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Chevron

July 3, 1995

Chevron U.S.A. Products Company
6001 Bollinger Canyon Rd., Bldg. L
P.O. Box 5004
San Ramon, CA 94583-0804

Site Assessment & Remediation Group
Phone (510) 842-9500

#103

Mr. Barney Chan
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Chevron Service Station #9-0076
4265 Foothill Boulevard, Oakland, CA

Dear Mr. Chan:

Enclosed is the Work Plan for subsurface investigation dated June 29, 1995, prepared by our consultant Pacific Environmental Group, Inc. for the above referenced site. The work plan includes advancing one soil boring and completing the boring as a ground water monitor well. This work will be done to determine the down gradient extent of the dissolved hydrocarbon plume.

If you have any questions or comments, please feel free to contact me at (510) 842-8134.

Sincerely,
CHEVRON U.S.A. PRODUCTS COMPANY

Mark A. Miller
Site Assessment and Remediation Engineer

Enclosure

cc: Mr. S.A. Willer

Mr. Dan Kirk
Shell Oil Company
P.O. Box 4023
Concord, CA 94524



PACIFIC
ENVIRONMENTAL
GROUP, INC.

June 29, 1995
Project 325-024.1B

Mr. Mark Miller
Chevron U.S.A. Products Company
P.O. Box 5004
San Ramon, California 94583

Re: Work Plan
Chevron U.S.A. Service Station 9-0076
4265 Foothill Boulevard at High Street
Oakland, California

Dear Mr. Miller:

This letter, prepared by Pacific Environmental Group, Inc. (PACIFIC) on behalf of Chevron USA Products Company (Chevron), presents a work plan to install one off-site groundwater monitoring well (C-9) to investigate the downgradient extent of a dissolved hydrocarbon plume. The plume is potentially commingled with plumes originating at three gasoline service stations (Chevron, BP/Mobil, and Shell) located at the corner of Foothill Boulevard and High Street in Oakland, California.

This work plan includes a brief discussion of site background, scope of work, schedule, and procedures (Attachment A).

SITE BACKGROUND

The site is located at the northwest corner of the intersection of Foothill Boulevard and High Street in Oakland, California. Land use near the site is commercial and residential including several known fuel leak cases, as described above.

In December 1987, the station was remodeled and three steel underground storage tanks (USTs) and one fiberglass waste oil tank were removed from the site. Soil samples collected beneath these tanks contained low or non-detectable concentrations of hydrocarbons. The excavation, based on available data, included the removal of the fill materials associated with the tanks. The three steel USTs were replaced with 10,000-gallon double-walled fiberglass tanks. The fiberglass waste oil tank was intact and placed back into the excavation.

ENVIRONMENTAL
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Previous Investigations

Soil and groundwater investigations at the site have included: the installation of one soil boring (C-A) and nine groundwater monitoring wells (C-1 through C-9); soil sampling of the former UST excavations; operation of a groundwater extraction system (Well C-2); limited off-site data collection and evaluation; separate-phase hydrocarbon (SPH) bailing (Well C-2); and quarterly groundwater monitoring (initiated in 1989). The findings of these investigations are summarized below:

- Evaluation of subsurface data collected from the three fuel leak cases that exist at the corner of Foothill Boulevard and High Street indicate that these sites are underlain by three relatively continuous sand lenses interbedded with silt and clay to a depth of approximately 55 feet below ground surface (bgs).
- Groundwater elevations (March 1995) vary at the three service stations (Chevron 26.39 to 5.44 feet above mean sea level [MSL]; Shell 32.22 to 30.27 feet MSL, and BP/Mobile 30.25 to 10.60 feet MSL).
- Recent depth to groundwater measurements (March 1995) collected from Chevron site wells indicate that groundwater occurs on site at depths ranging from approximately 12 to 19 feet bgs, and off site at depths ranging from approximately 5 to 9 feet bgs. *← ~30' is this wrong?*
- Groundwater flow direction at the three sites is somewhat variant. Groundwater flow direction at the Chevron and Shell sites is to the south to southwest. Groundwater flow direction at the BP/Mobile site is generally toward the west to northwest. Gradient at the three sites during the March 1995 monitoring event ranged from 0.03 (Shell and BP/Mobil) to 0.08 foot per foot (Chevron).
- Hydrocarbon concentrations in soils beneath the former USTs and waste oil tank at the Chevron site were low or not detected. Hydrocarbon impact to soil was identified at a maximum concentration in soil samples collected at a depth of approximately 10 feet bgs from Boring C-A and the boring for Well C-2 located downgradient of the station product facilities. Hydrocarbons identified in soils at this depth are interpreted to be a result of capillary fringe impact associated with dissolved hydrocarbons within groundwater.
- SPH were removed from Chevron Well C-2 via bailing from 1989 to 1993. SPH have not been observed in this well since this time.
- Dissolved hydrocarbons occur beneath the Chevron site. Total petroleum hydrocarbons calculated as gasoline (TPH-g) concentrations

