GETTLER-RYAN INC.

June 11, 2001

JUN 13 2001

Mr. Barney Chan
Alameda County Health Care Services Agency
Environmental Health Department
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

Subject: **Clarification of site conditions at Chevron facility #20-6142, located at 333 23rd Street, Oakland, CA.**

Mr. Chan:

At the request of Chevron Products Company, Gettler-Ryan Inc. (GR) prepared this response to your telephone call of May 31, 2001, with Steve Carter of GR. You indicated that you were preparing your closure recommendation, and needed clarification of a few items to proceed. Each of your concerns are addressed below.

1. **Plume configuration and recovery well location:** You expressed some concern as to why the initial recovery well (R-1, installed in 1986) was installed approximately 65 feet north of the UST pit. You asked if it was possible that the locations of well R-1 and the second recovery well (R-2, installed approximately 15 feet northwest of the UST pit in 1988) might have been switched on the site plans.

   It does not appear that the locations of wells R-1 and R-2 have been switched. During subsurface investigations at this site a sand and gravel horizon was encountered at approximately 8 to 11 feet below ground surface. This is depicted in illustrations included in GTI's report titled *Hydrogeologic Investigation at Rhodes-Jamieson Concrete Plant, Oakland, California* (dated January 8, 1986). Copies of the fence diagram and cross-sections from this report (attached) show this coarse-grained horizon. The GTI report also includes data on initial product thicknesses in the wells. These data indicate that the free product plume was initially thickest in the vicinity of well MW-8 (refer to attached product thickness map).

   While there was not documentation in the Chevron files relating to the installation of either recovery well R-1 or R-2, I surmise that well R-1 was installed in the vicinity of well MW-8 because at the time of installation, the free product plume was thickest in this area. How the site-specific hydrogeologic conditions at the site influenced the free product plume configuration are discussed on pages 13 and 14 of the GTI report (pages attached). Groundwater was extracted from well R-1 from October 1986 through March 1987. According the Western Geologic Resources, Inc. report

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Site Reconnaissance/Groundwater Sampling (dated November 17, 1989), a total of 250 gallons of free product was recovered from the well, and 310,500 gallons of groundwater was extracted, treated, and discharged to the storm drain under NPDES permit. Extraction from well R-2 began in May 1988. Approximately 200 gallons of groundwater and free product were removed.

2. **RMC fueling facility:** I confirmed with Mr. Steve Peerine, manager of RMC's Oakland facility (510.533.5097), that there is still an operating fuel dispensing facility at the site. This consists of one 10,000-gallon diesel UST and one dispenser island.

3. **Accuracy of monitoring well locations:** You expressed concern that the locations of the monitoring wells depicted on maps prepared by GTI and Kleinfelder are different that those shown on maps prepared by GR. Locations of wells MW-1, MW-5, MW-7 through MW-12, MW-14, R-1 and R-2 were surveyed by Virgil Chavez Land Surveying (Licensed Land Surveyor #6323) on July 3, 1997. A copy of the surveyor's report is included in GR's report titled *Well Installation and Quarterly Groundwater Monitoring Report, Second Quarter 1997* (dated September 10, 1997). Well locations depicted on GR site plans submitted to ACHCSA are based on these survey data.

This letter should provide you with the information you requested during our telephone conversation. Please call me at 916.631.1300 if you have any questions.

Sincerely,
Gettler-Ryan Inc.

Stephen J. Carter, R.G.
Senior Geologist

Attachments: GTI Cross Section Location Map
GTI Cross Section A-A'
GTI Cross Section B-B'
GTI Fence Diagram
GTI Product Thickness Map
Page 13 and 14 (GTI report dated January 8, 1986)

cc: Mr. Bob Cochran, Chevron Products Company. P.O. Box 6004, San Ramon, CA 94583

