aqua science engineers inc.

August 6, 1999

WORKPLAN
for
SOIL AND GROUNDWATER ASSESSMENT
at
Compare Prices Service Station
2844 Mountain Boulevard
Oakland, California

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 Compare Prices Service Station located at 2844 Mountain Boulevard in Oakland, California (Figure 1). This site was formally Desert Petroleum Station #796. The proposed site assessment activities were initiated by Mr. Shahram Shahnazi, property owner, as required by the Alameda County Health Care Services Agency (ACHCSA) in their letter dated June 9, 1999 (Appendix A).

BACKGROUND INFORMATION

Soil contamination was initially identified at the site in March 1989, during the replacement of the product lines by Diablo Tank and Equipment. Up to 8,400 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPH-G) were identified in soil samples collected from the southern edge of the underground storage tanks (USTs).

In July 1989, On-site Technologies excavated and disposed of contaminated soil from the southern end of the premium unleaded tank. Up to 3,300 ppm TPH-G were collected from the sidewalls of the excavation.

In May 1990, Remediation Service International (RSI) conducted a soil and groundwater assessment at the site which included the installation of four groundwater monitoring wells (RS-1 through RS-4). Hydrocarbons were detected in both soil and groundwater during this assessment.

In June 1991, soil remediation began at the site using soil vapor extraction (SVE). In October 1991, groundwater remediation began at the site using RSI's S.A.V.E. system. Remediation was suspended in 1992 apparently due to Desert Petroleum's financial problems.

The site has been monitored on a quarterly basis since May 1990. Beginning in 1995, hydrocarbon concentrations started to rise and free-floating hydrocarbons became present in monitoring well MW-1. Between October and December 1996, 30.4 gallons of gasoline and 1077 gallons of contaminated groundwater were removed from monitoring well RS-1 during interim free-product removal.

In March 1999, Western Geo-Engineers of Woodland, California prepared a quarterly groundwater monitoring report and subsurface conduit study for the site. This subsurface conduit study identified a sewer line with its

bottom below the typical depth to groundwater at the site. **This sewer line could potentially act as a conduit for the migration of groundwater contamination.** This workplan was completed to identify the extent of contamination off-site along the sewer conduit and across Mountain Boulevard downgradient of the site.

PROPOSED SCOPE OF WORK (SOW)

ASE's proposed scope of work is to further delineate the extent of soil and groundwater contamination off-site. To accomplish this task, ASE has prepared the following scope of work:

1) Prepare a workplan and health and safety plan for approval by the ACHCSA.

2) Contract with an underground utility contractor to accurately mark the underground utility lines in Mountain Boulevard.

3) Obtain an excavation permit from the City of Oakland to drill in the street areas and prepare a traffic plan to allow for closing traffic lanes during drilling activities.

4) Obtain a drilling permit from the Alameda County Public Works Agency (ACPWA).

5) Drill at least eight (8) soil borings with a Geoprobe drill rig in the locations shown on Figure 2. Collect soil samples continuously and screen the soil samples for volatile compounds with an organic vapor meter (OVM). Groundwater samples will also be collected from each boring.

6) Analyze one soil sample from each boring, as well as the groundwater sample collected from each boring, at a CAL-EPA certified analytical laboratory for TPH-G by modified EPA Method 5030/8015 and benzene, toluene, ethylbenzene and total xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8020.

7) Backfill the borings with neat cement.

8) Prepare a report outlining the methods and findings of this assessment.

Details of the assessment are presented below.

TASK 1 - PREPARE A HEALTH AND SAFETY PLAN

A site-specific health and safety plan will be prepared for the site. A nearby hospital will be 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 - CONTRACT WITH AN UNDERGROUND UTILITY LINE LOCATING SERVICE TO ACCURATELY LOCATE UNDERGROUND UTILITY LINES IN MOUNTAIN BOULEVARD

Besides contacting Underground Service Alert (USA) at least 48 hours prior to drilling, a private underground utility locating service will be contracted to pinpoint the location of these lines since drilling will be necessary as close as possible to these lines in order to assess whether these lines act as conduits for the migration of contamination near the site.

TASK 3 - OBTAIN AN EXCAVATION PERMIT FROM THE CITY OF OAKLAND AND PREPARE A TRAFFIC CONTROL PLAN TO ALLOW FOR DRILLING IN THE CITY STREET

Obtain an excavation permit from the City of Oakland to allow for drilling in Mountain Boulevard. A traffic control plan will also be prepared and submitted to the city for approval.

TASK 4 - OBTAIN DRILLING PERMIT

A drilling permit will be obtained from the ACPWA prior to beginning field activities. Underground Service Alert (USA) will also be notified to have underground utility lines marked in the site vicinity at least 48 hours prior to beginning field activities.

