in accordance with the requirements of the Alameda County Department of Health and the "Guidelines for Addressing Fuel Leaks" prepared by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB).

#### BACKGROUND

Four underground storage tanks were removed from the site on April 23, 1987, by the city's contractor, Chas. S. Campanella, Inc. The capacities and former contents of the tanks were as follows:

Tank No. UK1 - capacity approximately 250 gallons; previously contained waste oil

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- Tank No. UK2 - capacity 850 gallons; previously contained gasoline
- Tank No. UK3 - capacity 550 gallons; previously contained gasoline
- Tank No. UK4 - capacity 550 gallons; previously contained gasoline.

As shown on the site plan (Plate 1), the tanks were located under the sidewalk on 11th Street near the intersection with Webster Street in downtown Oakland. Product dispensers had previously been removed. We understand that the contractor had previously pumped out the contents of the tanks.

Our geologist was on site April 23, 1987, to observe and document tank and subsurface conditions during tank removal and to collect the required soil samples. Mr. Ted Gerow of the Alameda County Health Department and Ms. Christine R. Myers of the City of Oakland Fire Prevention Bureau were also present.

#### OBSERVATIONS DURING TANK REMOVAL

The four tanks were in a common excavation. Subsurface materials consisted of moist loose greenish gray sand and contained strong to very strong hydrocarbon odors. Some water entered the excavation during tank removal; however, it was considered to have come from trench backfilling operations (jetting) being conducted on 11th Street immediately adjacent to the tank excavation and was not ground water. The base of the tanks was at approximately 7 feet below ground surface.

All four tanks were of single wall steel construction and were in fair condition with some signs of external corrosion. There were no apparent holes or cracks in the tanks. Tank UK2 was damaged by the contractor during removal and some of the sludge from within the tank was spilled into the tank excavation.

#### SOIL SAMPLING AND TESTING

Soil sampling was performed with a backhoe in accordance with procedures described in RWQCB Guidelines. One soil sample was obtained approximately 2 feet into native soils in the area below each former tank location for Tanks UK1, UK3, and UK4. Two native soil samples were obtained from under former Tank UK2 (850-gallons). The soil samples were collected in Alconox-cleaned stainless steel tubes, which were sealed with foil, taped, labeled, and stored on ice in an insulated container until delivery under chain

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of custody to Wesco Laboratories in Novato, California, the same evening. The soil samples from below Tanks UK2, UK3, and UK4 were analyzed for Total Petroleum Hydrocarbons (TPH) against a gasoline standard using EPA Method 8020 to a detection limit of 10 parts per million (ppm). Samples obtained from beneath Tank UK1, which had contained waste oil, were analyzed for TPH against a heavy oil standard, for Total Oil and Grease (TOG), and for extractable hydrocarbons using EPA Methods 8010, 8020, and 413.1.

#### ANALYTICAL RESULTS

The results of Wesco's chemical analyses of the samples are presented in the attached laboratory report. The highest TPH concentrations were found below Tank UK3 at the north end of the excavation; concentrations of 11,000 ppm TPH were reported. Samples from below Tank UK4 contained 4,600 ppm TPH and samples from below Tank UK2 contained 3,200 and 3,600 ppm TPH. Analytical results for samples from below UK1 indicated 5,700 ppm TOG and 4,200 ppm extractable hydrocarbons.

#### CONCLUSIONS AND RECOMMENDATIONS

The results of the laboratory analyses indicate that there has been considerable spillage or leakage into backfill materials surrounding the four tanks and that hydrocarbons have migrated into the native soils below the excavation.

RWQCB Guidelines require that monitoring wells be installed at sites where leaks have been confirmed. Accordingly, we recommend that three monitoring wells be installed around the tank excavation. The wells should penetrate approximately 15 feet into the ground water and be sampled and analyzed for hydrocarbon concentrations. The site-specific ground-water flow gradient should be calculated to determine the direction of possible contaminant flow.

In addition, we recommend that two soil borings be drilled through the tank excavation to reach the water table. To determine the vertical extent of contaminant migration, these borings should be sampled at three intervals from the base of the tank excavation at 7 feet below ground surface until ground water is reached at approximately 30 feet.

We further recommend that the contaminated soil materials from around the tank be excavated to a depth of about 9 feet and stockpiled on the adjacent vacant lot. The excavation should be filled with clean soils, compacted, and the surface area restored. The stockpiled soils should then be treated by

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aeration until hydrocarbon concentrations are reduced to below 100 ppm TPH, after which the soils can be disposed at a Class III landfill. We understand that the need for further remedial actions will be evaluated based on the results of the borings and wells.

