**AC Transit**
Alameda-Contra Costa Transit District

1600 Franklin St.,
~~508 16th Street~~, Oakland, California 94612 □ (415) 891-4777

2198.17

September 1, 1987

Mr. Peter Johnson
California Regional Water Quality Control Board
San Francisco Bay Region
1111 Jackson Street, Rm. 6040
Oakland, CA 94607

Dear Mr. Johnson:

Subject: AC Transit Facilities Improvement Program
Division 4, Seminary Reconstruction
Contract D4-5, Maintenance Building
Requested Analyses of Six Soils Stockpiles - Sampling of August 26, 1987

The District, following conversations of Kaiser Engineers with Greg Zentner of the California Regional Water Quality Control Board and with Lowell Miller of the Alameda County Health Department, has again sampled the six stockpiles of soils on the referenced site. Samples were taken by Brown & Caldwell in strict adherence with applicable protocols, including chain of custody, and under the scrutiny of your staff. Samples were analyzed per your direction for the following:

1. Total petroleum hydrocarbons (TPH, high boiling fraction, in accordance with Guidelines for Addressing Fuel Leaks, CRWQCB San Francisco Bay Region, September 1985, using diesel as the standard).

2. Total oil and grease (TOG, using EPA Method 3550 and gravimetric analysis by Standard Method 503E).

3. Volatile organic compounds (VOC, EPA Method 8240).

Samples from stockpiles were 12 composited soils samples as follows.

| | | |
|---|---|---|
| 08-579-1 | Sample 1 | Stockpile 1 |
| 08-579-2 | Sample 2 | Stockpile 2A |
| 08-579-3 | Sample 3 | Stockpile 2B |
| 08-579-4 | Sample 4 | Stockpile 2C |
| 08-579-5 | Sample 5 | Stockpile 3 |
| 08-579-6 | Sample 6 | Stockpile 4A |
| 08-579-7 | Sample 7 | Stockpile 4B |
| 08-579-8 | Sample 8 | Stockpile 5A |
| 08-579-9 | Sample 9 | Stockpile 5B |
| 08-579-10 | Sample 10 | Stockpile 6A |
| 08-579-11 | Sample 11 | Stockpile 6B |
| 08-579-12 | Sample 12 | Stockpile 6C |

The report from Brown & Caldwell is attached. In all cases:

1. TFH were less than detection level, <10 ppm.

2. VOA were less than detection level, <0.2 ppm each, <2 ppm acrolein, acrylonitrile.

Oil and grease analyses are summarized in Table 1. Stockpile 2 is known to be asphaltic rubble. All stockpiles are subsoils of asphalt paved areas. It is obvious that the TOG analysis is sensitive to asphaltic degradation products. It is also obvious that there is no relationship with either TPH or VOA and TOG results. The TOG measured represents the "baseline" conditions at the site which has repeatedly been paved with asphalt over the last 30 years.

We conclude from these TPH and VOA analyses, supported by the numerous analyses of soils for TPH, VOA, extractable organiz priority pollutants, metals, and BTX analyses, that the soils stockpiled are not hazardous. Neither are they significantly contaminated with hazardous chemicals. Therefore, these stockpiled soils will continue to be used as engineered fill on the Seminary site. Soils removed from the site and used as engineered fill have been shown similar and is also nonhazardous.

Because we are concerned about the use of TOG as a measurement in soils which have been excavated from beneath asphalt pavement, we have had numerous discussions with soils experts at Kaiser Engineers, U.C. Berkeley, and EPA Cincinnati Labs. All agree that the use of TOG in soils is inadvisable and can lead to totally erroneous conclusions with respect to the TPH, VOA, or acid/basic extractable organics which are priority pollutants.

As previously planned, AC Transit will complete a groundwater monitoring system at the Seminary site as the construction is completed. We will monitor the water quarterly for TPH and BTX and periodically for VOA. This program will document the performance of the upgraded facilities and that the engineered fill use of the stockpiled soils and the current site conditions do not and will not significantly affect groundwater quality.

We would appreciate your prompt acknowledgment of these results.

Very truly yours,

George Skezas
Facilities Administrator

gd
Attachments

cc: H. M. Nahler - KE
S. Whitehead - KE
L. Hanson - KE
R. A. Shahid - Alameda County

TABLE 1

RESULTS OF TOG IN 12 COMPOSITED SAMPLES
AC TRANSIT SEMINARY RD SITE

SAMPLING DATE:
26 AUGUST 1987

| Brown & Calwell ID | Stockpile Origin | TOG ppm |
|---|---|---|
| 08-579-1 | Stockpile 1 | 1,500 |
| 08-579-2 | Stockpile 2 A | 13,000 |
| 08-579-3 | Stockpile 2 B | 34,000 |
| 08-579-4 | Stockpile 2 C | 33,000 |
| 08-579-5 | Stockpile 3 | 1,400 |
| 08-579-6 | Stockpile 4 A | 2,100 |
| 08-579-7 | Stockpile 4 B | 1,300 |
| 08-579-8 | Stockpile 5 A | 2,800 |
| 08-579-9 | Stockpile 5 B | 840 |
| 08-579-10 | Stockpile 6 A | < 250 * |
| 08-579-11 | Stockpile 6 B | 480 |
| 08-579-12 | Stockpile 6 C | 620 |

* It is not analytically reliable to attempt a detection level < 250 ppm using this methodology (EPA does not recommend a detection level for TOG < 250 ppm in solid matrix).

