



December 5, 1988

A

Proposal

For

INSTALLING MONITORING WELLS AND TESTING THE SOILS FOR
POSSIBLE CONTAMINATION AT 120 VISTA, PIEDMONT, CALIFORNIA

Prepared For

Mr. John Fuller
Acting Director of Public Works
City of Piedmont

RECEIVED
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HAZARDOUS MATERIALS/
WASTE PROGRAM

Submitted
By

Aqua Science Engineers
2500 Old Crow Canyon Rd., Ste. 121
San Ramon, CA 94583



December 5, 1988

Proposal COP-12588

Mr. John Fuller
City of Piedmont
120 Vista
Piedmont, CA

Dear Mr. Fuller:

We are pleased to have the opportunity to assist you. The following proposal lists the items and procedures required at this time to comply with the Alameda County Health Department and the San Francisco Regional Water Quality Control Board (SFRWQCB) guidelines for the groundwater monitoring well installations and the collection of soil and groundwater samples.

To comply with Regional Water Quality Control Board mandates, one groundwater monitoring well is recommended providing two off-site wells can be used for groundwater elevation determinations. The scope of work for groundwater monitoring well installation will include the following elements:

****DRILLING PERMITS:** Aqua Science Engineers will obtain the required permits.

****MONITORING WELL LOCATION** is to be within ten feet of the former tank, in the down-gradient direction. The monitoring well will be placed in a manner which will identify any contamination emanating from the site of the removed underground gasoline tank. We will also attempt to avoid areas of known contamination (if possible) in order to not cross-contaminate aquifers and to lower the spread of contaminant movement. At this date, the location or position of the monitoring wells is not permanently fixed; we can move the well location to accommodate agency requirements.

****THE BORING PHASE** will be performed via truck-mounted drill using hollow stem 7-5/8 inch O.D. by 4-1/4 inch I.D. continuous-flight auger. All drilling and sampling equipment will have been steam-cleaned prior to the initial boring. All drilling and sampling equipment will be steam-cleaned between each boring or well installation. We will require an adequate source of water for cleaning drilling and sampling equipment.

****THE MONITORING WELL** will be constructed by installing two-inch diameter PVC solid and slotted casing. The lower portion of the annular space between the casing and the boring wall will be backfilled with gravel/sand pack (using at least number 3 Monterey sand) to facilitate the entrance of groundwater or vapor from the soils. The gravel/sand pack will extend not less than one foot above the perforated zone. Casing perforations (0.01 inch) will begin at a depth which will accommodate entrance of floating contaminants over the normal range of water table fluctuations. The monitoring well will be placed to a depth of approximately 45 feet. Actual monitoring well depth will depend on the depth to groundwater and the type of geologic formations encountered. The upper portion of the annular space (not less than five feet) will be sealed with neat Portland cement to prevent surface contamination. A bentonite seal

of at least six inches will be placed between the gravel/sand pack and the annular seal. The bottom of the monitoring well will be permanently plugged by a friction cap without the use of an organic bonding agent. The PVC casing will be connected by dry-threaded, screw-type joints without the use of organic bonding agents. A locking cap with a metal street casing will be placed on top of the completed monitoring well. Boring cuttings will be carefully logged and validated by a California State registered geologist or registered civil engineer using the Unified Soil Classification system.

****SOIL SAMPLES** will be taken at five-foot increments by a modified California Split Spoon sampler - beginning at the ten-foot depth interval to the groundwater table. Aqua Science Engineers will supply precleaned brass tube (1.5 by 4-inches or 2.0 by 4-inch) inserts. Sample tubes will be capped with teflon, sealed with tape and immediately placed in an ice chest with dry ice. Samples will remain frozen while being transported to a certified California State laboratory. A chain-of-custody will accompany the samples to the laboratory.

