aqua science engineers inc.

FAX BEING SENT BY:

Aqua Science Engineers, Inc.
208 W. El Pintado Road
Danville, CA 94526
Phone (925) 820-9391
Fax (925) 837-4853

DATE: 7-14-99

TO: Don Hwang

FROM: Robert Kitay

NUMBER OF PAGES TO FOLLOW: 12

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MESSAGE:

208 W. El Pintado Road, Danville, California 94526 • 925-820-9391 • Fax 925-837-4853

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MESSAGE:

WORKPLAN
for a
SOIL AND GROUNDWATER ASSESSMENT
at
5725 Thornhill Drive

Oakland, CA 94611

Submitted by:

AQUA SCIENCE ENGINEERS, INC.
208 West El Pintado
Danville, CA 94526
(925) 820-9391

aqua science engineers inc.

July 13, 1999

WORKPLAN
for a
SOIL AND GROUNDWATER ASSESSMENT
at
5725 Thornhill Drive
Oakland, CA 94611

Submitted by:
AQUA SCIENCE ENGINEERS, INC.
208 West El Pintado
Danville, CA 94526
(925) 820-9391

INTRODUCTION

This submittal outlines Aqua Science Engineers, Inc. (ASE)'s workplan for a soil and groundwater assessment at the property located at 5725 Thornhill Drive in Oakland, California (Figure 1). The proposed site assessment activities were initiated by Mr. Mo Mashhoon, operator of the site, to meet the requirements of the Alameda County Health Care Services Agency (ACHCSA) as outlined in their letters dated April 27 and June 11, 1999 (Appendix A). Although the June 11, 1999 letter requests groundwater monitoring wells be installed, the ACHCSA has stated during discussions with ASE that a soil boring located adjacent to the former waste oil underground storage tank (UST) would be acceptable.

BACKGROUND INFORMATION

The subject has been a gasoline service station since the 1950s. The site dispenses gasoline and has conducted auto repair at the site. A 550-gallon steel UST for the storage of waste oil was removed from the site by Penn Environmental in November 1998. Soil samples collected from the excavation contained up to 1,100 ppm total petroleum hydrocarbons as gasoline (TPH-G), 2,700 ppm total petroleum hydrocarbons as diesel (TPH-D) and 4,200 ppm total petroleum hydrocarbons as motor oil (TPH-MO).

On February 4, 1999, Penn Environmental overexcavated contaminated soil surrounding the former waste oil tank. This soil was previously removed but was placed back into the excavation temporarily. This soil was once again removed from the excavation to be transported for disposal. On February 5, 1999, ASE senior geologist Robert Kitay collected confirmation soil samples from two sidewalls of the excavation. Sidewall samples were collected since the bottom of the excavation was saturated. These samples were collected from a backhoe bucket from a depth of approximately 5.5-feet below ground surface (the capillary zone). The soil samples were analyzed for TPH-G, TPH-D, TPH-MO, benzene, toluene, ethylbenzene and total xylenes (collectively known as BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8020. These analyses were requested by Mr. Hernan Gomez of the Oakland Fire Department in a telephone conversation on February 4, 1999. The only compound detected in these two soil samples was 0.040 parts per million (ppm) MTBE in one of the two samples.

PROPOSED SCOPE OF WORK (SOW)

Based on the requirements of the ACHCSA and RWQCB, ASE's proposed scope of work is to:

1) Prepare a workplan for approval by the Alameda County Health Care Services Agency (ACHCSA) and Regional Water Quality Control Board (RWQCB).

2) Obtain drilling permits from the Alameda County Public Works Agency (ACPWA). ASE will also notify Underground Service Alert (USA) to have all known public utility lines marked.

3) Drill one (1) soil boring at the site using a Geoprobe drill rig in a location near the former waste oil UST. Collect soil and groundwater samples from the boring for analysis.

4) Analyze one soil sample from the boring at a CAL-EPA certified environmental laboratory for halogenated volatile organic compounds (HVOCs) by EPA Method 8010, semi-volatile organic compound (SVOCs) by EPA Method 8270, PCBs by EPA Method 8080 and the LUFT 5 metals by EPA Method 8010.

5) Analyze a groundwater sample collected from the boring for TPH-G, by modified EPA Method 5030/8015, TPH-D and TPH-MO by modified EPA Method 3550/8015, BTEX and MTBE by EPA Method 8020, HVOCs by EPA Method 8010, SVOCs by EPA Method 8270, PCBs by EPA Method 8080 and the LUFT 5 metals by EPA Method 6010.

