INTERNATIONAL GEOLOGIC
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Ms. Susan Hugo
Alameda County Health Care Services Agency
Environmental Protection/LOP Division
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

February 17, 1998
705-2.WP

Subject: Work Plan to perform a limited Subsurface Investigation at 6460 Hollis Street, Emeryville, California.

Ms. Hugo:

As you requested, we are submitting for your review and approval the attached Work Plan that describes groundwater sampling at the above mentioned property. This work was outlined in our meeting of December 19th 1997, and includes collecting two shallow groundwater samples from two separate locations near the western property boundary, collecting groundwater samples from the three existing monitoring wells on the property, submitting the groundwater samples to a State Certified laboratory for analysis, and preparing a report of our findings, conclusions, and recommendations.

If you should have any questions or comments about this work plan, please call us at (510) 530-8751. Thank you.

Sincerely,
International Geologic

Steve Bittman

Steve Bittman
Project Manager

cc: Mr. Charles F. DeWolf
76-6287 Leone Street
Kailua - Kona, Hawaii 96740

Mr. David Holscher
1025 Carleton Street
Berkeley, CA, 94710

Encl.: Work Plan For Subsurface Investigation at 1372 Ocean Avenue, Emeryville, California.

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WORK PLAN
for
SUBSURFACE INVESTIGATION
at
6460 Hollis Street
Emeryville, California

BACKGROUND

Hageman-Aguiar, Inc. of Lafayette, California (HA) has been managing the environmental work at the site since 1992. HA has over-seen the following work:

- The installation of three groundwater monitoring wells in the area of ten underground storage tanks in June 1992.

- The closing in place of five 1,000 gallon capacity underground storage tanks beneath the property in July 1994. The last known contents of these five tanks were methyl-ethyl-ketone, isopropyl alcohol, sec-butyl alcohol (two tanks), and ethyl silicate.

- The removal of the more accessible remaining five tanks in December 1994. These tanks had formerly contained chlorinated solvents, and evidently gasoline, diesel, kerosene, and stoddard solvent. The four 1,000 gallon capacity tanks, and the one 2,000 gallon capacity tank all showed evidence of corrosion and leakage. Approximately 1,700 gallons of contaminated groundwater was pumped from the excavation and hauled off the property, and about 160 tons of soil were excavated and removed from the property.

- The monitoring of the three wells on the property. Laboratory analytical results have shown hydrocarbons, alcohol/ketone compounds, and chlorinated solvents to be present in the groundwater beneath the area of the former tanks. The most recent monitoring of the wells took place in August 1996.

PROJECT TASKS

The following work is proposed to satisfy the groundwater monitoring requirements set forth by the Alameda County Health Care Services Agency (ACHCSA) during a 12/19/97 meeting regarding the subject site and the tasks needed to bring the site towards closure.

Task 1: Site Safety Plan

A Site Safety Plan outlining precautions and protective equipment necessary for work at the site will be prepared, and will be available during on site work.

Task 2: Collect Groundwater Samples From Property Boundary

Shallow groundwater samples will be collected from two separate locations near the western property boundary which is in the calculated downgradient direction of groundwater flow from the former tank areas (see Figure 1 for proposed sampling locations). Before work begins, a permit will be acquired from the Water Resources Section of the Alameda Public Works Agency.

The shallow water-bearing zone beneath both proposed locations will be reached using a "direct push" rig equipped with geoprobe ® rods. Total depth of the probes are not expected to exceed 10 feet below grade. After the groundwater samples are collected, the holes will be backfilled with cement grout to grade. Field methods are summarized in Attachment A.

Task 3: Collect Groundwater Samples From Three Existing Wells

On site wells MW-1, MW-2 and MW-3 will be sampled using the protocol described in Attachment A.

Task 4: Laboratory Analyze Groundwater Samples

Groundwater samples collected from the two proposed geoprobe/hydropunch ® locations and the existing three monitoring wells, will be analyzed at a State Certified laboratory for the following:

- Total Petroleum Hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl-tertiary-butyl-ether (MTBE) by EPA Test Method 8015/8020/5030.

