PROPOSAL
SUBSURFACE CONTAMINATION ASSESSMENT
SAFETY-KLEEN STREET
404 MARKET STREET
OAKLAND, CALIFORNIA

3-21-88

MARCH 21, 1988

GROUNDWATER TECHNOLOGY, INC.
CONCORD, CALIFORNIA

PROPOSAL
SUBSURFACE CONTAMINATION ASSMENT
SAFETY-KLEEN FACILITY
404 MARKET STREET
OAKLAND, CALIFORNIA

MARCH 21, 1988

GROUNDWATER TECHNOLOGY, INC.
CONCORD, CALIFORNIA

GROUNDWATER TECHNOLOGY, INC.
4080-D Pike Lane, Concord, CA 94520
(415) 671-2387

PROPOSAL
SUBSURFACE CONTAMINATION ASSESSMENT
SAFETY-KLEEN FACILITY
404 MARKET STREET
OAKLAND, CALIFORNIA
MARCH 21, 1988

INTRODUCTION

Groundwater Technology, Inc. (GTI) is pleased to have prepared this proposal at the request of The Safety-Kleen Corporation for the purpose of providing a work plan to assess the horizontal and vertical extent of soil and groundwater contamination at the Safety-Kleen Facility located at 404 Market Street in Oakland, California.

The proposal presents a discussion of previous site work, and an evaluation of existing site conditions as they were defined in the November 1986, report prepared by CWC-HDR Inc. The proposal concludes with a description of the proposed assessment program, followed by a presentation of the associated costs.

BACKGROUND

The Safety-Kleen Corporation commercial cleaning-products distribution facility is located at 404 Market Street in Oakland, California in a mixed residential and industrial setting (Figure 1). The facility is used to distribute and store clean and dirty mineral spirits cleaning solvents for the automotive and food-service industries.