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

# ANALYTICAL REPORT

LOG NO: E87-08-579

Received: 26 AUG 87
Reported: 28 AUG 87

Mr. Lee Hanson
Kaiser Engineering
508 16th Street
Oakland, California 94612

Purchase Order: 20852



## REPORT OF ANALYTICAL RESULTS

| LOG NO | SAMPLE DESCRIPTION, SOIL SAMPLES | DATE SAMPLED |
|---|---|---|
| 08-579-1 | Stockpile 1 | 26 AUG 87 |
| 08-579-2 | Stockpile 2A | 26 AUG 87 |
| 08-579-3 | Stockpile 2B | 26 AUG 87 |
| 08-579-4 | Stockpile 2C | 26 AUG 87 |
| 08-579-5 | Stockpile 3 | 26 AUG 87 |

| PARAMETER | 08-579-1 | 08-579-2 | 08-579-3 | 08-579-4 | 08-579-5 |
|---|---|---|---|---|---|
| Oil and Grease, mg/kg | 1500 | 13000 | 34000 | 33000 | 1400 |
| Total Fuel Hydrocarbons, mg/kg | <10 | <10 | <10 | <10 | <10 |

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|---|---|---|
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| 08-579-2 | Stockpile 2A | 26 AUG 87 |
| 08-579-3 | Stockpile 2B | 26 AUG 87 |
| 08-579-4 | Stockpile 2C | 26 AUG 87 |
| 08-579-5 | Stockpile 3 | 26 AUG 87 |

| PARAMETER | 08-579-1 | 08-579-2 | 08-579-3 | 08-579-4 | 08-579-5 |
|---|---|---|---|---|---|
| Purgeable Priority Pollutants | | | | | |
| Extraction | 08.27.87 | 08.27.87 | 08.27.87 | 08.27.87 | 08.27.87 |
| 1,1,1-Trichloroethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,1,2,2-Tetrachloroethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,1,2-Trichloroethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,1-Dichloroethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,1-Dichloroethylene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,2-Dichloroethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,2-Dichloropropane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,3-Dichloropropene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 2-Chloroethylvinylether, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Acrolein, mg/kg | <2 | <2 | <2 | <2 | <2 |
| Acrylonitrile, mg/kg | <2 | <2 | <2 | <2 | <2 |
| Bromodichloromethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Bromomethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Benzene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Carbon Tetrachloride, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chloroethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Bromoform, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chloroform, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |

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| LOG NO | SAMPLE DESCRIPTION, SOIL SAMPLES | DATE SAMPLED |
|---|---|---|
| 08-579-1 | Stockpile 1 | 26 AUG 87 |
| 08-579-2 | Stockpile 2A | 26 AUG 87 |
| 08-579-3 | Stockpile 2B | 26 AUG 87 |
| 08-579-4 | Stockpile 2C | 26 AUG 87 |
| 08-579-5 | Stockpile 3 | 26 AUG 87 |

| PARAMETER | 08-579-1 | 08-579-2 | 08-579-3 | 08-579-4 | 08-579-5 |
|---|---|---|---|---|---|
| Chloromethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Dibromochloromethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Ethylbenzene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Methylene chloride, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Tetrachloroethylene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Trichloroethylene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Trichlorofluoromethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Toluene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Vinyl chloride, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| trans-1,2-Dichloroethylene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| trans-1,3-Dichloropropene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |

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| LOG NO | SAMPLE DESCRIPTION, SOIL SAMPLES | DATE SAMPLED |
|---|---|---|
| 08-579-6 | Stockpile 4A | 26 AUG 87 |
| 08-579-7 | Stockpile 4B | 26 AUG 87 |
| 08-579-8 | Stockpile 5A | 26 AUG 87 |
| 08-579-9 | Stockpile 5B | 26 AUG 87 |
| 08-579-10 | Stockpile 6A | 26 AUG 87 |

| PARAMETER | 08-579-6 | 08-579-7 | 08-579-8 | 08-579-9 | 08-579-10 |
|---|---|---|---|---|---|
| Oil and Grease, mg/kg | 2100 | 1300 | 2800 | 840 | <250 |
| Total Fuel Hydrocarbons, mg/kg | <10 | <10 | <10 | <10 | <10 |