ranged from none detected to 100,000 parts per billion (ppb) during the March 1995 sampling event. Benzene concentrations ranged from none detected to 8,700 ppb. The highest TPH-g and benzene concentrations were observed in on-site Wells C-2 and C-4, respectively.

- Based on March 1995 sampling data, groundwater impact at the Shell site consists of dissolved TPH-g (7,600 to 30,000 ppb) and benzene (330 to 2,800 ppb). This site appears to be upgradient of the Chevron site.
- In general, groundwater impact at the BP/Mobile site consists of the presence of SPH in one site well and relatively low dissolved hydrocarbon concentrations in other site wells. This site appears to potentially upgradient of the Chevron site.
- Dissolved hydrocarbon concentrations at the Chevron site are defined to non-detectable levels to the west by on-site Wells C-3 and C-5, and southwest by off-site Well C-8. In the southern direction further delineation is necessary downgradient of off-site Well C-7.

SCOPE OF WORK

To supplement the previous work at the site and to complete delineation of dissolved hydrocarbons downgradient of Well C-7, one well is proposed to be installed during this investigation. The specific scope of work is detailed below.

- **Well Installation.** Off-site Well C-9 is proposed downgradient of Well C-7 in the Lucky Supermarket parking lot (Figure 1). The boring for Well C-9 will be continuously cored to better define subsurface lithology. Field and laboratory procedures are presented as Attachment A.
- **Soil Analyses.** Selected soil samples will be analyzed in the laboratory for the presence of TPH-g, benzene, toluene, ethylbenzene, and xylenes (BTEX compounds) based on photo-ionization detector measurements and field observations.
- **Well Elevation Survey, Well Development, and Well Sampling.** The new well will be surveyed to MSL by a state-certified surveyor. The well will be developed in accordance with protocol outlined in Attachment A. The well will be sampled during the next quarterly sampling event scheduled during the third quarter 1995.
- **Reporting.** A report documenting the findings of the investigation will be submitted upon completion of the work.

*what about deal?
(Shell contaminant)*

SCHEDULE

Upon approval of the work plan by Chevron and Alameda County Health Care Services, PACIFIC will commence field work after the acquisition of the necessary permits. This is anticipated to take approximately 6 weeks due to the location of the downgradient well on private property. The time frame required to secure encroachment onto this property is therefore very approximate. Approximately 3 to 4 weeks after completion of field work, the report of findings will be submitted to Chevron and Alameda County Health Care Services.

If you have any questions regarding this letter, please call.

Sincerely,

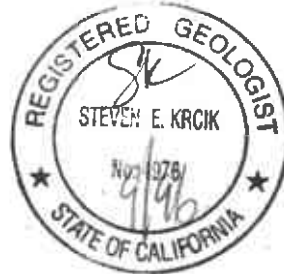
Pacific Environmental Group, Inc.