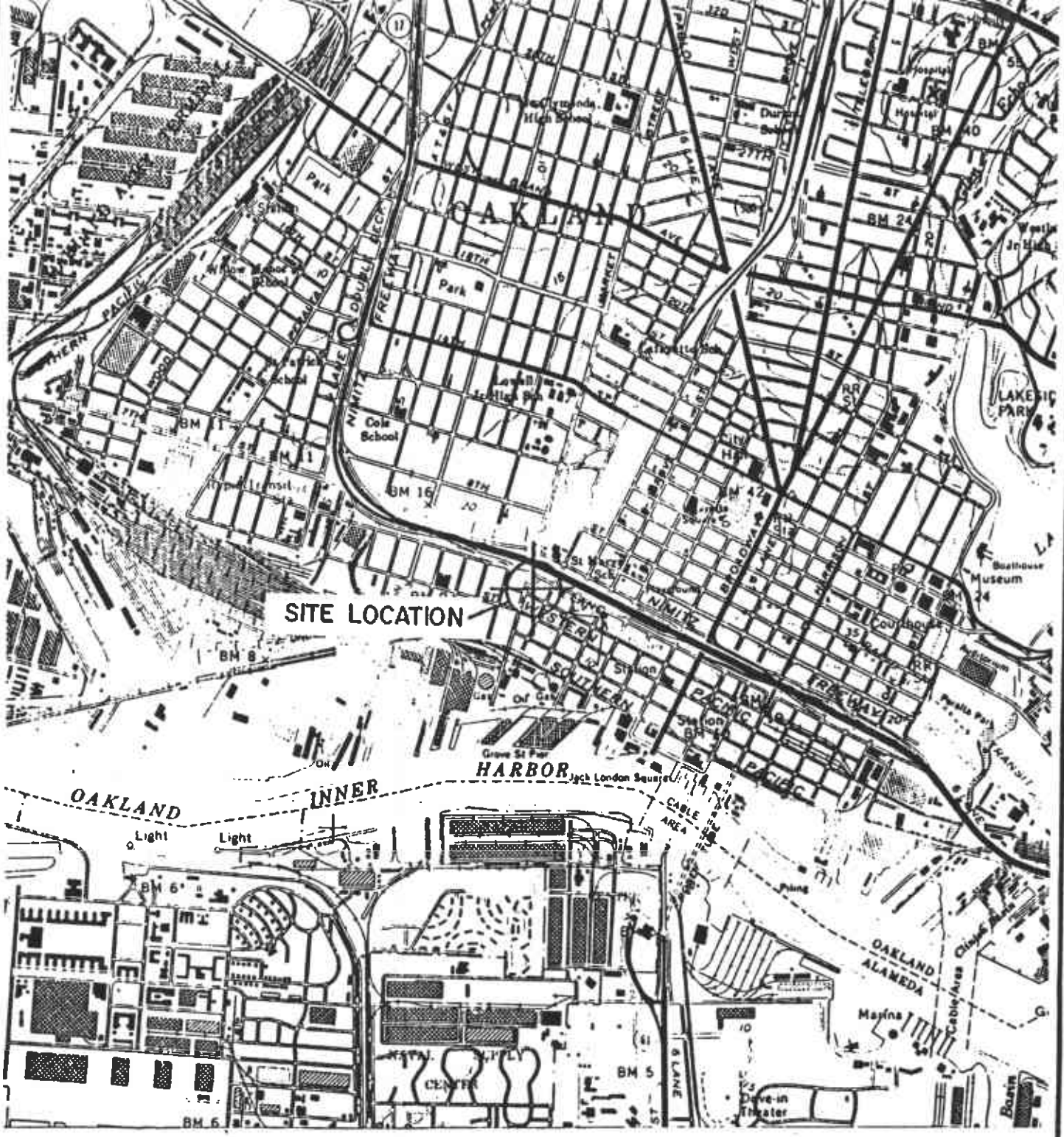


FIGURE 1
SITE LOCATION MAP

SAFETY-KLEEN
OAKLAND, CALIFORNIA

0 MILES 1

GROUNDWATER TECHNOLOGY

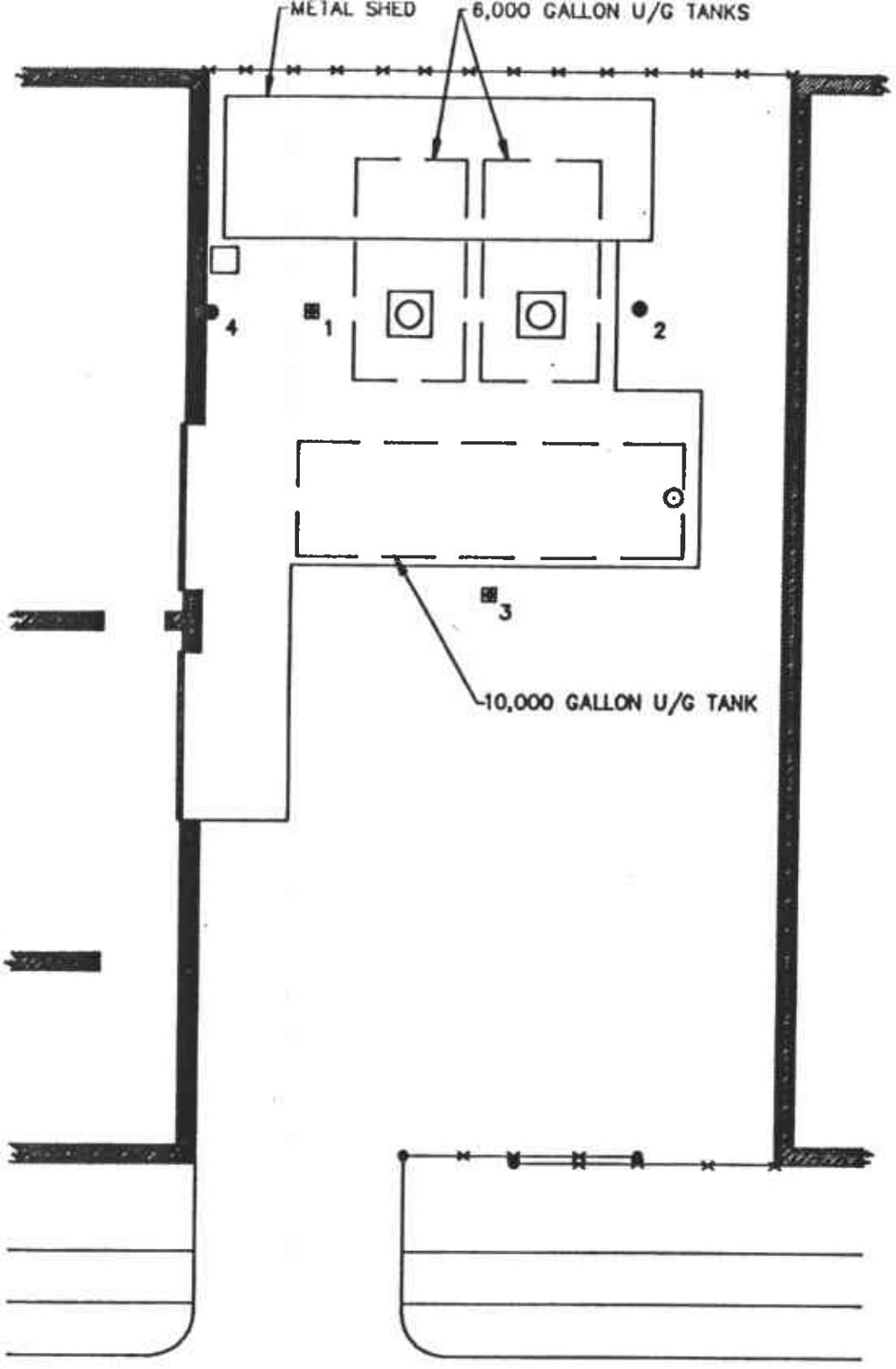
Three underground storage tanks (UST) are located at the site. Two 6000-gallon steel USTs are used to store spent mineral spirits solvent bound for recycling at the corporation's recycling center at Reedley, California, and one 10,000-gallon UST is used to store clean recycled mineral spirits solvent for distribution to customers. The tanks were installed at the site in February 1970, see Figure 2 (CWC-HDR, 1986).