****A WATER SAMPLE** will be taken from each completed and purged well. The sample will be taken in precleaned, sterilized 40 ml volatile organic analysis (VOA) vials with teflon seals. The sample will be stored in an ice chest with bagged ice after collection and during transport to the laboratory. The water sample will be taken with a teflon baller which will be steam cleaned prior to and between samples. A minimum of five well volumes will be removed from the well prior to sampling. To ensure that water in the well was exchanged: (1) balling will commence at the top and work downward; (2) balling will be done in a brisk manner, drawing the well down thereby reducing the percentage of recharge water in relation to possible stagnant water within the well. The well will be allowed to return to at least 80 percent of the original water level before sampling.

The sample bottles will be filled to overflowing in such a manner: (1) that precludes air bubbles passing through the sample during filling, and (2) sealed so that no air is trapped in the bottle. Once filled, samples will be inverted and tapped to test for air bubbles. Samples will be discarded if air bubbles are found. One sample will be collected in triplicate for laboratory quality assurance/quality control procedures. A chain-of-custody will accompany the samples to the laboratory.

****CHEMICAL ANALYSES** will be performed by a California State certified laboratory. Soil and water samples will be analyzed for gasoline, BTXE and diesel, by the appropriate EPA method (EPA 5030/8015/8020 and EPA 3550/8015). Additional compounds will be analyzed if the local or State agencies so require.

****A REPORT** will be prepared by Aqua Science Engineers California State registered geologist or registered civil engineer. This report will include drilling and sampling procedures, boring logs which include the method of construction of the monitoring wells, geologic and hydrogeologic conditions, certified laboratory analytical results and our conclusions. The completed report will be submitted not later than 21 days following completion of all field work, sampling and the return of certified laboratory analyses. Normal laboratory time presently is ten working days (two weeks). If a faster turn

around time for sample results is required, the sample charge increase by the laboratory is 100 percent for 24 hours, 50 percent for three days and 25 percent for five days.

**PRESENTATION OF OUR FINDINGS to City hazardous materials ordinance administrators, County and State officials can be included in our service if the client desires. We will defend our study in meetings and hearings with Contra Costa County officials and other regulatory agencies as necessary.

Quarterly monitoring or specific monitoring equipment may be required. We will assist you in selecting and establishing a monitoring routine and (or) service once the presence of groundwater is determined.

WELL INSTALLATION COSTS

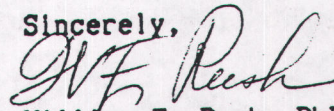
Drill one boring to approximately 45 feet and install one (1), two-inch PVC (schedule 40) monitoring well with blank and slotted (0.01-inch) casing, gravel pack, neat portland cement seal, metal street casing with locking cap: @ \$4,360.00

The price quoted is based on on-site disposal of the drill tailings. All drill tailings and cuttings and purged water will be placed in approved hazardous waste containers. Should the city want the tailings / purged water removed from the site, ASE will provide this service at a reasonable cost. The cost of drill cutting / purged water removal is dependent upon whether the cuttings / purged water contain or are free of hazardous substances. Should significant levels of hazardous substances be found in the soil cuttings / purged water, removal to an approved hazardous waste facility will be required.

Copies of this proposal will be sent to the Alameda County Health Department and the SFRWQCB for their approval. Aqua Science Engineers will also obtain the required monitoring well permit from the Contra Costa County Health Department. We will install the monitoring well upon approval of this proposal from the agencies involved and upon receipt of the approved permit.

Terms of payment are 60% at the conclusion of the monitoring well construction with balance due following submittal of the report.

Sincerely,



William F. Rusk, PhD.
President

THE PRECEDING PROPOSAL #COP-12588 AND ALL ENCLOSURES HAVE BEEN READ AND UNDERSTOOD AND IT IS HEREBY AGREED TO AND ACCEPTED. IT IS AGREED THAT THE LIST OF ELEMENTS WITHIN THE PROPOSED INVESTIGATION AND THEIR COSTS FORM AN EXPRESSED PART OF THE CONTRACT EVIDENCED BY MY SIGNATURE BELOW.

For The City of Piedmont:

By: _____ Date: _____

Title: _____