



**Kaldveer Associates
Geoscience Consultants**

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Polly L. Worrell, R.E.A.

December 28, 1989
KE1179-1, 15293

Alameda County
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Attention: Mr. Ariu Levy

RE: WORKPLAN FOR SOIL AND GROUND
WATER TESTING
1829 CLEMENT AVENUE
ALAMEDA, CALIFORNIA

Dear Mr. Levy:

In accordance with your request, we are pleased to submit this workplan for soil and ground water testing at 1829 Clement Avenue located in Alameda, California. The purpose of this investigation is to obtain samples of soil and ground water for chemical analysis of selected compounds in accordance with an investigation notice dated October 19, 1988, issued by the Alameda County Department of Environmental Health. It is understood that the work will proceed following your approval of this workplan.

BACKGROUND

It is understood that the site has been operated as a metals milling and etching job shop for approximately 20 years. In October, 1988 the Alameda County Department of Environmental Health (ACDEH) performed an inspection of the site and noted several points of violation, including apparent discoloration of soils beneath the floor of the building. ACDEH subsequently issued a notice of violation that included a request to investigate the lateral and vertical extent of the problem. Preliminary soil sampling performed by Blymyer Engineers, Inc., and others, indicated the presence of elevated levels of cyanide, arsenic, chromium, lead, and other constituents, including low pH.

SCOPE OF SERVICES

Our proposed scope of work for this project is based on our discussions with a previous tenant of the site and our review of the Blymyer Engineering Inc. report dated September 28, 1989 and would include the following:

425 Roland Way
Oakland, California 94621
(415) 568-4001
FAX: 415-568-2205

A California Corporation

A. Work Plan and Health and Safety Plan

Preparation of a work plan for submittal to the Alameda County Department of Environmental Health and preparation of a field health and safety plan by a certified industrial hygienist.

B. Soil and Ground Water Testing

1. A soil sampling program consisting of drilling 10 auger borings to depths of about 10 feet. Two borings will be placed in each of the five former process operation rooms approximately as shown on Figure 1, using a minute-man drill rig equipped with 3-inch diameter solid stem augers. Soil samples will be obtained at the approximate depths of 0.5, 3, 6 and 10 feet in each boring. The two soil samples collected from the 0.5, 3 and 10 foot depths in each room will be composited into single samples at the laboratory prior to analysis. Thus, for each of the five rooms, one composite sample from the 0.5, 3 and 10 foot depth will be analyzed. Samples collected from the 6 foot depth will be held at the laboratory, pending results of the initial analyses. The borings will be backfilled with neat cement to grade.

It is anticipated that the samples from the 0.5, 3, and possibly 6 foot depths will provide information on the distribution of contaminants in the unsaturated surface soils. Analysis of samples from the 10 foot depth is primarily designed to provide a first-cut evaluation of ground water quality.

The soil samples will be appropriately packed, refrigerated and transported to the chemical laboratory for testing. The augers, samplers and equipment will be steam-cleaned prior to the field investigation.

2. A ground water sampling program (if deemed necessary) consisting of the installation of three ground water monitoring wells to depths of approximately 20 feet. It is understood that the ground water surface is presently about 8 feet below existing grade. The locations of the wells will be based on the results of the soil sampling program. Proposed well locations will be submitted to ACDEH for approval prior to installation.

Applicable local regulations will be followed in permitting and installing the wells. The wells will be developed and sampled. See Appendix I for well

construction and sampling details.

3. A chemical testing program consisting of analyzing 15 composite soil samples and three ground water samples for total cyanide, arsenic, beryllium, chromium, molybdenum, lead, copper, phenols, and pH using EPA approved methods. A California Department of Health Services approved analytical laboratory will be utilized.

2 wks Turn around

C. Report

1. Submittal of our report presenting a description of our investigation, the results of the laboratory analyses, and our conclusions and recommendations regarding site environmental quality.

Please note that we have not budgeted chemical analysis of the soil cuttings or ground water produced by the drilling, development and sampling operation. We currently plan to dispose of the cuttings generated outside the building (if any) and water by stockpiling in drums on the site. Contaminated soil cuttings (those classified as "hazardous waste" by California Department of Health Services regulations) or water may need to be removed to a hazardous waste depository. We will assist with disposal, but the costs will be the responsibility of the owner. Soil cuttings generated inside the building will be left on the ground surface. *ok.*

If you have any questions or require additional information, please don't hesitate to call.

Very truly yours,

KALDVEER ASSOCIATES, INC.