The site is visited on a regular basis by a tanker truck coming from the Reedley facility which unloads clean recycled product to the 10,000-gallon UST and loads spent solvent from the 6000-gallon USTs. Clean product is then loaded into 16- or 30-gallon drums for delivery to customers. There, the clean product drum is exchanged for the spent product drum which is then delivered back to the facility for storage in one of the 6000-gallon USTs. The drums are unloaded into a dumpster receptacle which gravity feeds via a fill pipe and associated underground piping to the USTs.

PREVIOUS WORK

CWC-HDR consulting engineers were contracted to perform preliminary assessment work in May 1986 at the Oakland Safety-Kleen facility.

Three 8-inch-diameter by 20-feet deep soil borings were drilled on site between May 28 and 30, 1986. Two of the three soil borings were converted into 2-inch-diameter PVC monitoring wells (Figure 2). Soil samples were collected at ground surface, and from 5-feet and 10-feet below ground surface in each of the borings. An additional soil sample from the surface at Location 4 (see Figure 2) was collected. Groundwater samples were also collected from the two monitoring wells and one unconverted boring on the site.



LEGEND
■ MONITORING WELL
● SOIL BORING

N

0 FEET 7

SCALE

SAFETY – KLEEN
OAKLAND, CALIFORNIA

GROUNDWATER TECHNOLOGY, INC.

Analytical laboratory analyses of water and soil were performed by U. S. Environmental Protection Agency (EPA) Modified Method 8270 flame-ionization detector (FID).

No analytical laboratory analyses were run to detect the presence of halogenated hydrocarbons which are a known constituent of clean-recycled, and dirty-mineral spirits solvent.

SITE CONDITIONS

GEOLOGY

The geologic formations underlying San Francisco Bay are divided into two distinct units that differ greatly in age and rock type. The bedrock underlying most of the San Francisco Bay is composed of Jurassic and Cretaceous sandstone, siltstone, chert, melange and ultramafic rocks of the Franciscan Complex. Total thickness of the Franciscan Complex is unknown. Beneath the site, Late Cenozoic continental and marine sediments of the Alameda Formation unconformably overly the Franciscan bedrock and are composed of gravel, sand, silt, and clay which is locally organic rich and fossiliferous. Consolidation of the sediments increases with depth and maximum-known thickness is about 1,050 feet.

The Pleistocene-Quaternary Age Merritt sand overlies the Alameda Formation and consists of fine-grained sand and firm, clayey sand that contains bands and stringers of sandy clay and clay. One to 2 feet of loose, sandy silt covers the surface of the sand. These sediments were deposited by wind and water from beach and near-shore deposits. Maximum known thickness of the Merritt sand is approximately 65 feet.

The Merritt sands present beneath the site which were encountered in the soil borings, consist of interbedded sandy silt and sandy clayey silt to a depth of 20 feet at which point an unidentified impenetrable substrate was encountered.

