PACIFIC
ENVIRONMENTAL
GROUP, INC.

January 29, 1996
Project 320-162.1A

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

Re: [redacted]
Former Signal Service Station 0800
800 Center Street
Oakland, California

Dear Mr. Miller:

This letter, prepared by Pacific Environmental Group, Inc. (PACIFIC) on behalf of Chevron U.S.A. Products Company (Chevron), presents a work plan to investigate soil and groundwater conditions at the site referenced above. The work plan was requested by the Alameda County Health Care Services Agency (ACHCSA). The scope of work will consist of installing seven shallow soil borings and collecting grab groundwater samples.

This work plan includes a discussion of site background, scope of work, and proposed field and analytical procedures (Attachment A).

SITE BACKGROUND

The site is located at the northeast corner of the intersection of 8th Street and Center Street in Oakland, California. The former station building and the former pump islands remain at the site; however, the site is currently unoccupied. Land use near the site is commercial and residential.

The site was utilized as a retail service station from 1932 to the early 1970s. Station facilities included four 1,000-gallon fuel underground storage tanks (USTs), a waste oil tank, a product island, and associated piping. The USTs were reportedly removed from the site during 1973.

Previous Investigations

Previous investigations at the site have been conducted by Subsurface Consultants, Inc. (SCI) and Groundwater Technology, Inc. (GTI). In August 1989, SCI installed and sampled five soil borings ranging in depth from 4.5 to 26 feet below ground surface (bgs). Temporary groundwater monitoring wells were installed in two of the five borings. In October 1995, GTI installed three additional soil borings to a depth of 12 feet bgs, and four groundwater monitoring wells to a depth of 15 feet bgs. The reports documenting these investigations are denoted in the reference section of this letter.

A brief discussion of the findings of these investigations are summarized below:

- The lithology encountered during the site investigations indicates that the site is underlain by soils consisting of sandy clay to sandy clayey silt.
- In August 1989, groundwater was encountered at depths of 11 to 13 feet bgs; in October 1995, groundwater was encountered at depths of 10 to 11 feet bgs. Based on recently installed groundwater monitoring wells, the groundwater flow direction at the site is toward the southwest at a gradient of 0.002 foot per foot.
- Analytical results of soils indicate that petroleum hydrocarbon concentrations are present in the area adjacent to the former pump island and in the vicinity of the former USTs. Petroleum hydrocarbon concentrations in soils are generally highest at the 10 to 12 foot bgs interval. During the October 1995 soil and groundwater investigation, total petroleum hydrocarbons calculated as gasoline (TPH-g) in soils ranged from 950 parts per million (ppm) in Boring 3 to 31,000 ppm in Boring 2 (beneath the former USTs). During the October 1995 investigation, TPH-g concentrations ranged from below detection limit in Wells MW-2, MW-3, and MW-4, to 14,000 ppm in Well MW-1.
- Recent analytical results of groundwater beneath the site indicate that TPH-g concentrations range from below detection limit in Well MW-2 (in the southeastern corner of the site) to 170,000 parts per billion (ppb) in Well MW-1 (near the former UST). Benzene concentrations ranged from below detection limit in Well MW-2 to 33,000 ppb in Well MW-1.

- Hydrocarbon concentrations in groundwater at the site are defined to the south and to the southeast by groundwater monitoring Wells MW-2 and MW-4, respectively. Further delineation is necessary to the northeast, to the north, and to the northwest.

SCOPE OF WORK

To supplement the previous work at the site and to complete delineation of hydrocarbons in groundwater in the vicinity of the site, a total of seven soil borings are proposed to be installed during this investigation. The specific scope of work is detailed below.

- **Geoprobe Borings.** Six to seven geoprobe borings are proposed both on and off site. One boring will be placed to the northeast near the station building to delineate hydrocarbons in the upgradient direction and to evaluate the hydrocarbons detected in soil below the former hydraulic cylinder. One boring will be placed to the north of the former USTs, and one boring will be placed to the west of the former USTs, along Center Street to evaluate the lateral extent of hydrocarbons in this area. If it is determined by field analysis that the northern boring contains hydrocarbons, an additional boring will be placed further north. Two soil borings will be placed off-site southwest of the former USTs and product island to evaluate the extent of hydrocarbons in the downgradient direction. One boring will be placed in Center Street, downgradient of the former USTs, and one boring will be placed at the corner of Eighth and Center Streets in the downgradient direction. Depending on field indications of soil and groundwater quality at the boring placed at the corner of Eighth and Center Streets, an additional boring may be installed either to the northeast or southwest of this boring. Proposed field and laboratory procedures are presented as Attachment A.

- **Soil Analyses.** Selected soil samples will be analyzed in the laboratory for the presence of total purgeable petroleum hydrocarbons calculated as gasoline (TPPH-g), benzene, toluene, ethylbenzene, and xylenes (BTEX compounds) based on photo-ionization detector measurements and field observations.

- **Groundwater Analysis.** Selected groundwater samples will be collected from the geoprobe borings and will be analyzed for TPPH-g

and BTEX compounds. Groundwater analytical data will be documented in the report of findings.