TASK 5 - DRILL AT LEAST EIGHT SOIL BORINGS IN MOUNTAIN BOULEVARD AND COLLECT SOIL AND GROUNDWATER SAMPLES FROM THE BORINGS

At least eight (8) soil borings will be drilled along Mountain Boulevard in the locations shown on Figure 2. **Five (5) of these borings will be drilled along the sewer line that may be acting as a conduit for the movement of groundwater contamination at the site.** The other three (3) borings will be drilled along the west side of Mountain Boulevard in order verify the extent of contamination across the sewer lines. Additional borings may

be added if obvious soil and groundwater contamination is encountered in these borings. **The borings will be drilled using a Geoprobe or similar type drill rig.** The drilling will be directed by a qualified geologist.

Undisturbed soil samples will be collected continuously for subsurface hydrogeologic description and possible chemical analysis. The samples will be described by the geologist according to the Unified Soil Classification System. The samples will be collected in acetate tubes using a drive sampler advanced ahead of the boring as the boring progresses. Samples to be retained for analysis will be immediately removed from the sampler, trimmed, sealed with Teflon tape and plastic caps, secured with duct tape, 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 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 each 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 borings. The groundwater samples will be contained in 40-ml volatile organic analysis (VOA) vials, preserved with hydrochloric acid, sealed without headspace, labeled with the site location, sample designation, date and time the samples were collected, and the initials of the person collecting the samples, sealed in plastic bags, 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 and stored on-site until off-site disposal can be arranged.

TASK 6 - ANALYZE THE SOIL AND GROUNDWATER SAMPLES

At least one soil sample from each boring, as well as each groundwater sample, will be analyzed at a CAL-EPA certified analytical laboratory for TPH-G by modified EPA Method 5030/8015 and BTEX and MTBE by EPA Method 8020. The soil samples analyzed will be chosen based on field observations such as odors, staining and OVM readings. If no field indications of contamination are present, the unsaturated sample closest to the water table (capillary zone) will be analyzed.

TASK 7 - BACKFILL THE BORINGS WITH NEAT CEMENT

Following collection of the soil and groundwater samples, the boreholes will be backfilled with neat cement placed by tremie pipe.

TASK 8 - PREPARE A SUBSURFACE ASSESSMENT REPORT

A report will be prepared 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 reports and chain of custody documents will be included as appendices.

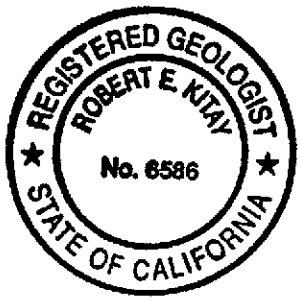
SCHEDULE

ASE does not know whether this project will have to go out for bid in order for Ms. Shahnazi to be eligible for reimbursement from the Underground Storage Tank Cleanup Fund. If no biding process is needed, then ASE would apply for the required permits immediately. Please be aware that since there is no guarantee that ASE will have continued involvement with this project, that ASE can't give an accurate timeline; however, it is ASE's understanding that Mr. Shahnazi is anxious to proceed with this project and we would anticipate that the drilling would take place within the next 60 days..