6) Prepare a report detailing the methods and findings of the sampling.

Details of the assessment are presented below.

TASK 1 - PREPARE A WORKPLAN AND HEALTH AND SAFETY PLAN

Based on the site history, analytical results of the soil samples collected during the previous soil assessment, and the requirements of the ACHCSA and RWQCB, ASE has prepared this workplan and a site-specific health and safety plan. A nearby hospital is designated in the site safety plan as the emergency medical facility of first choice. A copy of the site specific health and safety plan will be available on-site at all times.

TASK 2 - OBTAIN NECESSARY PERMITS

ASE will obtain a drilling permit from the Alameda County Public Works Agency. ASE will also notify Underground Service Alert (USA) to have underground utility lines marked in the site vicinity at least 48 hours prior to drilling.

TASK 3 - DRILL ONE SOIL BORING AT THE SITE AND COLLECT SOIL AND GROUNDWATER SAMPLES FROM THE BORING

ASE will drill one soil boring at the site immediately adjacent to the former waste oil UST (Figure 2). The boring will be drilled using a Geoprobe or similar type drill rig. The drilling will be directed by a qualified ASE geologist. Undisturbed soil samples will be collected at least every 5-feet, at lithographic changes, and from just above the water table for subsurface hydrogeologic description and possible chemical analysis. The samples will be described by the ASE geologist according to the Unified Soil Classification System. The samples will be collected in brass or acetate tubes using a drive sampler advanced ahead of the boring as the boring progresses. Each sample will be immediately removed from the sampler, trimmed, sealed with Teflon tape and plastic caps, secured with duct tape, and labeled with the site location, sample designation, date and time the sample was collected, and the initials of the person collecting the sample. The samples will then be placed into an ice chest containing wet ice for delivery under chain of custody to a CAL-EPA certified analytical laboratory.

Soil from the remaining tubes not sealed for analysis will be removed for hydrogeologic description and will be screened for volatile compounds with an organic vapor meter (OVM). The soil will be screened by emptying soil from one of the tubes into a plastic bag. The bag will be sealed and placed in the sun for approximately 10 minutes. After the hydrocarbons have been allowed to volatilize, the OVM will measure the vapor through a small hole punched in the bag. These OVM readings will be used as a screening tool only since these procedures are not as rigorous as those used in an analytical laboratory.

A groundwater sample will be collected from the boring. Drilling will be halted at the water table and a Powerpunch or similar type device will be utilized to collect groundwater samples from the boring. The groundwater samples for TPH-G, BTEX, MTBE and HVOCs will be contained in 40-ml volatile organic analysis (VOA) vials pre-preserved with hydrochloric acid and sealed without headspace. The samples collected

for TPH-D, TPH-MO, PCBs, SVOCs and metal analysis will be contained in 1-liter amber glass containers. All of the samples will be labeled with the site location, sample designation, date and time the samples were collected, and the initials of the person collecting the samples, placed in protective foam sleeves, and cooled in an ice chest with wet ice for transport to a state-certified analytical laboratory under chain-of-custody.

All sampling equipment will be cleaned in buckets with brushes and a TSP or Alconox solution, then rinsed twice with tap water. Rinsates will be contained on-site in 55-gallon steel drums until off-site disposal can be arranged.

TASK 4 - ANALYZE ONE SOIL SAMPLE

One soil sample collected from the boring will be analyzed at a CAL-EPA certified analytical laboratory for HVOCs by EPA Method 8010, SVOCs by EPA Method 8270, PCBs by EPA Method 8080 and the LUFT 5 metals by EPA Method 8010. The soil sample analyzed will be chosen based on field observations such as odors, staining and OVM readings. If no field indications of contamination are present, a soil sample collected from the capillary zone will be analyzed.

TASK 5 - ANALYZE ONE GROUNDWATER SAMPLE

One groundwater sample collected from the boring will be analyzed by a CAL-EPA certified analytical laboratory for TPH-G by modified EPA Method 5030/8015, TPH-D and TPH-MO by modified EPA Method 3550/8015, BTEX and MTBE by EPA Method 8020, HVOCs by EPA Method 8010, SVOCs by EPA Method 8270, PCBs by EPA Method 8080 and the LUFT 5 metals by EPA Method 6010.

