

**GROUNDWATER
TECHNOLOGY, INC.**

4080-D Pike Lane, Concord, CA 94520

(415) 671-2387

June 25, 1990

Job No. 203 175 3295

6/25/90
32951

Mr. Barney Chan
Alameda County Health Care Services
Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, Ca 94621

RE: Proposed work at Chevron Station #9-0121, located
at 3026 Lakeshore Ave. Oakland, Ca.

Dear Mr. Chan:

Attached to this letter is a copy of a letter/work plan prepared by Groundwater Technology, Inc. for Chevron U.S.A., Inc. describing the proposed well-point survey for the subject site. Groundwater Technology plans to use the data gathered from the well-point survey to design a complete assessment program for this site. Once this program is formulated, a copy of the proposed work plan will be submitted for your review. This work plan will include all pertinent background information such as a site history, site description and summary of past work.

In addition to the well-point survey, Groundwater Technology is pursuing permission to destroy the existing wells on site. These wells were all installed in the late 1970's and early 1980's, and do not conform to existing standards of construction. As such, Groundwater Technology plans to abandon all the wells in accordance with guidelines provided by the Alameda County Flood Control and Water Conservation District. A permit, number 90364, has been secured for this work. Groundwater Technology proposes

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to drill out the existing wells and seal the boreholes with pumped cement. If the wells cannot be drilled out due either to site restrictions, well diameter, or well materials, Groundwater Technology proposes to attempt to pull the well casings from the ground using a crane. If this does not work, the wells will be pressure grouted and left in place.

A check for \$500.00 to cover review fees for this project is also included. If you require any additional information on this proposed work, please contact us at our Concord office (415) 671-2387.

Sincerely,
Groundwater Technology, Inc.



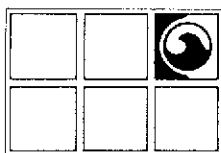
Glen L. Mitchell
Assessment Group Manager



Joseph R. Ramage
Petroleum Group Manager.

cc: Ms. Nancy Vukelich/Chevron U.S.A. Inc.

GLM:JRR:lf
L3295E



GROUNDWATER TECHNOLOGY, INC.

91 MAR 11 11:50 AM
4057 Port Chicago Highway, Concord, CA 94520 (415) 671-2387

FAX: (415) 685-9148

March 8, 1991

Job No. 203 175 3295

Mr. Paul Smith
Alameda County Health Care Services
Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, Ca 94621

Re: Proposed Well Design for Chevron Station #9-0121
3026 Lakeshore Avenue, Oakland, California.

Dear Mr. Smith:

As per our conversation on March 4, 1991, I am sending you this letter to more fully describe the well design proposed for the Chevron Service Station located at 3026 Lakeshore Avenue, Oakland, California. This site is quite close to Lake Merritt. Groundwater beneath the site is very shallow, ranging from approximately 8 to 5-feet below grade surface across the site. It is reasonable to assume the depth-to-water will be even shallower off site towards the north-west, downgradient and towards the lake. Due to these considerations, Groundwater Technology, Inc. believes that this site is appropriate to test a new well design intended for shallow groundwater environments. The proposed monitoring wells will be only 3/4-of-an-inch in diameter.

The well installation process is simple and mirrors conventional well design. Instead of using augers to drill a borehole, this system employs a man-portable soil-sampling rig to dig a 2-inch-diameter hole. The hole is advanced in a series of two-and-a-half-foot drives in which a hollow-steel sampling barrel is forced into the subsurface with a hydraulic sledge hammer. The drive rod is pulled using a winch, producing a 2-inch-diameter hole and a continuous core of the encountered soils. Once the hole has reached the desired depth, it is completed as a 3/4-inch diameter monitoring well using 0.020 machine-slotted PVC well screen and blank casing. A sand pack of no.2 Monterey sand is set around the well screen to a level above the top of the slotted casing. Powdered bentonite is then set above the filter pack and hydrated. The bore-hole is then sealed to grade with neat cement and a locking, 8-inch diameter street box set above the wellhead. After completion, the well can be developed and sampled with a peristaltic pump and water level measurements taken with a small-diameter slope indicator.

Quantitative
7/24

interface probe

abandonment

5/77, 3/78 11 yrs old

g.m.s (2) 4" pvc 15'
(5) 8" corrugated steel
(3) 8" steel casings hanging
along western

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The proposed well design has several advantages over a conventional well, including substantial savings of cost and time. Small-diameter wells produce far fewer drill cuttings and associated waste. They should be quicker to install and less disruptive to traffic in the area. Additionally, because they are installed using a portable coring system, they can be set in places that are inaccessible to drill rigs. When sampled, they will produce very little purge water, reducing the problems of water disposal. Since the peristaltic pump is very non-disruptive to the samples collected, water analysis should be representative of actual conditions in the water-bearing zone.

These wells will also avoid many of the problems associated with permanent well points since they sample water from a wider range of the water bearing zone, can produce bulk-samples (dependent on formation yield) and can be monitored to establish depth-to-water and flow gradient.

The proposed well design would only be appropriate in relatively shallow groundwater situations. We anticipate a maximum effective depth for the wells of approximately 20-feet below grade. Some subsurface conditions, such as compact or rocky soil that could cause refusal of the coring system or loose material that would cause the hole to collapse before the well is completed would make the system ineffective. But in situations where it can be used, the proposed well design offers substantial benefits over conventional design.

If you have any questions or require any additional information, please contact me at our Concord office, (415) 671-2387.

Sincerely,
GROUNDWATER TECHNOLOGY, INC.



Glen L. Mitchell
Project Hydrogeologist

GLM:drg
L3295L.GM

cc: Ms. Nancy Vukelich, Chevron U.S.A. Inc.