



GROUNDWATER TECHNOLOGY, INC.

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January 17, 1992

Mr. Scott O. Seery, CHMM
Alameda County Health Care Services
Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Rm. 200
Oakland, CA 94621

Subject: Preliminary Site Assessment conducted at Chevron Service Station No. 9-6991
2920 Castro Valley Boulevard, Castro Valley, California.

Dear Mr. Seery:

At the request of Chevron U.S.A. Inc. (Chevron), Groundwater Technology, Inc. presents this letter in response to the correspondence from the Alameda County Health Care Services (ACHCS) Agency dated December 5, 1991 submitted to Ms. Nancy Vukelich of Chevron U.S.A. The correspondence was prepared in response to the results of the preliminary site assessment performed by Groundwater Technology at the above-referenced site in September and October 1991. The preliminary site assessment consisted of installing three 3/4-inch diameter groundwater monitoring wells within 2-inch diameter borings and collecting soil and groundwater samples for chemical analyses.

As stated in the December 5, 1991 (ACHCS) correspondence, soil and groundwater analyses were not performed as planned. Due to an oversight, several analyses requested by the ACHCS were not performed on the soil and groundwater samples submitted by Groundwater Technology. Specifically, soil samples collected from the boring (designated MW-1) installed next to the former waste oil tank were not analyzed for TPH-as-diesel, base/neutral/acid extractable organics, halogenated volatile organics, cadmium, chromium, zinc, lead and nickel. In addition, groundwater samples collected from the initial sampling event were not analyzed for TPH-as-diesel. To obtain the missing chemical data groundwater samples collected during the December 4, 1991 sampling round were analyzed for all of the requested compounds. The analytical results indicated that TPH-as-diesel was below the method detection limit of 50 ppb in the groundwater sample collected from monitoring well MW-3 and detected at concentrations of 170 ppb and

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130 ppb in MW-1 and MW-2, respectively. The analytical results indicated that concentrations of base/neutral/acid extractable organics, halogenated volatile organics, cadmium, chromium, zinc, lead and nickel were all below the method detection limit of the individual analytical methods. The results of this sampling round are presented in Groundwater Technology's Quarterly Monitoring and Sampling Report dated December 27, 1991.

Results of the preliminary site assessment indicate that groundwater at the site has been impacted by gasoline-related hydrocarbons. The concentrations of gasoline-related hydrocarbons, however, appear to be relatively low. Only benzene was detected at concentrations greater than the California Maximum Contaminant Level (MCL) of 1.0 parts per billion (ppb) for public drinking water supply systems. Benzene was detected at concentrations ranging from <0.5 to 120 ppb. Chevron has indicated that additional site assessment activities will be performed to evaluate the extent of the dissolved gasoline-related hydrocarbons detected at the site.

As stated in Groundwater Technology's Preliminary Assessment Report (PAR) an apparent anomalous water level reading was measured in MW-3 during the October 8, 1991 sampling round. This water level was elevated because water infiltrated into the borehole from a saturated gravel layer located 0.5 to 1.5 feet below grade observed during the drilling of the boring. This infiltration could possibly be the result of a leaking sprinkler line or surface infiltration through the asphalt and or landscaped area. The clayey sediments encountered in the MW-3 boring located below the gravel layer may act as a confining layer allowing saturation of the gravel layer. When this subsurface layer was penetrated during drilling, the transmissive gravel layer leaked water into the borehole. Installation of the surface seal has apparently prevented further infiltration into the well. Groundwater monitoring data collected at the site during the two subsequent monitoring events indicate that the water level in MW-3 has stabilized and that the data from monitoring wells MW-1 and MW-2 has been consistent. The December 5, 1991, ACHCS correspondence indicates that, at this time, the only conclusion that can be made regarding the application of the 3/4-inch wells is that they allow for the collection of groundwater samples. The monitoring data collected from the 3/4-inch wells suggests that these wells will also allow for consistent and accurate water level measurements.

The ACHCS correspondence refers to the poor sample recovery from boring MW-1 as a practical limitation to the Powercore sample collection method. Our experience indicates that poor sample recovery is not limited to the Powercore method technology which utilizes a 2-inch sample barrel. Poor sample recovery can be a problem with conventional drilling methods that utilize 2-inch inside diameter split spoon samplers.

boring logs do not indicate "backfill" material was encountered at all appropriate sampling depths

The sample recovery problems encountered at boring MW-1 were most likely caused by the subsurface conditions (e.g. coarse gravel backfill material), and not because of the Powercore system. As with conventional drilling, these practical limitations have been recognized and are being addressed in a technical review of the process. Preliminary review indicates that this approach to well installation and design can be beneficial and that the problems encountered in this initial attempt can be corrected. The technical review of the disadvantages and possible solutions will be submitted to your office when it is completed.

Chevron U.S.A. has decided to use this site as pilot study to evaluate the effectiveness of 3/4-inch wells. Subsequent installation of 2-inch diameter groundwater monitoring wells in close proximity to one of the existing 3/4-inch wells will provide the technical data to evaluate the validity of groundwater level and analytical data collected from the smaller diameter wells. The groundwater data as calculated from the December 4, 1991 monitoring data indicates that the groundwater gradient is 0.008 to 0.01 ft/ft. A 2-inch diameter monitoring well installed approximately five feet in the downgradient direction from one of the 3/4-inch wells should have a water elevation change of no more than 0.05 ft/ft if the water level in the 3/4-inch well is accurate. To evaluate the validity of the analytical results, groundwater samples will be compared with the results from a 2-inch well to be installed in close proximity to a 3/4-inch well (MW-3) that has had low to non-detectable concentrations. This comparison will allow us to evaluate the ability of the 3/4-inch wells to provide valid samples containing low concentrations of petroleum hydrocarbons. Because MW-1 is located in the backfill material, comparison of water level data with a 2-inch well in this area would not be useful in making a technical comparison. Chevron U.S.A. recognizes the need for additional plume delineation at this site and proposes to install 2-inch diameter monitoring wells during a second phase of assessment. A work plan for a second phase assessment will be submitted to ACHCS by February 1, 1992.

* The ACHCS correspondence also requested continued monthly monitoring of the 3/4-inch wells at the site, because the validity of the water levels has not been confirmed, the initial technical data derived from this frequency of monitoring does not appear to provide useful data at this time. After the installation of the

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2-inch diameter monitoring wells, a monthly monitoring frequency for the 1st quarter will provide useful data to evaluate the water level data accuracy and variations. A quarterly monitoring frequency following the first quarter of monthly monitoring will be sufficient in verifying the groundwater flow direction and gradient.

If you have any questions or comments, please contact Ms. Nancy Vukelich of Chevron U.S.A. or me at (510) 671-2387.

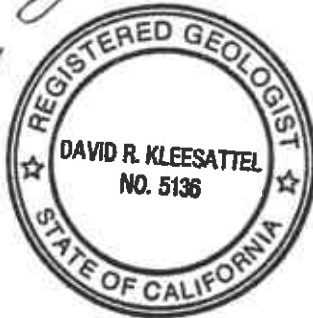
Sincerely,
GROUNDWATER TECHNOLOGY, INC.

Sandra L. Lindsey

Sandra L. Lindsey
Project Manager

David R. Kleesattel

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