- Total Extractable Petroleum Hydrocarbons as diesel, motor oil, kerosene and Stoddard solvent by EPA Test Method 8015/3550/3510.

- Chlorinated hydrocarbons (VOCs) by EPA Test Method 601.
- Methyl Ethyl Ketone, Isopropanol, and Sec-Butanol by EPA Test Method 8240.

Task 5: Report Preparation

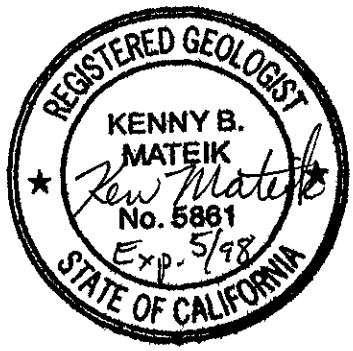
A technical report summarizing methods, data, and findings after the completion of Tasks 2, 3 and 4 above will be prepared. The technical report will be signed by a California Registered Geologist.

If you have any questions about this work plan, please call us at (510) 530-8751. Thank you.

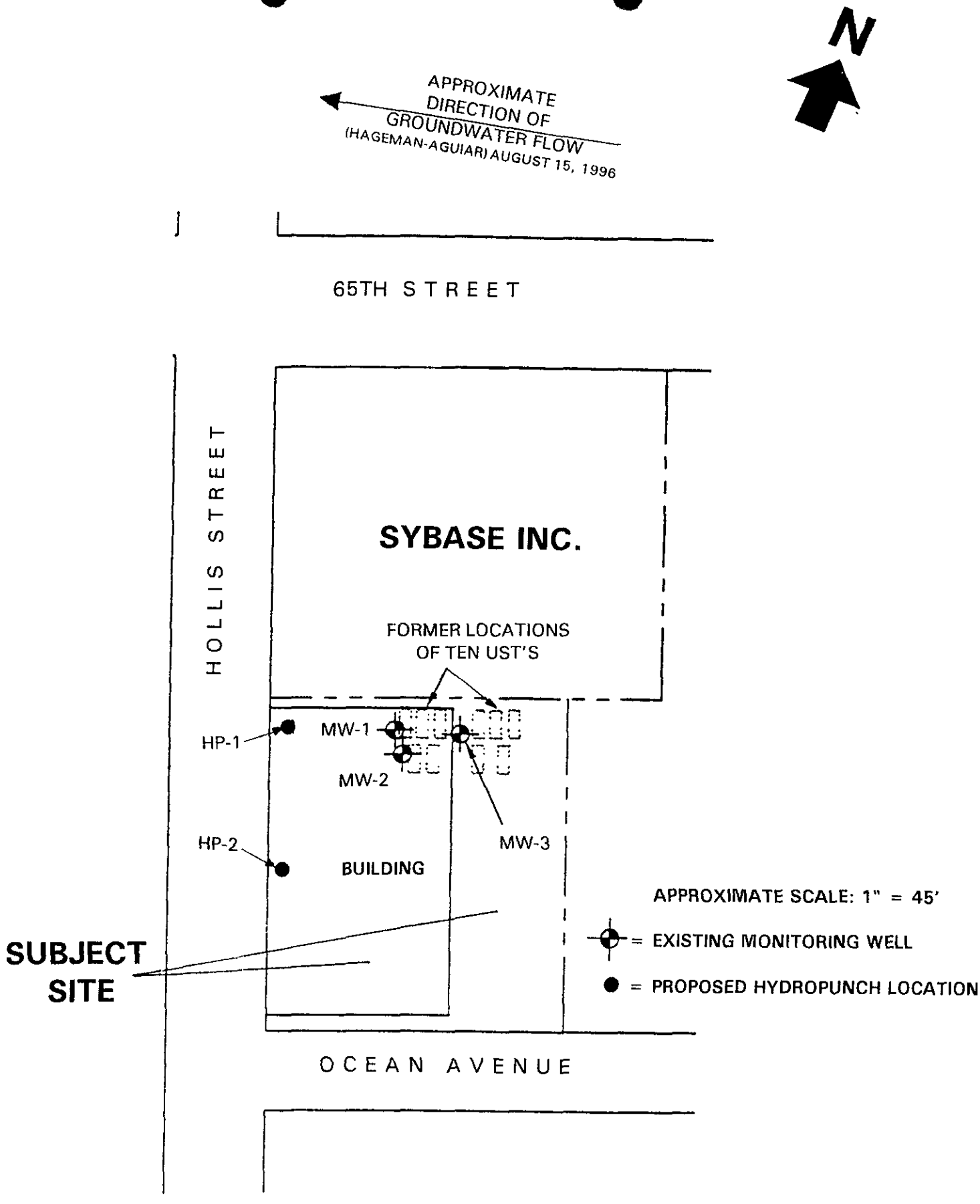
Sincerely,
International Geologic

Steve Bittman
Project Manager

Ken Mateik
Senior Geologist
California Registered Geologist No. 5861



Attachment A: Field Methods



INTERNATIONAL GEOLOGIC Job No. 722-1

6460 Hollis Street
Emeryville, California

PROPOSED HYDROPUNCH LOCATIONS

(Source: Erler & Kalinowski, Inc., 1995)

FIGURE 1

ATTACHMENT A

FIELD METHODS

FIELD METHODS

Geoprobe/Hydropunch

Prior to work onsite, permits are acquired from the appropriate regulatory agency, if necessary. Underground Services Alert is notified at least 48 hours prior to work. The approximate locations of known underground utility lines and structures are marked prior to drilling.

The Geoprobe ® rig will be operated by Precision Sampling Inc., of San Rafael, California (C-57 license 636387). All down hole equipment is steam-cleaned prior to each hole to minimize the possibility of cross-contamination. After the target depth is reached, groundwater is allowed to enter the geoprobe rods either through a hydropunch ® screen or slotted PVC casing temporarily installed in the rods. All holes are backfilled to grade with a "neat" cement mixture after sample collection.

Ground Water Sampling (Hydropunch)

After groundwater has entered the geoprobe ® rods, a sample is collected by a stainless steel bailer, or a peristaltic pump equipped with new plastic tubing.