If you have any questions regarding this report, please contact the undersigned at 415/892-0821.

Yours very truly,

HARDING LAWSON ASSOCIATES

*V. Barry Robson*

V. Barry Robson  
Principal Engineer

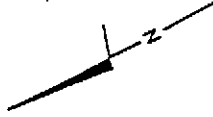
*Donald G. Gray*

Donald G. Gray  
Civil Engineer

VBR/DGG/ljc/B0366

Attachments: Plate 1 - Site Plan  
Laboratory Report

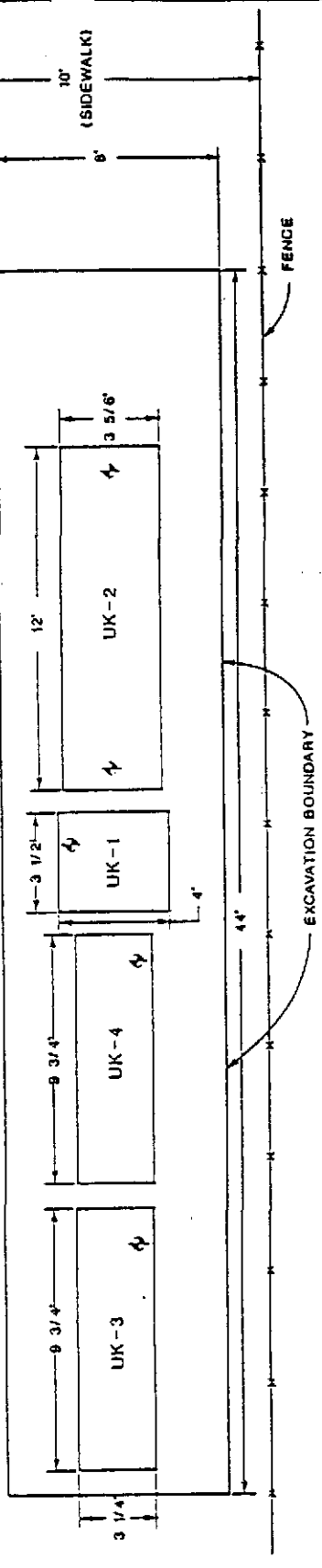




TO WEBSTER STREET

11TH STREET

10' (SIDEWALK)



VACANT AREA

NOT TO SCALE

Sample Locations (Below Tanks)	Sample Depth	
Tank	Sample No.	Below Ground Surface
UK-1	9 feet	
UK-2-S	9 feet	
UK-2-N	9 feet	
UK-3	9 feet	
UK-4	8 feet	



**Harding Lawson Associates**  
 Engineers, Geologists  
 & Geophysicists

**SITE PLAN**  
 Chinatown Redevelopment Project  
 Oakland, California

DATE  
**1**

DRAWN  
 CAJ

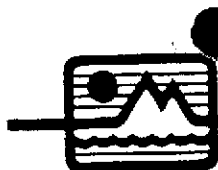
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APPROVED

DATE  
 5/87

REVISED

DATE



# WESCO Laboratories

HARDING LAWSON  
M - 7 1987

Date: May 5, 1987

Client Job/P.O. #: 9382,005.02

Client: Harding Lawson Associates

Date Collected: April 23, 1987

Submitted by: Sarah Prowell

Date Submitted: April 23, 1987

Report to: Barry Robson 415-892-0821

# & Type of Samples: 5 soils

WESCO Job#: HLA8725-L

Site: City of Oakland

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Lab No.	Client ID	Benzene mg/kg	Toluene mg/kg	Xylene mg/kg	Gasoline mg/kg
7-7901	UK-1	0.017	0.73	0.52	---
7-7902	UK-2-S	2.5	18	76	3600
7-7903	UK-2-N	6.4	5.9	82	3200
7-7904	UK-3	21	30	280	11000
7-7905	UK-4	12	16	200	4600
	METHOD(S)	Note 1	Note 1	Note 1	Note 2

Lab No.	Client ID	Ethyl Benzene mg/kg	All 8010 Compounds mg/kg	Method 11 Extractable Hydrocarbons mg/kg	Oil & Grease mg/kg
7-7901	UK-1	0.12	<0.015	4200*	5700
	METHOD(S)	Note 1	Note 1	Note 3	Note 4

NOTES: Note 1: EPA-5020/8020  
 Note 2: EPA-5020/8015  
 Note 3: SFRWQCB Method 11  
 Note 4: EPA-3550/APHA 503E

\*Quantified as Motor Oil

*M. L. Webb*

Analytical supervisor