ATT

February 21, 1989

Mr. Harvey Rifkin
Rifkin Realty Partners
81 Lansing Street, Suite 106
San Francisco, CA 94105-2611

FEB 24 1989

Subject: Quarterly Sampling Report
4549 Horton Street
Emeryville, CA

Dear Mr. Rifkin:

This letter presents the results of the first quarterly sampling event at the property located at 4549 Horton Street, Emeryville, California.

Groundwater samples were collected from the monitoring well (MW-1), located at the subject property, on February 1, 1989. The groundwater samples were analyzed for total petroleum hydrocarbons (TPH) using a gasoline standard, and for benzene, toluene, and xylene (BTX). Results of these analyses are consistent with those contained in the December 2, 1988 Safety Specialists,, Inc. report. Aqua Terra Technologies, Inc. (ATT), will continue to monitor the groundwater at this site on a quarterly basis as provided for in the ATT December 28, 1988 proposal.

Included with this report are copies of the laboratory analytical results, chain of custody form, and sample collection record. A copy of this report should be forwarded to the San Francisco Bay Region of the California Regional Water Quality Control Board (RWQCB).

Please feel free to contact us if you have any questions regarding matters discussed herein.

Sincerely,

Aqua Terra Technologies, Inc.

B. J. Bennett

Bradley J. Bennett
Project Manager

R. Wane Schneiter

R. Wane Schneiter Ph.D, P.E.
Vice President

BJB/RWS:vj
Attachments

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The Full Service Environmental, Health & Safety Corporation

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Contractor's License No. 460905

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December 2, 1988

Mr. Bob Smith
Tank Excavators
PO Box 8402
Santa Cruz, CA 95061

Reference: Safety Specialists, Inc., Project No. 530050

Dear Mr. Smith:

Safety Specialists, Inc., is pleased to submit this report documenting the collection and analysis of soil and water samples and the installation of one monitoring well in Emeryville, California.

Soil samples from monitoring well MW-1 at the 9 to 9 1/2 foot sample interval proved to have 370 parts per million (ppm), total petroleum hydrocarbons (TPH) as diesel. Water samples from monitoring well MW-1 proved to have 7400 parts per billion (ppb) TPH as diesel. Therefore, as of the date of this submittal, it is the opinion of this office that the above mentioned site should be considered to have contaminated groundwater. We suggest notification of the Regional Water Quality Control Board and recommend that the existing well be monitored on a quarterly basis to gather data upon which further decisions may be based. For details and complete laboratory results, refer to the text of this report and Appendix D.

If you have any questions or require further data, please contact our office at your convenience.

Sincerely,

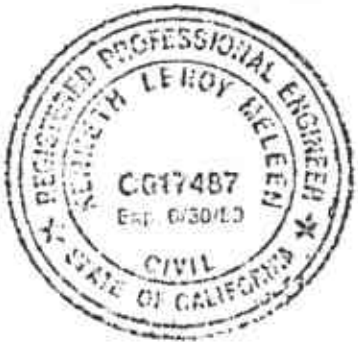
SAFETY SPECIALISTS, INC.

Curtis Payton
Staff Geologist
Environnmental Engineering Services

Kenneth L. Meleen
Kenneth L. Meleen, P.E.
Civil Engineer C17487
Environmental Engineering Services

CP/KLM:mw

Enclosure



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INTRODUCTION

This report documents the installation and sampling of one groundwater monitoring well for the purpose of collecting soil and water samples for petroleum hydrocarbon analysis, at 4543 Horton Street in Emeryville, California. A vicinity map is presented as Figure 1, and a site plan is presented as Figure 2.

SITE HISTORY

As described in Safety Specialists, Inc., Reports, Nos. 530020 and 530039, dated August 5 and October 31, 1988 respectively (Appendix A), a 1000-gallon gasoline underground storage tank and a 550-gallon gasoline tank were excavated from the front (Horton Street side) of the subject site. Soil samples obtained from beneath the tanks proved to be sufficiently contaminated to raise concern regarding the groundwater. A monitoring well was installed to establish whether any hydrocarbon contamination had impacted the groundwater.

MONITORING WELL CONSTRUCTION

Before drilling operations began, Safety Specialists, Inc., secured all necessary permits and had underground utilities located in the vicinity of the monitoring well. All work was performed under the direct supervision of Kenneth L. Meleen, Professional Engineer, C 17487.

The borehole for the monitoring well was drilled on November 14, 1988, under the supervision of Safety Specialists, Inc.'s, Staff Geologist, Mr. Curtis Payton (See Figure 2 for monitoring well location.) The drilling firm Hew Drilling of East Palo Alto, California was subcontracted to drill the boreholes using 8-inch outside diameter hollow stem augers with a truck-mounted auger rig. The borehole was extended 15 feet below the first encountered water level. For logging purposes, soil samples were collected every five feet using a modified California split-spoon sampler driven into the bottom of the borehole with an automatic 140 pound hammer falling 30 inches. One soil sample for chemical analysis was collected at each of the first three sampling intervals using a modified California split-spoon sampler lined with six-inch long brass sleeves. The sample intervals were at 5 to 5 1/2 feet, 9 to 9 1/2 feet and 15 to 15 1/2 feet below the surface.