TASK 6 - PREPARE A SUBSURFACE ASSESSMENT REPORT

ASE will prepare a report outlining the methods and findings of this assessment. The report will be submitted under the seal of state registered civil engineer or geologist. This report will include a summary of all work completed during this assessment including tabulated soil and groundwater analytical results, conclusions and recommendations. Copies of the analytical report and chain of custody will be included as appendices.

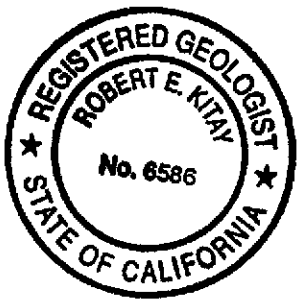
SCHEDULE

ASE plans to begin field activities at this site immediately upon approval of this workplan by the ACHCSA. Drilling is tentatively scheduled for the week of July 19, 1999. The site monitoring wells will be destroyed under permit from the ACPWA once case closure is approved.

Should you have any questions or comments, please call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.



Robert E. Kitay, R.G., R.E.A.
Senior Geologist

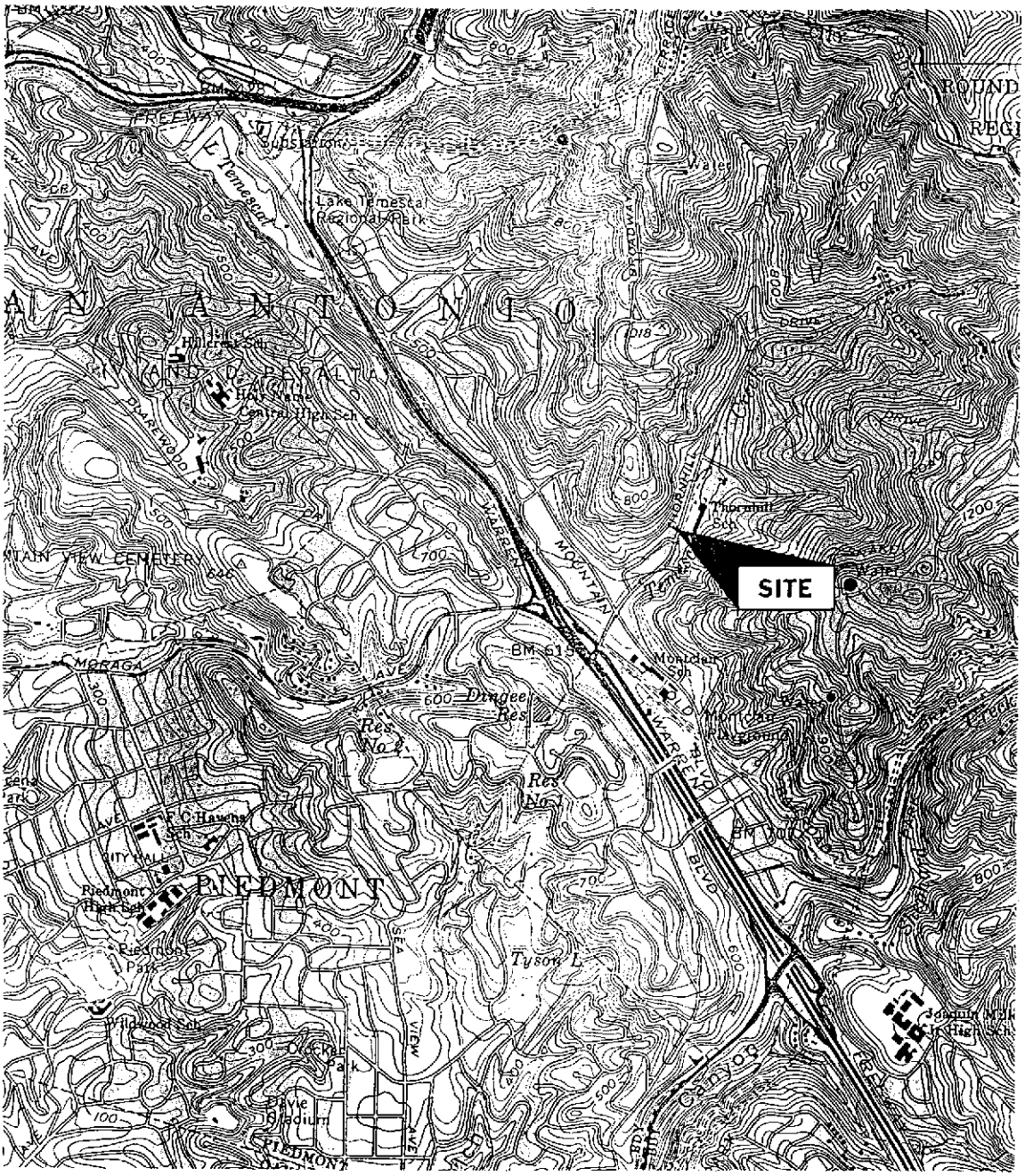
cc: Mr. Mo Mashhoon, Mash Petroleum, 5725 Thornhill Drive, Oakland, CA 9411