- **Reporting.** A report summarizing the findings of the investigation will be submitted to Chevron. The report will include a discussion of findings, soil and groundwater analytical data, field and analytical procedures, and boring logs.

SCHEDULE

Upon approval of the work plan by Chevron and ACHCSA, PACIFIC will commence field work within 2 weeks after the acquisition of the necessary permits. The report documenting the findings of the investigation is anticipated to be submitted to Chevron within 6 weeks after commencement of field work.

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

Sincerely,

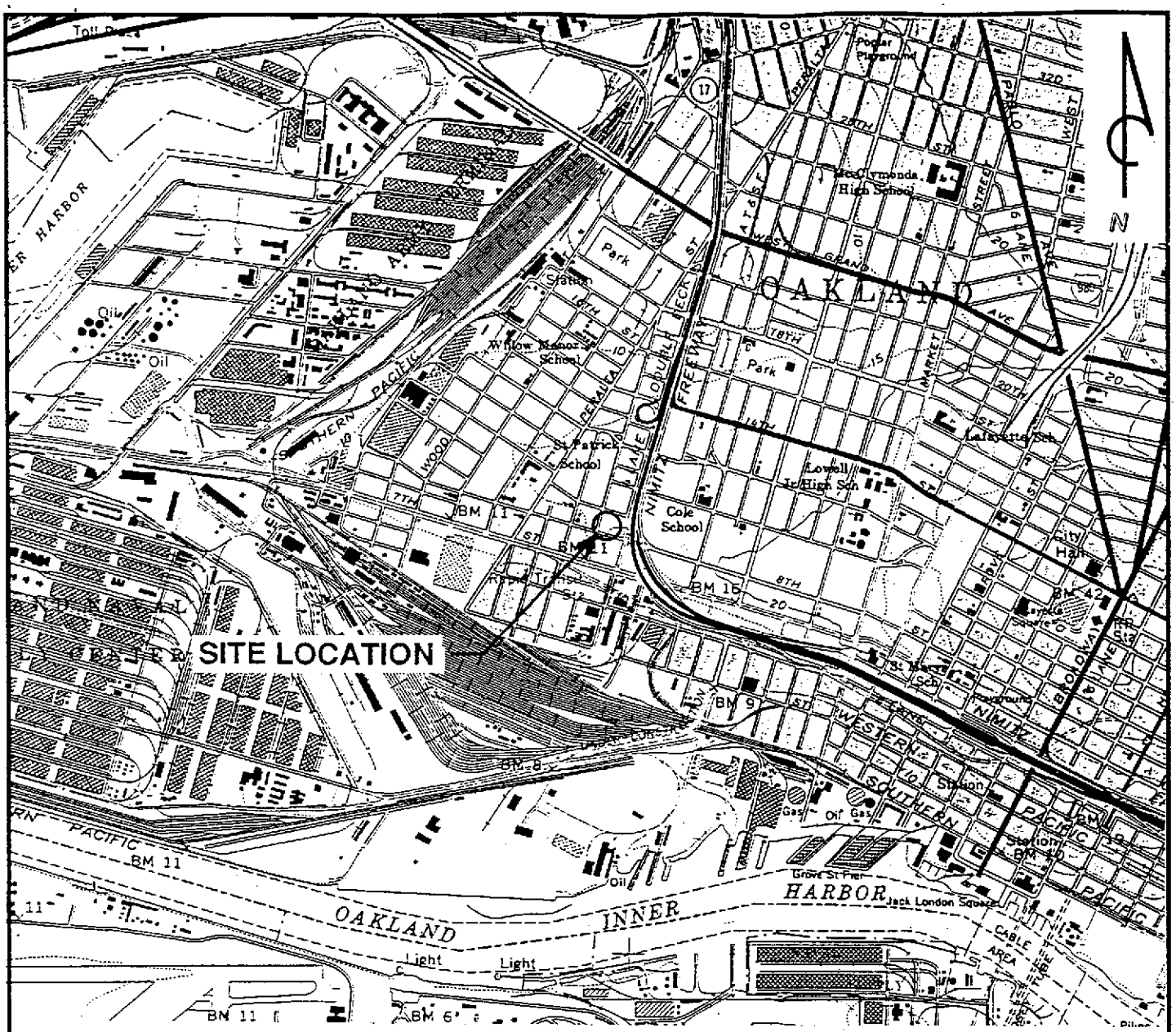
Pacific Environmental Group, Inc.