David A. Reinsma
Project Geologist



Steven E. Krcik
Project Geologist
RG 4976



Attachments: Figure 1 - Extended Site Map
Attachment A - Field and Laboratory Procedures



EAST 17th STREET

C-8

C-6

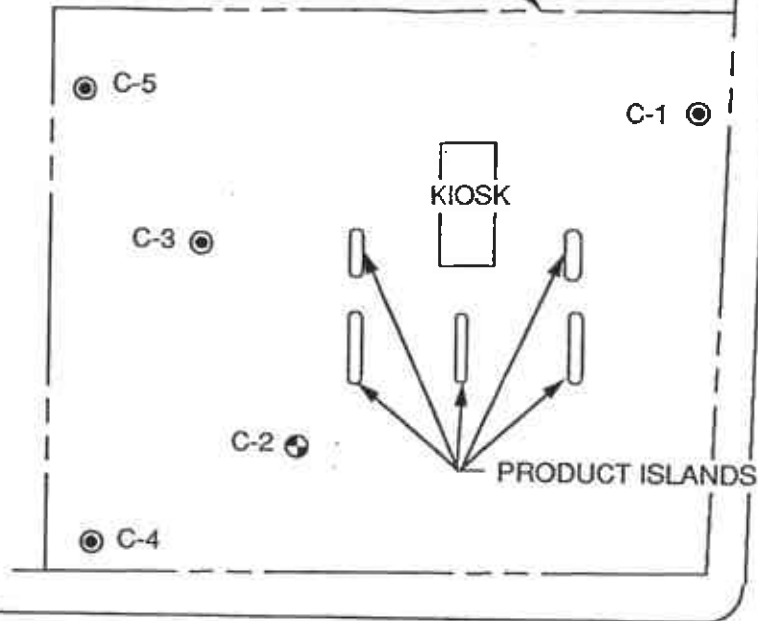
BOND STREET

C-7

C-9

LUCKY'S SUPERMARKET

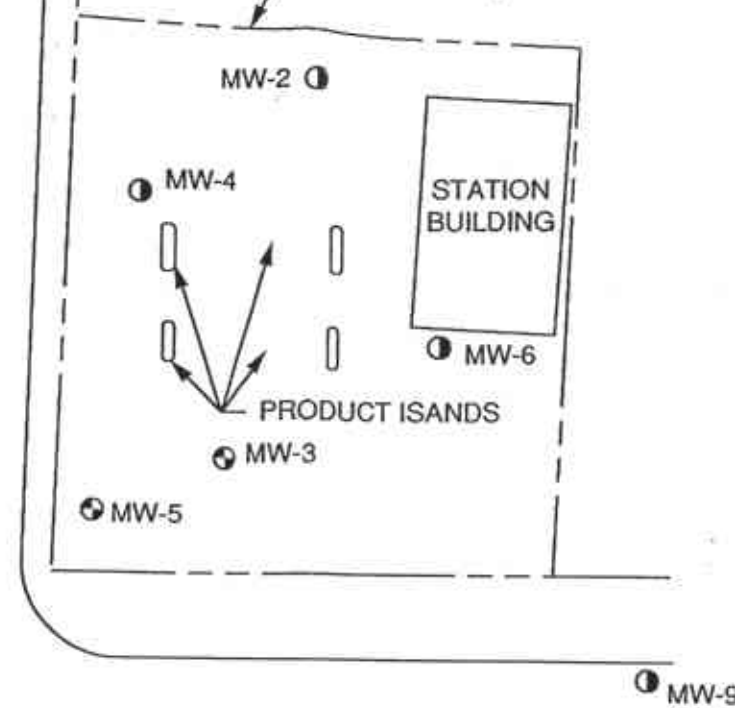
SITE LOCATION



MW-8

FOOTHILL BOULEVARD

BP SERVICE STATION



HIGH STREET

CANOPY

S-3

S-2

PRODUCT ISLANDS

UNDERGROUND FUEL STORAGE TANKS

FORMER WASTE OIL TANK

S-1

CANOPY

SHELL SERVICE STATION

STATION BUILDING

PRODUCT ISLANDS

LEGEND

- C-1 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION, (CHEVRON)
- S-3 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION, (SHELL)
- MW-5 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION, (BP)
- C-2 ● GROUNDWATER EXTRACTION WELL LOCATION AND DESIGNATION
- C-9 ⊕ PROPOSED GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION



PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE



CHEVRON U.S.A. SERVICE STATION 9-0076
4265 Foothill Boulevard at High Street
Oakland, California