Mr. Don Hwang, Alameda County Health Care Services Agency, 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94502

Mr. Hernan Gomez, City of Oakland Fire Department, Office of Emergency Services Division, 505 14th Street, 7th Floor, Oakland, CA 94612

Mr. Chuck Headlee, California Regional Water Quality Control Board, San Francisco Bay Region, 1515 Clay Street, Suite 1400, Oakland, CA 94612

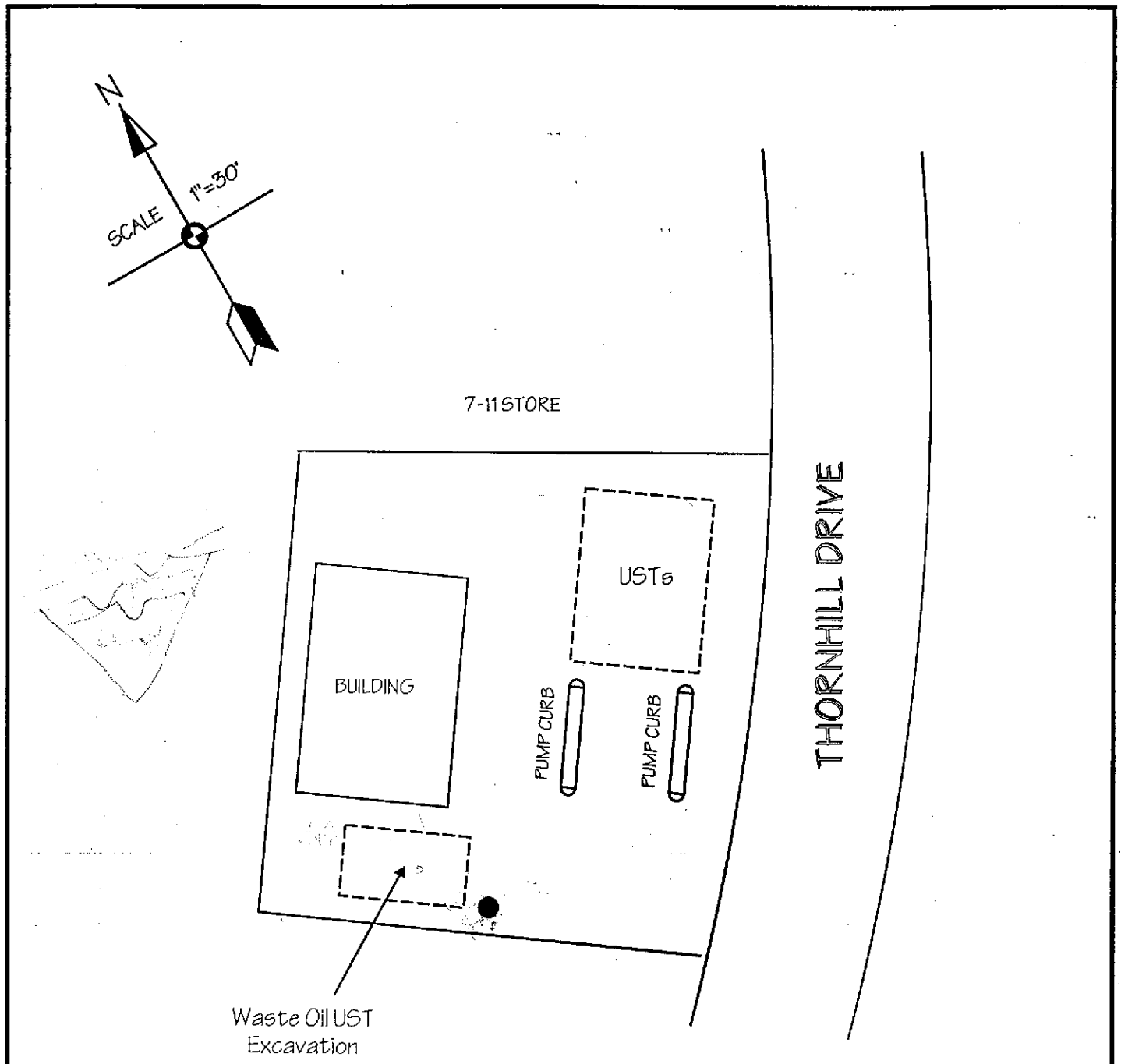
NORTH



SITE LOCATION MAP

Mash Petroleum
5725 Thornhill Street
Oakland, California

AQUA SCIENCE ENGINEERS, INC. | Figure 1



Legend

● Proposed boring location

SITE MAP

Mash Petroleum
5725 Thornhill Drive
Oakland, CA

Aqua Science Engineers | Figure 2

APPENDIX A

ACHCSA Letter

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION (LOP)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

April 27, 1999

Mo Mashhoon
Mash Petroleum, Inc.
5725 Thornhill Dr.
Oakland, CA 94611

Re: 5725 Thornhill Dr., Oakland, CA 94611
Stid 1145

Dear Mr. Mashhoon:

The submittal dated April 12, 1999, which included "Underground Waste Oil Tank Removal Final Report...prepared by Penn Environmental, Dec. 19, 1998", and additional information regarding the site was reviewed.
The following problems remain:

1) None of the soil samples were analyzed for metals: cadmium, chromium, lead, zinc, nickel; polychlorinated biphenyl, pentachlorophenol, polynuclear aromatics, and creosote.
2) The soil samples collected beneath the underground tanks weren't analyzed for chlorinated hydrocarbons.
3) The groundwater samples collected from monitoring wells, MW-1, MW-2, and MW-3, are not relevant for determining the extent of the leak from the waste oil tank. The wells are in the backfill of the gasoline tanks, and all are located in the same direction, which may not be downgradient from the waste oil tank excavation. We concur with Aqua Science Engineers, Inc., that these wells ought to be destroyed to prevent surface contamination from reaching the subsurface.