Dennis Laduzinsky
Dennis Laduzinsky

Senior Engineering Geologist

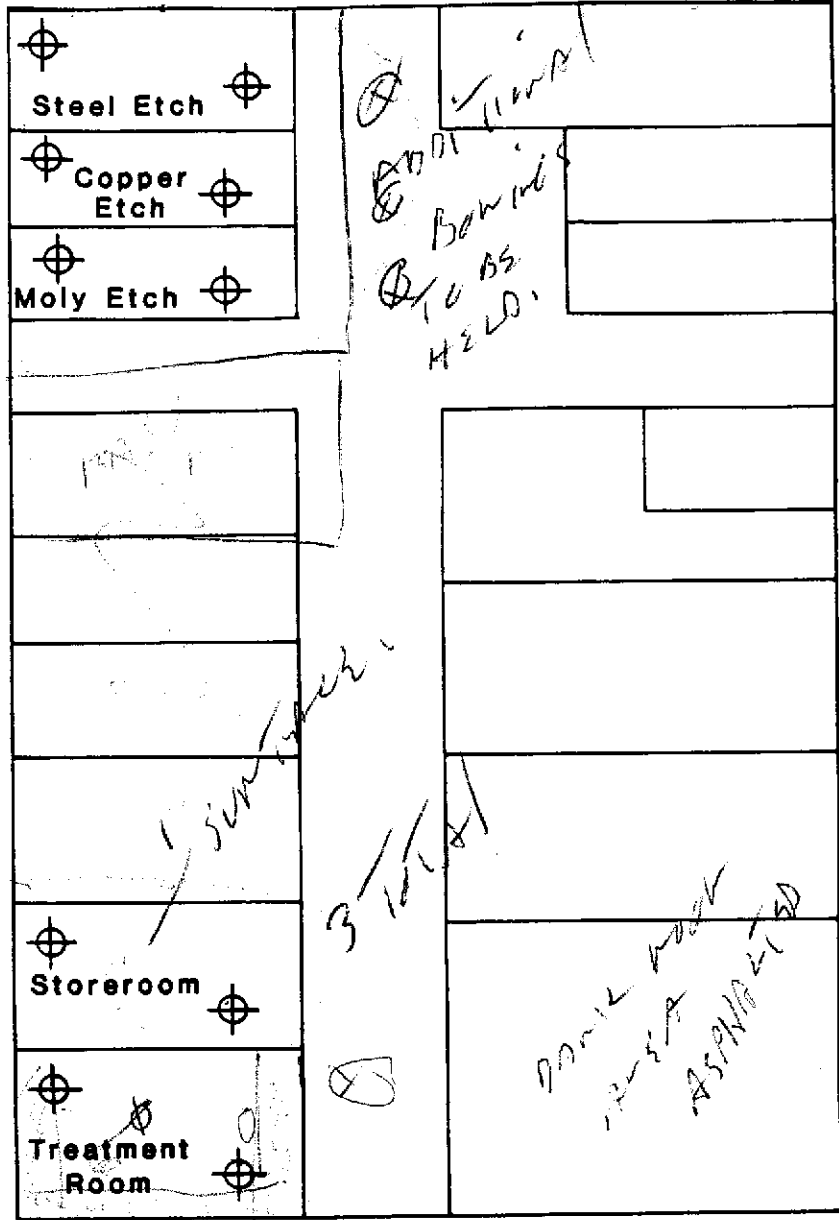
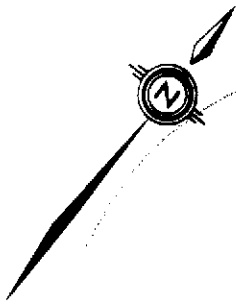
David F. Hoexter

David F. Hoexter, C.E.G./R.E.A.
Manager, Environmental/Geological
Services
Associate



DL/DFH:jb

Copies: Addressee (1)
Stark, Wells, Rahl, Field and Schwartz (1)
Attention: Mr. John F. Wells



LEGEND

⊕ Proposed Soil Sample Locations

Base: CHIPS Environmental Consultants



Kaldveer Associates
 Geoscience Consultants
 A California Corporation

PROPOSED SOIL SAMPLE LOCATIONS

1829 CLEMENT AVENUE
 Alameda, California

PROJECT NO.

DATE

KE1176-1

December 1989

Figure 1

MONITORING WELL SAMPLING

Following an initial water level measurement, monitoring wells will be sampled using a teflon bailer, or bladder or hand pump. Prior to sample collection, three to five well volumes will be purged in an attempt to collect a representative formation sample. Should the well become completely evacuated during purging, samples will be collected after the well has recovered to 80 percent of its initial water elevation.

All samples collected will be placed in containers approved for the type of analyses required. Following the addition of any preservatives required per EPA approved sampling protocols, the samples will be labeled and immediately placed in refrigerated storage.

All samples will be labeled in such a manner as to maintain client confidentiality. A chain-of-custody form will be initiated by the sampler and accompany the samples to the analytical laboratory. All soil and water samples collected will be delivered to the laboratory approved for the type of analysis to be performed by the California Department of Health Services.

APPENDIX I

MONITORING WELLS

The exploratory borings for monitoring wells will be permitted, as required. For wells installed outside the building area, a truck-mounted drill rig equipped with 8-inch diameter hollow-stem augers will be utilized to complete the borings. For wells installed inside the building (if any), a minute-man drill rig equipped with 3-inch diameter solid stem augers will be utilized to complete the borings. Although the use of hollow-stem augers is a preferred method of drilling for well installations, access restrictions inside the building necessitate the use of alternative drilling methods.

All equipment will be steam-cleaned prior to drilling and between borings, and the sampler will be cleaned with TSP (tri-sodium phosphate) detergent and rinsed with clear and then distilled water between samples. Thus, cross-contamination will be minimized.

The borings will be extended approximately 10 to 15 feet past the first free water encountered. They will be terminated at a shallower depth if a minimum of five feet of clay, acting as an aquitard (impediment to ground water movement) is penetrated.

The borings will be converted to monitoring wells, utilizing 2" schedule 40 threaded PVC pipe and slotted screen. The perforations will extend approximately 10 to 15 feet below the upper zone of saturation. The perforated section annulus will be packed with clean graded sand to a level approximately two feet above the highest screen slots, and a one foot thick bentonite plug will be placed above the sand pack as a seal against surface water infiltration. The slot and annular sand grain size will be determined following qualitative evaluation of available grain size data. The remaining annulus will be backfilled with concrete to grade.

The wells will be finished with a Cristy-type concrete or metal box grouted to match the existing grade and minimize surface water infiltration. The well will be sealed with a threaded locking cap to prevent surface contamination and to guard against vandalism. No solvents or glues will be used during monitoring well construction.

After installation, the wells will be developed utilizing hand bailing and possibly a well development pump.

SEWER SECTION
WELLS LOCATION