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|---|---|---|
| 08-579-6 | Stockpile 4A | 26 AUG 87 |
| 08-579-7 | Stockpile 4B | 26 AUG 87 |
| 08-579-8 | Stockpile 5A | 26 AUG 87 |
| 08-579-9 | Stockpile 5B | 26 AUG 87 |
| 08-579-10 | Stockpile 6A | 26 AUG 87 |

| PARAMETER | 08-579-6 | 08-579-7 | 08-579-8 | 08-579-9 | 08-579-10 |
|---|---|---|---|---|---|
| Purgeable Priority Pollutants Extraction | 08.27.87 | 08.27.87 | 08.27.87 | 08.27.87 | 08.27.87 |
| 1,1,1-Trichloroethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,1,2,2-Tetrachloroethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,1,2-Trichloroethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,1-Dichloroethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,1-Dichloroethylene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,2-Dichloroethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,2-Dichloropropane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 1,3-Dichloropropene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| 2-Chloroethylvinylether, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Acrolein, mg/kg | <2 | <2 | <2 | <2 | <2 |
| Acrylonitrile, mg/kg | <2 | <2 | <2 | <2 | <2 |
| Bromodichloromethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Bromomethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Benzene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Carbon Tetrachloride, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chloroethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Bromoform, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chloroform, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |

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| LOG NO | SAMPLE DESCRIPTION, SOIL SAMPLES | DATE SAMPLED |
|---|---|---|
| 08-579-6 | Stockpile 4A | 26 AUG 87 |
| 08-579-7 | Stockpile 4B | 26 AUG 87 |
| 08-579-8 | Stockpile 5A | 26 AUG 87 |
| 08-579-9 | Stockpile 5B | 26 AUG 87 |
| 08-579-10 | Stockpile 6A | 26 AUG 87 |

| PARAMETER | 08-579-6 | 08-579-7 | 08-579-8 | 08-579-9 | 08-579-10 |
|---|---|---|---|---|---|
| Chloromethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Dibromochloromethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Ethylbenzene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Methylene chloride, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Tetrachloroethylene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Trichloroethylene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Trichlorofluoromethane, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Toluene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Vinyl chloride, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| trans-1,2-Dichloroethylene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| trans-1,3-Dichloropropene, mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |

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REPORT OF ANALYTICAL RESULTS



| LOG NO | SAMPLE DESCRIPTION, SOIL SAMPLES | DATE SAMPLED |
|---|---|---|
| 08-579-11 | Stockpile 6B | 26 AUG 87 |
| 08-579-12 | Stockpile 6C | 26 AUG 87 |

| PARAMETER | 08-579-11 | 08-579-12 |
|---|---|---|
| Oil and Grease, mg/kg | 480 | 620 |
| Total Fuel Hydrocarbons, mg/kg | <10 | <10 |

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|---|---|---|
| 08-579-11 | Stockpile 6B | 26 AUG 87 |
| 08-579-12 | Stockpile 6C | 26 AUG 87 |

| PARAMETER | 08-579-11 | 08-579-12 |
|---|---|---|
| Purgeable Priority Pollutants | 08.27.87 | 08.27.87 |
| Extraction | <0.2 | <0.2 |
| 1,1,1-Trichloroethane, mg/kg | <0.2 | <0.2 |
| 1,1,2,2-Tetrachloroethane, mg/kg | <0.2 | <0.2 |
| 1,1,2-Trichloroethane, mg/kg | <0.2 | <0.2 |
| 1,1-Dichloroethane, mg/kg | <0.2 | <0.2 |
| 1,1-Dichloroethylene, mg/kg | <0.2 | <0.2 |
| 1,2-Dichloroethane, mg/kg | <0.2 | <0.2 |
| 1,2-Dichloropropane, mg/kg | <0.2 | <0.2 |
| 1,3-Dichloropropene, mg/kg | <2 | <2 |
| 2-Chloroethylvinylether, mg/kg | <2 | <2 |
| Acrolein, mg/kg | <0.2 | <0.2 |
| Acrylonitrile, mg/kg | <0.2 | <0.2 |
| Bromodichloromethane, mg/kg | <0.2 | <0.2 |
| Bromomethane, mg/kg | <0.2 | <0.2 |
| Benzene, mg/kg | <0.2 | <0.2 |
| Chlorobenzene, mg/kg | <0.2 | <0.2 |
| Carbon Tetrachloride, mg/kg | <0.2 | <0.2 |
| Chloroethane, mg/kg | <0.2 | <0.2 |
| Bromoform, mg/kg | <0.2 | <0.2 |
| Chloroform, mg/kg | <0.2 | <0.2 |
| Chloromethane, mg/kg | <0.2 | <0.2 |
| Dibromochloromethane, mg/kg | <0.2 | <0.2 |
| Ethylbenzene, mg/kg | | |

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|---|---|---|
| 08-579-11 | Stockpile 6B | 26 AUG 87 |
| 08-579-12 | Stockpile 6C | 26 AUG 87 |

| PARAMETER | 08-579-11 | 08-579-12 |
|---|---|---|
| Methylene chloride, mg/kg | <0.2 | <0.2 |
| Tetrachloroethylene, mg/kg | <0.2 | <0.2 |
| Trichloroethylene, mg/kg | <0.2 | <0.2 |
| Trichlorofluoromethane, mg/kg | <0.2 | <0.2 |
| Toluene, mg/kg | <0.2 | <0.2 |
| Vinyl chloride, mg/kg | <0.2 | <0.2 |
| trans-1,2-Dichloroethylene, mg/kg | <0.2 | <0.2 |
| trans-1,3-Dichloropropene, mg/kg | <0.2 | <0.2 |

D. A. McLean, Laboratory Director