HYDROGEOLOGY

The Franciscan Complex basement rocks are the oldest beneath the study area and are considered non-water bearing due to poor water yield. The Merritt Sands present beneath the site consist of sand, clayey sand, and sandy clay, and are the major water-yielding units in this area. Groundwater in these sediments is mainly unconfined.

Groundwater was found to be at a depth of 6.75-feet below grade in all borings. The groundwater gradient direction could not be determined from the available data, however information gathered from the surrounding area indicates that it is probably to the northwest.

SUBSURFACE CONTAMINATION

The results of the subsurface contaminant assessment data collected to date, as described by CWC-HDR, Inc. in their November, 1986 report are summarized below:

- Monitoring wells 1 and 3 indicated groundwater contamination of 42 and 52 ppm mineral spirits respectively.
- Groundwater samples obtained from soil boring 2 indicated mineral spirits contamination of 410 ppm.
- Analyses of soil samples extracted from the soil borings indicated a range of 160 to 10,000 ppm mineral spirits contamination, with the highest contamination being found approximately 4-feet below the water table (10-feet below grade) in the boring for monitoring well 1.

- All analyses were performed by EPA Modified Method 8270 FID which does not give accurate results with regards to mineral spirits contamination.

- No analyses were performed to verify the presence or absence of halogenated hydrocarbons, which are a known constituent of recycled and dirty mineral spirits solvent.

PROPOSED ASSESSMENT PROGRAM

The assessment program proposed by GTI is designed to define the horizontal and vertical extent of mineral spirits contamination beneath the Safety-Kleen facility. The assessment work would consist of the following specific work steps:

SOIL-GAS SURVEY

Preliminary assessment work would be performed to determine the areal extent of subsurface contamination using the Portable Gas Analysis System Laboratory (PGAS). A detailed explanation of the procedure can be seen in Appendix I. Soil-gas analysis allows for the rapid delineation of the areal extent of a subsurface contaminant plume via the extraction and on-site analysis of the vapor-phase constituents of a subsurface-contaminant plume. Vapor-phase constituents are contoured to produce a vapor-plume map which can then be used to determine the placement of future monitoring wells. When applicable, this method allows a low-cost alternative to "blind" placement of monitoring wells which can be costly and sometimes not an effective measure.

The soil-gas survey will consist of the placement of thirty 3/4-inch probe holes to a depth of approximately 6.5 feet (the approximate depth of the water table) on and around the site. Five water samples will be collected for analysis by EPA Method 624 from the most peripheral probe holes for verification of

minor or non-detectable amounts of dissolved hydrocarbon contamination. The water samples will aid significantly in the placement of clean peripheral monitoring wells. The soil-gas survey should take approximately 2 days to complete.

MONITORING WELLS

Based on the results of the soil-gas survey, monitoring wells will be installed to obtain subsurface verification and closure of the contaminant plume. Soil samples would be collected from the borings for the monitoring wells at 2.5-foot intervals and field screened with a photo-ionization detector. Selected soil samples would be analyzed by EPA Method 8240 with quantification of mineral spirits and xylenes as well as tentative identification of non-priority compounds. Approximately three soil samples per well boring would be sent to the laboratory for analysis. A minimum of five to ten monitoring wells installed to a depth of 30 feet will probably be required. The monitoring wells will be 2-inch-diameter PVC casing and screen which will be installed in a 7.5-inch truck-augered borehole with a No. 2 Monterey-sand filter pack.

GROUNDWATER MONITORING AND SAMPLING

Groundwater elevations would be obtained from the monitoring wells after the well-head locations and elevations had been surveyed by a licensed surveyor. The groundwater elevations for each well would be plotted on a map at the corresponding location and contoured to produce a site-specific groundwater gradient map.

Groundwater samples would be collected at the same time that groundwater elevations were obtained from each monitoring well and analyzed by EPA Method 624 with quantification of mineral spirits and xylenes as well as tentative identification of non-priority compounds.

Based on the results from the soil and water analyses, further recommendations will be made regarding the options available for remediation of contamination at the site.

SITE SENSITIVITY SURVEY

A site-sensitivity survey will be conducted to ascertain if any domestic or municipal wells are located within a 1/2-mile radius of the site and could be impacted by the presence of subsurface contamination.