The ends of the brass sleeves containing the soil samples were wrapped in aluminum foil and sealed with plastic end caps. The samples were labeled, placed in a cooler with ice and transported by courier to Fireman's Fund

Laboratories in Petaluma, California, a State-certified hazardous waste waste testing laboratory. Chain of custody procedures were observed. The soil samples from boring MW-1 were separately analyzed for total petroleum hydrocarbons (TPH) as diesel and for benzene, toluene, ethylbenzene and xylene using EPA methods 3550, 8015 and 8020.

Drill cuttings were stored in sealed 55-gallon open-head, DOT approved drums until soil analysis results were available to determine the proper method of disposal. Upon completion of drilling, the borehole was converted to a monitoring well by the installation of a two-inch diameter Schedule 40, factory threaded and factory slotted, PVC casing and screen. Monitoring Well MW-1 was constructed with 0.010 inch slot. The slotted interval extended to 4 1/2 feet above groundwater to allow for collection of floating product, and in anticipation of seasonal fluctuations of groundwater levels. The filter sand extended to one foot above the top of the slotted interval, and 1/4 foot of bentonite pellets was placed above the sand. The pellets were hydrated with clean water and allowed to set up. The remaining annulus was filled with neat cement and 5% bentonite powder mixture poured from the surface. The top of the monitoring well was enclosed in locking field cover with the top set slightly above grade to prevent surface water infiltration, contamination or vandalism. Copies of the exploratory boring logs and monitoring well construction as-built diagrams are presented in Appendix B.

The monitoring well was developed on November 22, 1988 by overpumping until the discharged water was clear. Water discharged from the monitoring

well was stored in a 30-gallon open head DOT-approved drum. The water was kept in the drum until water quality analysis results were available to determine the proper method of disposal.

GROUNDWATER SAMPLE COLLECTION

Prior to sampling, the monitoring well was purged. Care was taken during purging not to lower the water level in the monitoring wells more than two to three feet in order to minimize potential aeration of the sand pack or aquifer. The field parameters of pH, electrical conductivity, and temperature were monitored and recorded during purging. After the field parameters had been observed to stabilize and a minimum of three casing volumes of water had been removed, the monitoring wells were sampled. Water discharged during purging operations was stored in a 30-gallon open head DOT-approved drum until it could be disposed of properly. A copy of the monitoring well purge data sheet is presented in Appendix C.

A water sample was collected on November 22, 1988, using a clean Teflon bailer and cotton cord. The water sample was placed in a 40 ml volatile organic analysis container (VOA) sample bottle which was provided by the laboratory, placed in a cooler with ice, and transported by the field technician to Sequoia Analytical Laboratory in Redwood City, California, a State-certified hazardous waste testing laboratory. Chain of custody procedures were observed. The bailer was decontaminated before use by washing in a trisodium phosphate solution followed by a distilled water rinse.

Laboratory analysis was performed on the water sample using EPA methods 3510 and 8015 for total petroleum hydrocarbons as diesel and method 602 for petroleum hydrocarbons as benzene, toluene, ethylbenzene and xylene (BTEX) constituents.

LABORATORY ANALYTICAL RESULTS

Copies of the laboratory analytical results and the chain of custody documentation are provided in Appendix D. TPH as diesel registered in soil sample MW-1-9-9 1/2' at 370 ppm. Soil sample MW-1-9-9 1/2' also proved to have 13 ppm and 22 ppm of toluene and xylene respectively. The water sample from MW-1 proved to have 7400 ppb of TPH as diesel and between 11 ppb and 53 ppb for BTEX constituents. Table 1 summarizes the laboratory analytical results for soil and water.

CONCLUSIONS AND RECOMMENDATIONS

Laboratory results confirm contamination in both the soil and water immediately downgradient of the tank excavation. It is likely that the Regional Water Quality Control Board may require the implementation of a groundwater cleanup program. A quarterly groundwater monitoring program should be established to observe any changes and gather data upon which further decisions can be made.

SOIL AND WATER DISPOSAL

Soil cuttings, and groundwater from well construction, development and purging were contained on site. They will be disposed of properly within the next two weeks.

TABLE 1

Summary of Laboratory Analytical Results

	Total Petroleum Hydrocarbons as Diesel	Benzene	Toluene	Ethylbenzene	Xylene
Soil MW-1 (5-5 1/2')	ND*	ND	ND	ND	ND
Soil MW-1 (9-9 1/2')	370 ppm**	ND	13 ppm	ND	22 ppm
Soil MW-1 (15-15 1/2')	ND	ND	ND	ND	ND
Water MW-1	7400 ppb+	53 ppb	27 ppb	11 ppb	46 ppb

* ND = below laboratory detection limit

** ppm = parts per million

+ ppb = parts per billion