The water samples are sealed in laboratory-cleaned, 40-milliliter glass vials with Teflon-lined caps, or laboratory-cleaned 1,000-milliliter amber bottles. The samples are labeled and immediately placed in iced storage. A Chain of Custody Record is initiated by the geologist and kept throughout handling of the samples, and will accompany the samples to McCampbell Analytical, Inc., Pacheco, California (DHS Certified Number 1644) for the analyses requested.

Ground Water Sampling (Monitoring Wells)

The liquid in the wells is checked for visual evidence of contamination. Any subjective evidence of product detected in the well is recorded. If floating product is encountered in a well, the well will not be purged or sampled. The thickness of any floating product is measured with an interface probe or petroleum finding paste. If no floating product is observed in a well, the well is purged prior to collecting a sample of the formation water. The well is purged of at least four well volumes of water, or until the water is drawn down to the bottom of the well. The temperature, pH, and conductivity of purged ground water is allowed to stabilize prior to sampling the well. The well is then be sampled using a new disposable plastic bailer.

The water samples are sealed in laboratory-cleaned, 40-milliliter glass vials with Teflon-lined caps, or laboratory-cleaned 1,000-milliliter amber bottles. The samples are labeled and immediately placed in iced storage. A Chain of Custody Record is initiated by the geologist and kept throughout handling of the samples, and will accompany the samples to McCampbell Analytical, Inc., Pacheco, California (DHS Certified Number 1644) for the analyses requested.

Report Preparation

A report will be provided summarizing the results, interpretations, and conclusions, as necessary. The report will also contain copies of permits, chain of custody forms, and laboratory data sheets.

PROJECT STAFF

Mr. Kenny B. Mateik, a Geologist registered with the State of California (R.G. No. 5861) will be in overall charge of this project. Mr. Steve Bittman, Project Manager, will provide supervision of field and office operations of the project.