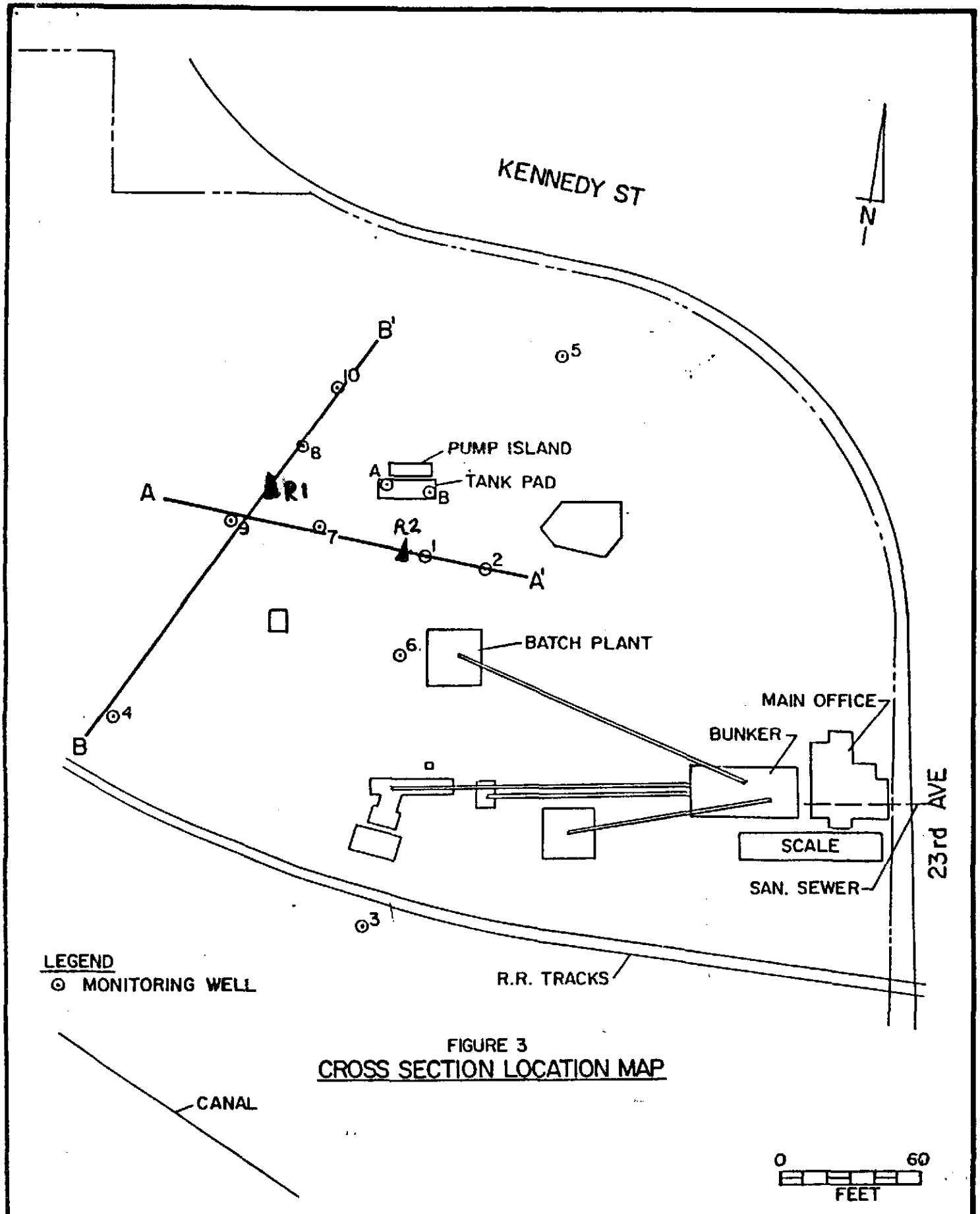


FIGURE 3
CROSS SECTION LOCATION MAP

CHEVRON/RHODES JAMIESON
