PORT OF OAKLAND

August 3, 1995

Mr. Barney Chan
Alameda County Health Care Agency
Environmental Protection Division
1131 Harbor Bay Pkwy., #250
Alameda, CA 94502-6577

SUBJECT: SUBSURFACE INVESTIGATION REPORT FOR KEEP ON TRUCKING AT 370 8TH STREET, OAKLAND, CALIFORNIA - FORMER UNDERGROUND TANK

Dear Mr. Chan:

Enclosed please find the Subsurface Investigation Report at the former underground tank located at Keep on Trucking. The site investigation found petroleum contamination in both the groundwater and soil. It appears that additional data is needed to further characterize the horizontal and vertical extent of the petroleum contamination. After you have reviewed the report, please call me so we can discuss the next steps to be taken at the site.

If you have any questions, please call me at (510) 272-1118.

Sincerely,

Susa Gates
Environmental Scientist

Enclosure

cc w/out enclosure: Neil Werner
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cc w/ enclosure: Richard Padovani
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Clayton
ENVIRONMENTAL
CONSULTANTS

Limited Subsurface Investigation
at the
Keep On Trucking Site
370 8th Street
Oakland, California

Clayton Project No. 58560.18
July 26, 1995

CONTENTS

Section **Page**

Figures

Tables

Appendices

1.0 INTRODUCTION

Clayton Environmental Consultants, Inc. was retained by the Port of Oakland to prepare a work plan and perform a soil and groundwater investigation at the Keep On Trucking facility located at 370 8th Street in Oakland, California (see Figure 1 and 2). The scope of work in this investigation was based on the Alameda County Health Care Services Agency (ACHCSA) letter dated December 30, 1994. The ACHCSA letter requested that a work plan for delineation of soil and groundwater contamination, which was identified during removal of an underground storage tank (UST) adjacent to Building H-107.

In February 1995 the Port of Oakland submitted a work plan to the ACHCSA for the limited subsurface investigation discussed in this report. The work plan was approved by the ACHCSA on March 9, 1995 (Appendix A).

Clayton commenced drilling and soil sample collection activities on March 29, 1995. Groundwater samples were collected on March 29 and April 4, 1995.

2.0 BACKGROUND

The scope of work for this investigation was based on the documents provided by the Port of Oakland. These documents were:

- Underground Storage Tank Removal Report prepared by ERM-West Inc., dated November 22, 1994
- ACHCSA letter to Mr. Neil Werner, dated December 30, 1994

The UST was removed in October 1994 by Environmental Investigations and Actions of Hayward, California. ERM-West, Inc. collected soil and groundwater samples from the sidewalls and base of the excavation. Total petroleum hydrocarbons quantitated as diesel (TPH-D) was identified in the soil samples at concentrations ranging from 120 to 44,000 milligrams per kilogram (mg/kg).

Soil samples from the sidewalls of the UST excavation identified petroleum hydrocarbons at concentrations of 44,000, 3,300, and 550 mg/kg at the east, south, and west sides of the excavation. The sidewall soil sample collected adjacent to the building (north), contained TPH-D at a concentration of 320 (mg/kg). Soil borings BH-1, BH-2, and BH-3 were installed to further delineate soil and groundwater contamination adjacent to the sidewalls.

3.0 SCOPE OF WORK

In order to delineate the extent of soil and possible groundwater contamination at the site, Clayton drilled three boreholes which were converted into one monitoring well and two temporary wells at the subject property. The following subsections describe Clayton's activities.

3.1 HEALTH AND SAFETY PLAN

A health and safety plan was prepared for the work outlined in this work plan in accordance with the requirements of Title 29 of the Code of Federal Regulations, Section

1910.120 (29 CFR 1910.120) and California Occupational Safety and Health Administration (Cal/OSHA) General Industry Safety Order (GISO) 5192.

3.2 UNDERGROUND UTILITIES IDENTIFICATION AND PERMITTING

Upon ACHCSA approval of the work plan, Clayton initiated the drilling and well installation activities outlined in the work plan. Prior to drilling the boreholes, Clayton obtained necessary permits from the Zone 7 Water Agency (Appendix B). In addition Clayton retained Geotopo Inc. and also contacted Underground Service Alert to locate and identify the underground utility lines on or near the subject site. No underground utilities were identified near the drilling location

3.3 BOREHOLE DRILLING

Clayton drilled three boreholes (BH-1, BH-2 and BH-3) at the locations shown in Figure 2. As requested by ACHCSA in their letter dated March 9, 1995 the boreholes BH-1 and BH-2 were converted into temporary wells for collection of grab water samples. Borehole BH-3 was converted to monitoring well MW-7. During the drilling of the boreholes and monitoring well, the soil characteristics were logged in the field. The soil beneath the site consist primarily of organic rich clay (Bay mud) overlain by approximately three to six feet of fill materials. Distinguishing features such as color, odor, and relative soil moisture content were noted (Appendix C). All drilling and field activities were supervised by a geologist registered in the State of California.

To aid in locating volatile hydrocarbons, Clayton screened the soil cuttings during drilling using a photoionization detector (PID) and visual senses to detect petroleum compounds. The soil cuttings and rinsate water generated by the drilling process were placed into individually labeled, Department of Transportation (DOT)-approved, 55-gallon drums and left onsite until the proper disposal option can be determined based on laboratory analysis.