EXTENDED SITE MAP

FIGURE:
1
PROJECT:
325-024.1B

ATTACHMENT A
FIELD AND LABORATORY PROCEDURES

ATTACHMENT A

FIELD AND LABORATORY PROCEDURES

Drilling and Soil Sampling Procedures

The proposed groundwater monitoring well will be drilled using 8-inch diameter hollow-stem auger drilling equipment, and will be logged by a Pacific Environmental Group, Inc. (PACIFIC) geologist using the Unified Soil Classification System and standard geologic techniques. The soil boring will be continuously cored to better define subsurface conditions. Soil samples for logging and possible chemical analysis will be collected at 5-foot depth intervals at abrupt changes in lithology or areas of visible contamination by pushing a brass liner into the cored material. Soil samples for possible chemical analysis will be capped with Teflon and plastic end caps, and sealed in clean, self-sealing plastic bags. These samples will be placed on ice for transport to a California State-certified laboratory, accompanied by chain-of-custody documentation. All down-hole drilling and sampling equipment will be steam-cleaned following the completion of the soil boring. Between samples, down-hole sampling equipment will be washed in a trisodium phosphate solution.

Organic Vapor Procedures

Soil samples collected in the field will be analyzed using the HNU Model PI 101 photo-ionization detector with a 10.2 eV lamp. The test procedure will involve measuring approximately 30 grams from an undisturbed soil sample, placing this subsample in a clean, self-sealing plastic bag, and sealing the sample. The bag will be warmed for approximately 20 minutes, pierced, and the head-space within the bag tested for total organic vapor, measured in parts per million as benzene (ppm; volume/volume). The instrument will be previously calibrated using a 100-ppm isobutylene standard (in air) and a sensitivity factor of 0.55, which relates the photo-ionization sensitivity of benzene to the sensitivity of isobutylene. The results of these tests will be recorded on the boring log.

Well Construction Procedures

The proposed well will be constructed within an 8-inch diameter boring by the installation of a 2-inch diameter flush-threaded Schedule 40 PVC casing and factory-slotted well screen with

0.020-inch slots. Lonestar 2/12 sand will be placed in the annular space across the entire screened interval and extending approximately 2 feet above the top of the screen. A bentonite and concrete seal will be placed from the top of the sand pack to the ground surface. A locking cap and protective vault box will be installed on the top of the well. Specific well construction details will be documented the boring log.

Well Development and Groundwater Sampling Procedures

The well development procedure will consist of first measuring the water level in the well with an electronic water-level indicator, and checking the well for the presence of separate-phase hydrocarbons using a clear Teflon bailer or an oil-water interface probe. The well will then be surged using a surge block which forces the fine-grained material out of the sandpack and back into the formation. After surging, the well will be purged of approximately ten casing volumes of water using a bailer or centrifugal pump, during which time temperature, pH, and electrical conductivity will be monitored to indicate that a representative sample will be obtained. After purging, the water level in the well will be allowed to restabilize. Groundwater samples will be then collected using a Teflon bailer, placed into appropriate EPA-approved containers, labeled, logged onto chain-of-custody documents, and transported on ice to a California State-certified laboratory.

Steam-Clean, Well Development, and Well Purge Waters Disposal Procedures

Water generated during steam-cleaning of drilling equipment will be stored on site in 55-gallon DOT Type 17 drums. This water will be subsequently pumped into a 500-gallon water transportation trailer. Waters removed from the wells during development and sampling will be placed directly into the water transportation trailer. Upon completion of the work on site, all waters will be transported to the Chevron Richmond Marketing Terminal and injected into the treatment system for processing and discharge.

Soil Stockpile Sampling, Storage, and Disposal Procedures

Soil generated during the drilling event will be stockpiled on visqueen in the northern portion of the site. The stockpile will be covered with visqueen at the completion of each day's work. At the completion of drilling activities, representative samples will be collected from the stockpile by PACIFIC personnel and composited by the laboratory prior to analysis. The composite sample will be analyzed for total petroleum hydrocarbons calculated as gasoline (TPH-g), benzene, toluene, ethylbenzene, and xylenes (BTEX compounds). Following soil profiling, spoils will be transported, by a California State-certified hauler, to an appropriate landfill facility.

Laboratory Procedures

Soil and groundwater samples collected from the boring and monitoring well will be analyzed for the presence of TPH-g by modified EPA Method 8015, and BTEX compounds by EPA Method 8020.