OAKLAND, CALIFORNIA

GROUNDWATER TECHNOLOGY

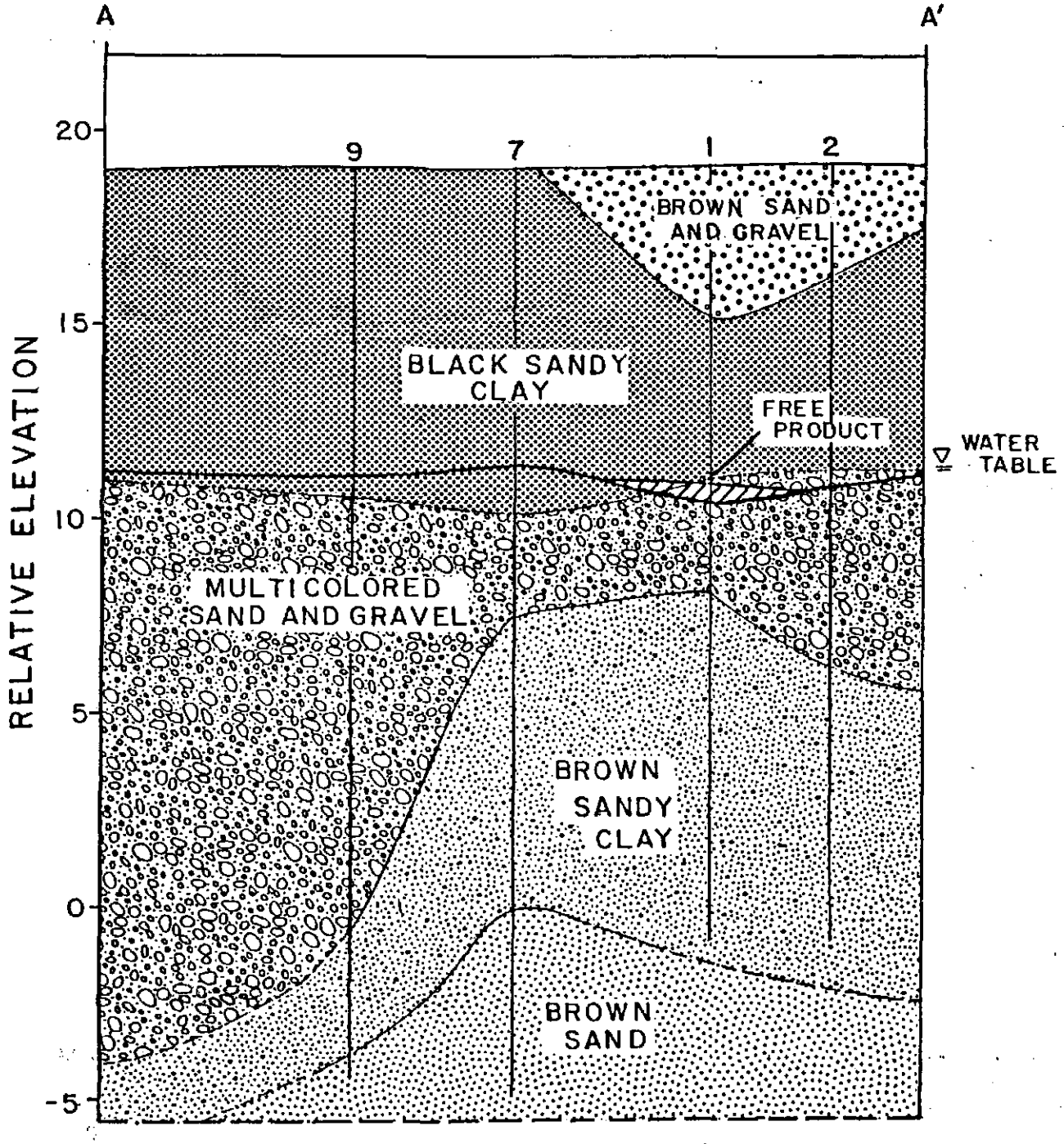


FIGURE 4

CROSS SECTION A-A'