3.4 SOIL SAMPLE COLLECTION

The soil samples were collected in precleaned brass tubes at approximately five feet intervals. Groundwater was first encountered at approximately five feet below ground surface (bgs) in borehole in BH-2 and MW-7. Therefore, the soil sample for laboratory analysis were collected at approximately 4 feet bgs from borehole BH-2 and MW-7. In addition, **Clayton noted what appeared to be free product in drill cuttings from borehole BH-2 at approximately 4 feet below ground surface. The groundwater was encountered in borehole BH-1 at approximately 20 feet bgs, therefore, the soil sample from approximately 20 feet bgs was selected for laboratory analysis from BH-1.** To convert the boreholes into temporary monitoring wells and allow for sufficient water to enter the boreholes for groundwater collection borehole BH-1 was extended to approximate depth of 25 feet bgs. Since free product was observed in borehole BH-2 the boring was drilled to an approximate depth of 15 feet bgs. This depth was shortened in order to minimize cross-contamination of the water bearing zone at 20 feet. Monitoring well MW-7 (BH-3) was drilled to an approximate depth of 20 feet bgs. No soil sample was collected below the saturated zone for laboratory analysis.

? fairly deep GW

The brass tubes selected for analysis were sealed with teflon sheeting, plastic end caps,

and immediately placed in an iced cooler for shipment to Clayton's state-certified laboratory, for analysis. Standard chain-of-custody procedures was followed for handling of soil samples.

3.5 MONITORING WELL INSTALLATION

The boreholes BH-1 and BH-2 were converted into temporary monitoring wells using a 2 inch diameter schedule 40 polyvinyl chloride (PVC) casing. To collect a representative sample of the groundwater, the water within the temporary well-casing was purged and water from the lithologic formation was allowed to replace it. The water was purged from the well by bailing approximately three well casing volumes prior to sampling.

The monitoring well MW-7 was constructed of 2-inch diameter (0.02-inch slotted) PVC casing. Screened casing was placed from approximately 5 to 20 feet bgs (approximately 1-foot above the anticipated water table). Solid casing was then installed to the surface. The sand pack was placed in the annular space from the bottom of the borehole to 1-foot above the screen. A 1-foot thick bentonite seal was placed in the annular space above the sand pack, and the well was sealed to the surface using cement grout. A locking cap secured the well in a Christie box raised above the surface grade by approximately 1 to 2 inches.

Drilling and sampling activities were conducted in accordance with Clayton's drilling, well construction and sampling protocols for borehole/monitoring well installation (see Appendix D), under the supervision of a Clayton geologist registered in the State of California.

3.6 MONITORING WELL DEVELOPMENT AND SAMPLING

The well seal in the newly constructed well (MW-7) was allowed to set for 48 to 72 hours prior to well development. Development of the well can volatilize contaminants that may be present; therefore, the well was allowed to settle for at least 48 to 72 hours between development and the first purging/sampling event. The first site visit involved well development, and the actual sampling of the well occurred during the second site visit.

The well was developed until water turbidity and specific conductance stabilize. A water sample from the well was collected using a clean disposable bailer. Water was the transferred to precleaned, laboratory-supplied containers and placed immediately into an iced cooler for transport to state-certified laboratory for analysis. One trip blank was furnished in accordance with Clayton's quality assurance/quality control (QA/QC) program. The detail of the groundwater sampling is provided in Appendix E.

The water generated from the drilling equipment decontamination process and well development and sampling was placed into DOT-approved, 55-gallon drums until laboratory results from groundwater and soil samples can be evaluated to determine proper disposal methods.

3.7 WELL HEAD SURVEY

Monitoring well MW-7 was surveyed by Geotopo Inc. a licensed land surveying company using a surveyed benchmark. The surveyed elevations and locations of the monitoring well MW-7 and the six monitoring wells, at the adjoining property, was used to calculate the local groundwater flow direction and gradient. The land surveyor report is included in Appendix F.

3.8 LABORATORY ANALYSIS

The soil samples collected before encountering initial groundwater were selected for laboratory analysis. The soil and groundwater samples were delivered to Clayton's state-certified laboratory using proper chain-of-custody procedures. The selected soil and groundwater samples were analyzed using the following United States Environmental Protection Agency (USEPA) methods:

- USEPA Method (Modified) 8015 for TPH-D
- USEPA Method (Modified) 8015 for total petroleum hydrocarbons as gasoline (TPH-G)
- USEPA Method 8020 for benzene, toluene, ethylbenzene, and xylenes (BTEX)

The analytical results for the groundwater samples collected on March 29 and April 10, 1995 are summarized in Table 1. Table 2 represent the analytical summary for the soil samples collected on March 29, 1995. The analytical reports are included in Appendix G.

3.9 FINDING

Based on our field investigation and laboratory analysis our findings follow:

- Xylenes were detected at a concentration 50 micrograms per liter (µg/l) in groundwater samples from BH-2. Xylenes were not detected in other soil or groundwater samples.

- Benzene, ethylbenzene and toluene were not detected in the soil and groundwater samples.

- TPH-D concentration in the soil samples ranged from 24 milligrams per kilogram (mg/kg) in the soil sample BH-1-20 to 41 mg/kg in the soil sample MW-7-5.

- TPH-D was detected in at a concentration of 370 µg/l in the groundwater sample from monitoring well MW-7 and 300,000 µg/l in the groundwater sample from borehole BH-2. TPH-D was not detected at or above the analytical detection limit in groundwater sample from borehole BH-1.

- TPH-G in the soil samples was detected in the soil sample BH-2-4 at concentrations of 0.4 mg/kg.

- TPH-G in the groundwater sample was detected in the groundwater sample from BH-2 at concentration of 110,000 µg/l.

- The highest concentration of TPH-D and TPH-G in the soil and groundwater sample is located in the area between monitoring well MW-7 and borehole BH-2 at approximately 5 to 20 feet bgs.

- Using the groundwater elevations at monitoring well MW-7 and the monitoring wells at the adjacent properties the predominant groundwater flow direction was calculated to be to east southeast toward the San Francisco Bay.

This report prepared by:

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July 26, 1995

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