

April 20, 1999
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Ms. Eva Chu, Hazardous Materials Specialist
Alameda County Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Subject: Work Plan for Risk Assessment
Arrow Rentals, 187 North L Street, Livermore, California

Dear Ms. Chu:

At your request, we have prepared this work plan to perform a risk assessment for the Arrow Rentals site located at 187 North L Street in Livermore, California. The purpose of the risk assessment is to determine whether it is appropriate to consider closure of the environmental case. Elements of the risk assessment include: 1) performing a survey of all wells located within 0.5 mile of the site, 2) evaluating the hydrogeologic data, 3) evaluating the distribution of contaminant concentrations at the site, 4) evaluating potentially-exposed populations, 5) determining relevant exposure pathways, 6) calculating the baseline risk to human health, 7) determining the stability and degradation of the contaminant plume, and 8) developing site-specific target levels for the contaminants of concern. The following sections present the proposed scope of services.

Task 1: Well Survey

A survey will be conducted to identify any agricultural, domestic, industrial, or municipal water supply wells, monitoring wells, extraction wells for groundwater remediation, vadose wells, and cathodic protection wells located within 0.5 mile of the site. We will evaluate records at the California Department of Water Resources (DWR) in Sacramento and Alameda County Zone 7 Water Agency. The records, including drilling logs, will be reviewed to determine: 1) the location of each well relative to the site and the contaminant plume, 2) the construction details of each well, and 3) the geologic units encountered during drilling. Information from the well survey will assist us in evaluating the potential for contamination to impact these wells and drinking water aquifers. Hydrogeologic information from the well survey will assist us in determining the potential mobility and fate of the contaminant plume. The data will be used in the risk assessment to evaluate human health risk and the potential for contaminant migration to unaffected water.

Task 2: Evaluation of Hydrogeologic Data

We will research available resources to evaluate hydrogeologic conditions at the site and in the vicinity. The available resources may include: 1) drilling logs related to investigation of the site, 2) well logs obtained from DWR or local agencies (as described in Task 1), 3) geologic maps, 4) published hydrogeologic studies of the site vicinity, and 5) site-specific data related to hydrogeologic investigations of nearby sites. Information from the hydrogeologic evaluation will assist us in determining the potential mobility and fate of the contaminant plume. The data will be used in the risk assessment to evaluate human health risk and the potential for contaminant migration to unaffected water.

Task 3: Risk Assessment

A risk assessment will be conducted to evaluate the potential human health risk and environmental risk due to residual contamination at the site. The risk assessment will be performed according to ASTM E1739-95, "Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites." The risk assessment will incorporate site-specific chemical and hydrogeologic data. The risk associated with each contaminant will be evaluated. We will consider each potentially exposed population, in particular sensitive receptors. All exposure pathways will be considered, and the relevant pathways will be included in the assessment. The baseline carcinogenic and non-carcinogenic human health risk will be obtained for existing conditions at the site. Based upon the risk per unit concentration, site-specific target levels will be developed for each contaminant. The target carcinogenic risk is 1 in 100,000 (1×10^{-5}), and the target non-carcinogenic risk is a hazard quotient of 1.0.

Task 4: Reporting

We will prepare a written report describing the results of the well survey, evaluation of the hydrogeologic data, and the risk assessment. The report will present a summary of the baseline human health risk and target levels. The report will present our recommendations regarding possible closure of the environmental case.

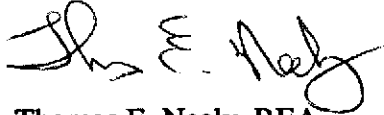
SCHEDULE

Work can begin with your authorization to proceed. The well survey (Task 1) can be completed within two weeks. The evaluation of hydrogeologic data (Task 2) can be completed within two to three weeks. The risk assessment (Task 3) can be completed within two to three weeks following the receipt of all information from Tasks 1 and 2. The written report (Task 4) can be completed approximately eight weeks following authorization.

AQUIFER SCIENCES, INC.

Please call us if you have any questions concerning this work plan.

Respectfully yours,



Thomas E. Neely, REA
Hydrogeologist



Rebecca A. Sterbentz, RG, CHG, REA
President

cc: Rita Sullins, Arrow Rentals