CHEVRON/RHODES JAMIESON
OAKLAND, CALIFORNIA

GROUNDWATER TECHNOLOGY

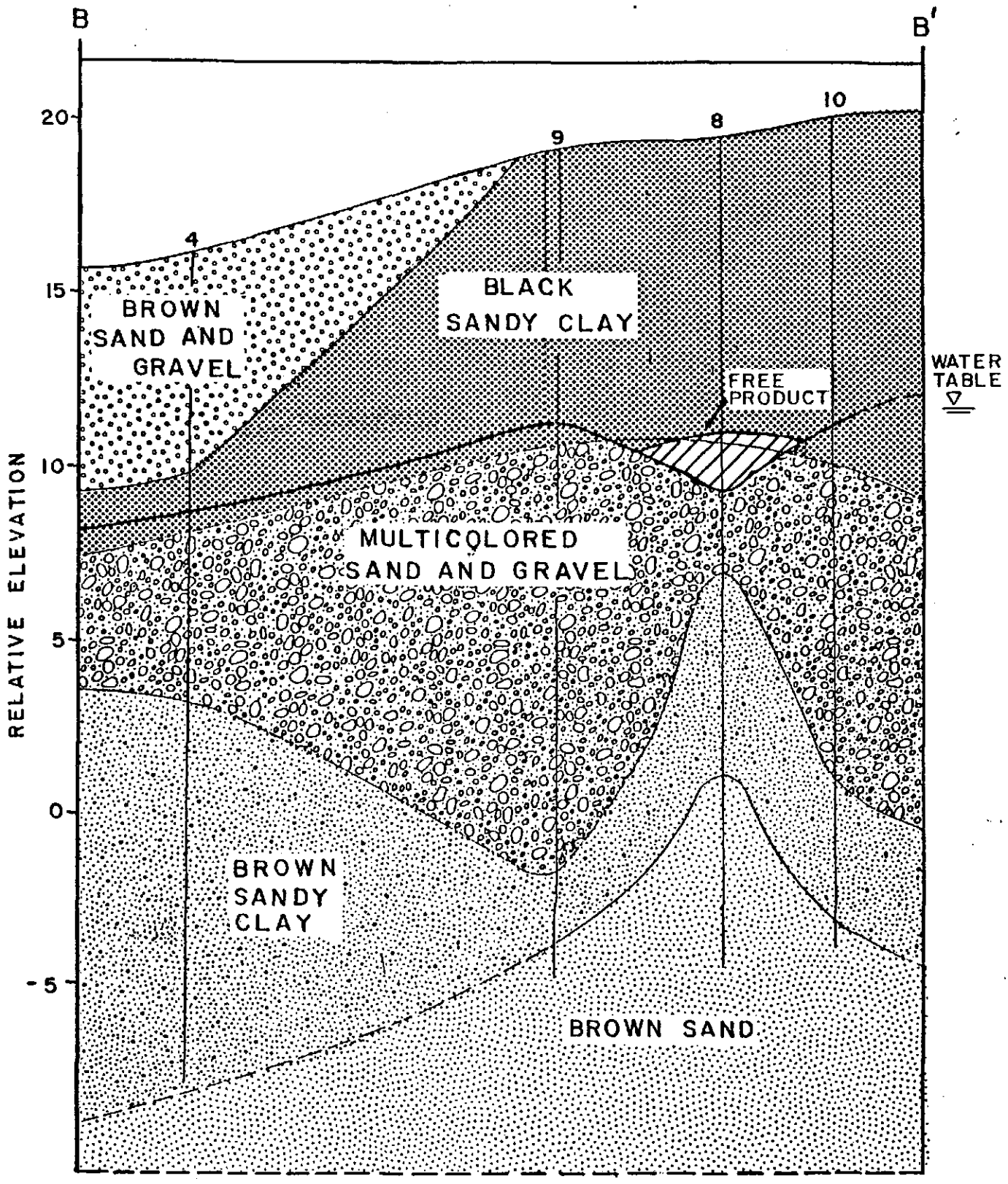