Therefore, the analyses listed, and additional soil and groundwater investigation are required. The necessity for additional investigation is based on the two soil samples collected beneath the waste oil tank: Total Petroleum Hydrocarbons-Gasoline (TPH-G) 440 & 1100 mg/kg, TPH-Diesel (TPH-D) 1200 & 2700 mg/kg, TPH-Motor Oil (TPH-MO) 820 & 4200 mg/kg. A workplan addressing these issues needs to be submitted.

If you have any questions, please call me at (510) 567-6746.

Sincerely,

Don Hwang
Hazardous Materials Specialist

C: Robert Kitay, Aqua Science Engineers, Inc., 208 W. El Pintado Rd., Danville, CA 94526
File

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
(510) 337-9335 (FAX)

June 11, 1999

Mo Mashhoon
Mash Petroleum, Inc.
5725 Thornhill Dr.
Oakland, CA 94611

Re: 5725 Thornhill Dr., Oakland, CA 94611
Stid 1145

Dear Mr. Mashhoon:

A letter dated April 27, 1999, was sent to you requesting a workplan which includes:

1) Analyses of soil samples for metals: cadmium, chromium, lead, zinc, nickel; polychlorinated biphenyl, pentachlorophenol, polynuclear aromatics, and creosote.
2) Analyses of soil samples for chlorinated hydrocarbons.
3) The destruction of monitoring wells, MW-1, MW-2, and MW-3, to prevent surface contamination from reaching the subsurface. Also, these wells are not relevant for determining the extent of the leak from the waste oil tank.
4) The installation of groundwater monitoring wells to assess the nature and vertical and lateral extent of the release from the waste oil tank.

A workplan addressing these issues is required within 30 days. This letter constitutes a formal request for technical reports pursuant to California Water Code Section 13267(b) and Health and Safety Code Section 25299.37 and 25299.7. You are further advised that failure to comply may subject you to penalties of up to $5000 per tank per day.

If you have any questions, please call me at (510) 567-6746.

Sincerely,

Don Hwang
Hazardous Materials Specialist

C: Robert Kitay, Aqua Science Engineers, Inc., 208 W. El Pintado Rd., Danville, CA 94526
File