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

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

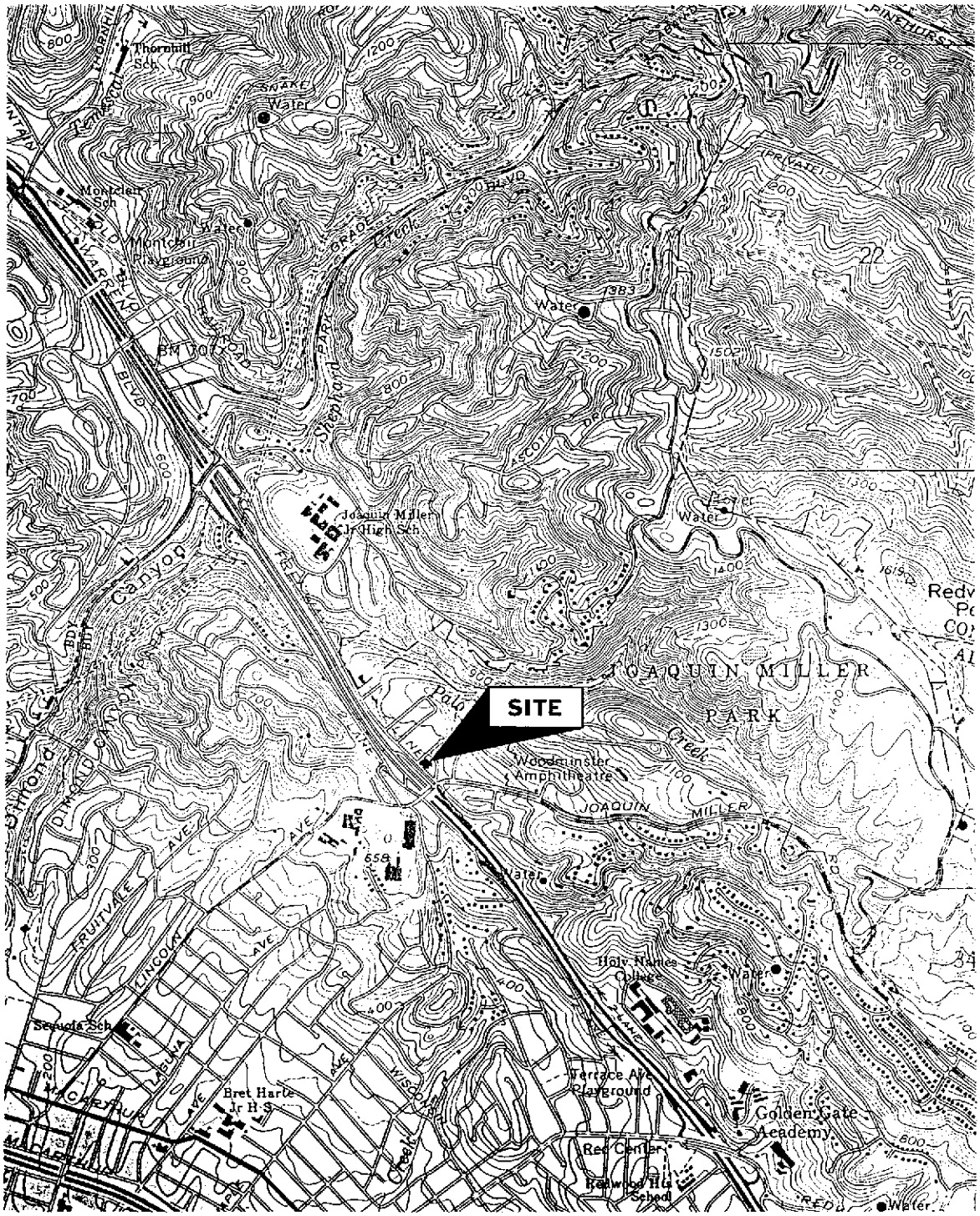


Robert E. Kitay, R.G., R.E.A.
Senior Geologist

cc: Mr. Shahram Shahnazi

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

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



SITE LOCATION MAP	
2844 Mountain Boulevard Oakland, California	
Aqua Science Engineers	Figure 1

NORTH

0 20 40 80

SCALE IN FEET

LEGEND

RS-4 — MONITORING WELL

PROPOSED SOIL BORING

SIDEWALK

WERNER COURT

SIDEWALK

RS-3

STORE

UST FARM

RS-2

DISPENSER ISLAND

RS-1

RS-4

PROPERTY BOUNDARIES

SIDEWALK

SIDEWALK

· add these probe locations 10/22/99

UNTAIN BOULEVARD

STORM WATER LINE

WATER LINE

SEWER LINE

NATURAL GAS LINE

CURB

FENCE

moved 1-7-00

RETAINING WALL

△ WATER SAMPLE COLLECTED FROM DRAIN IN RETAINING WALL

HIGHWAY 13

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 1
To Robert Kitay | From S. Seery
Co. ASE | Co. AQUA
Dept. | Phone # 510/567-6783
Fax # | Fax # 925/837-4853

PROPOSED BORING LOCATION MAP

Shahnazi Property
2844 Mountain Boulevard
Oakland, California

AQUA SCIENCE ENGINEERS, INC. | Figure 2

APPENDIX A

June 10, 1999 Letter
From The ACHCSA

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 10, 1999

STID 851

Mr. Shahram Shahnazi
140 Geldert Drive
Tiburon, CA 94520

Mr. John Rutherford
Desert Petroleum
P.O. Box 1601
Oxnard, CA 93030

RE: 2844 Mountain Boulevard, Oakland - Request for Soil and Water Investigation

Dear Messrs. Shahnazi and Rutherford:

I have completed review of the Western Geo-Engineers (WEGE) quarterly sampling and monitoring report dated March 8, 1999. This report also presents the results of a *revised* version of WEGE's earlier subsurface conduit study, which evaluates the potential for utility conduits and fault-related features to affect contaminant dispersal from the site. The conduit study reveals the potential for sanitary sewer trenches to contribute to contaminant migration away from the site. The fault element of the study was less conclusive.

Cumulative sampling and monitoring data clearly demonstrate that the releases from the underground storage tanks at this site have not been fully defined. The conduit study adds an additional layer of uncertainty to the plume definition issue. Consequently, plume definition must be achieved through completion of a soil and water investigation (SWI). Ultimately, an appropriate corrective action plan (CAP) will also be required, the scope of which will be substantially based on what is discovered following completion of the SWI.

You directed to submit a SWI work plan for the continued investigation of this gasoline release. The SWI work plan is due within 60 days of the date of this letter.

This phase of the SWI will involve intrusive investigations of the sanitary sewer trenches, as well as other on- and off-site locations. Consequently, you are encouraged to employ the use of so-called "rapid site assessment tools" (e.g., Geoprobe, etc.) for the initial stage of this investigation. Final, permanent well locations may then be determined based on these initial results.

Please contact me at (510) 567-6783 should you have any questions or comments.

Sincerely,

Scott O. Seery, CHMM
Hazardous Materials Specialist

cc: Chuck Headlee, RWQCB
Dave Deaner, SWRCB UST Fund
Leroy Griffin, Oakland Fire Department
Jill Duerig, Alameda County District Attorney's Office