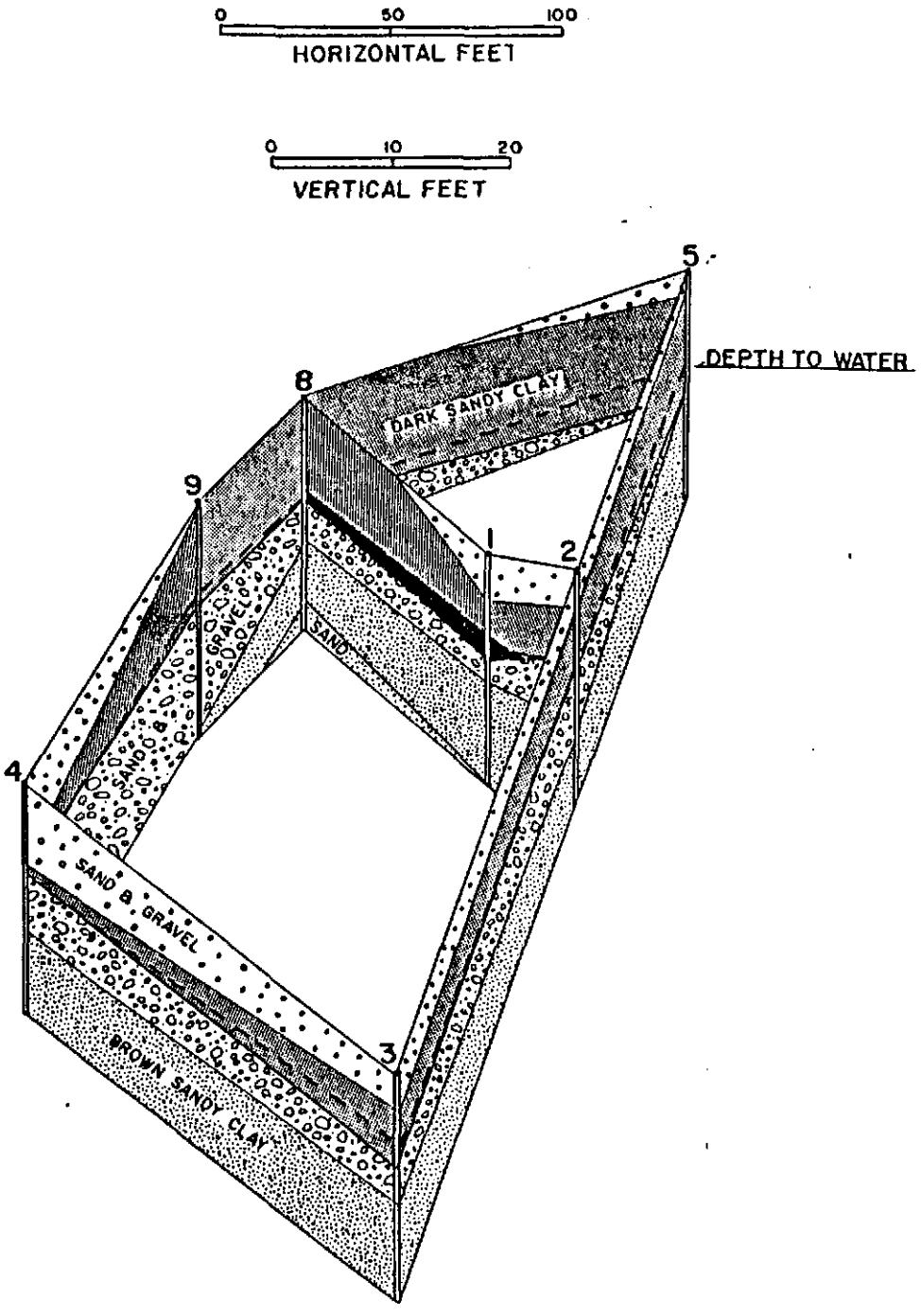
FIGURE 5

CROSS SECTION B-B'

CHEVRON/RHODES JAMIESON
OAKLAND, CALIFORNIA

GROUNDWATER TECHNOLOGY

FIGURE 6
FENCE DIAGRAM



CHEVRON / RHODES JAMIESON
OAKLAND, CALIFORNIA

GROUNDWATER TECHNOLOGY, INC.
CONSULTING GROUNDWATER GEOLOGISTS

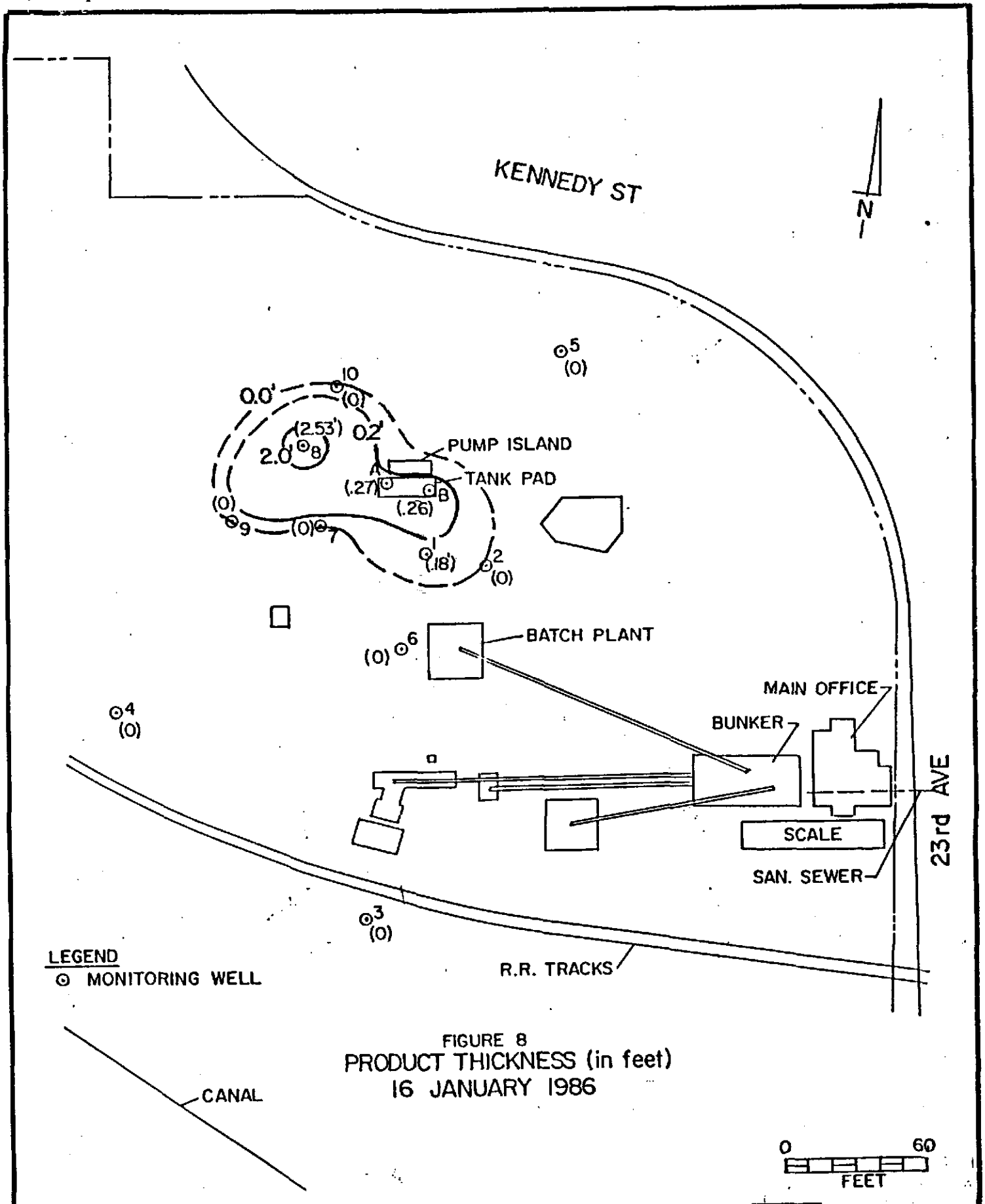


FIGURE 8
PRODUCT THICKNESS (in feet)
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sands and gravels were deposited by streams which shifted and braided over periods of thousands of years. During times of flood flow, the overbank spread of water carried finer grained deposits (silt and clay) over a large area away from the stream channel. Where fine grained sediments are thick or wide spread enough, they form confining beds (aquicludes).

Tideland deposits, present at the study site, consist of fine grained alluvium and estuarian clay. The dark esturian clay is an organic rick clay which underlies most of the low lying and manmade land along the margins of the bay. This clay has very low permeability, however, water-bearing alluvium, generally underlies this clay unit.

Groundwater in the area of the diesel spill is present at a depth of approximately 9 feet below the ground surface. The subsurface investigation, consisting of well drilling, drill log analyses, and aquifer tests, indicated that this groundwater system is developed within a localized sand and gravel zone approximately three feet in thickness and generally occurring between a depth of approximately 8 to 11 feet below the ground surface. However, this sand and gravel layer is not uniform in thickness across the site. In the vicinity of Well 9 the thickness is about 10 feet and tapers out completely in the area of Well 5 (See Figure 6, Fence Diagram).

MOVEMENT AND TRANSMISSION OF CONTAMINANTS

Factors which control the movement and rate of travel of lost product include the volume of loss and the permeability, and adsorptivity of the material through which it passes. Lost product will migrate downward under the influence of gravity until it reaches some restrictive bed or the water

table. In effect, the water serves to halt the downward travel of the spill. The fugitive product will then flow laterally in the direction of least resistance. As the oily product moves through the soils, a small amount attaches itself to each particle of soil contacted and becomes adsorbed.

At Rhodes Jamieson where a sudden high volume release of diesel product was dispensed into a monitoring well installed in the tank pit area, the product would likely have moved quickly through the backfill materials surrounding the underground tank. Field observations of the subsurface materials encountered during drilling indicated that the tank pit was situated within approximately 4 feet of colluvial sand and gravel over about 4 feet of dark sandy clay and underlain by 3 feet of sand and gravel. Fugitive product mounded atop the water table at approximately 9 feet of depth would intersect with the sand and gravel layer encountered at that depth and migrate outwards along the path of least resistance.

The [redacted] at Rhodes Jamieson appears to have moved [redacted] in a [redacted] direction, and approximately 40 feet in a down gradient direction. This preferential movement in a southwest direction, as opposed to a down gradient direction, suggests that the lithology in the area has a strong influence on the product migration.

Laboratory analyses of groundwater from Wells 2 and 5 showed that dissolved hydrocarbon contamination is limited to the immediate periphery of the free product plume. The diesel fuel contamination should also be contained close to the water surface, since most of the diesel hydrocarbons are relatively insoluble in water.