Mark D. Sullivan
Project Engineer

Michael Hurd
Senior Geologist
CHG 0068

REGISTERED GEOLOGIST
MICHAEL HURD
No. 0068
CERTIFIED
HYDROGEOLOGIST
EXP. 9/95
STATE OF CALIFORNIA

Attachments: Figure 1 - Site Location Map
Figure 2 - Site Map
Attachment A - Proposed Field and Laboratory Procedures



QUADRANGLE LOCATION

REFERENCES:
USGS 7.5 MIN. TOPOGRAPHIC MAP
TITLED: OAKLAND WEST, CALIFORNIA
DATED: 1959 REVISED: 1980

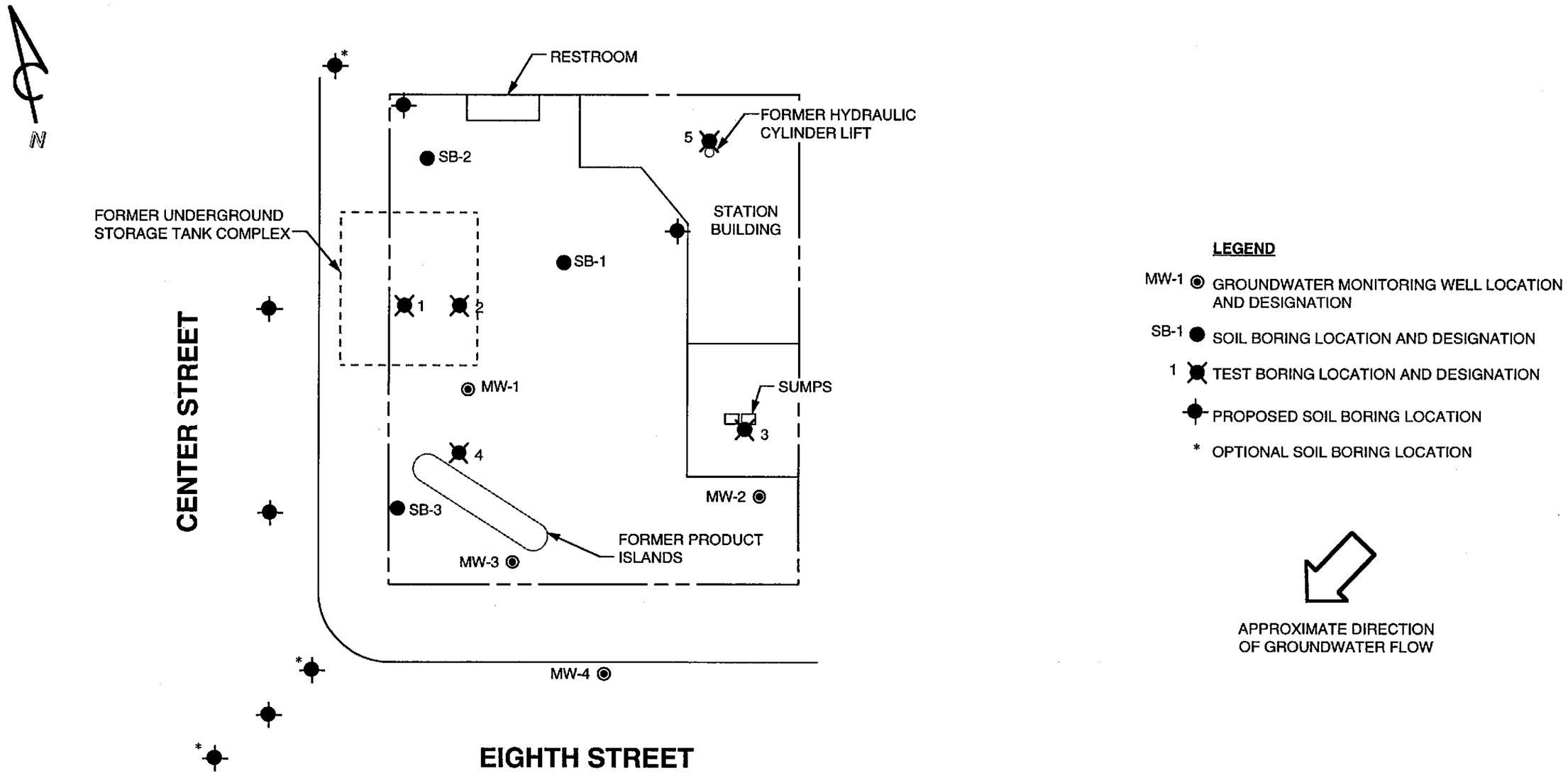
SCALE IN FEET
2000 0 2000

PACIFIC ENVIRONMENTAL GROUP, INC.

CHEVRON U.S.A. SERVICE STATION S0800
800 Center Street at Eighth Street
Oakland, California

SITE LOCATION MAP

FIGURE: 1
PROJECT: 320-162.1A



SOURCE: MAP BY GROUNDWATER TECHNOLOGY; DATED: 3-7-95

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SCALE
0 20 40 FEET

CHEVRON U.S.A. SERVICE STATION S0800
800 Center Street at Eighth Street
Oakland, California

SITE MAP

FIGURE:
2
PROJECT:
320-162.1A

ATTACHMENT A

PROPOSED FIELD AND LABORATORY PROCEDURES

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PROPOSED FIELD AND LABORATORY PROCEDURES

Soil Boring Drilling Procedures

The geoprobe soil borings will be advanced using 2-inch diameter hollow-stem rods fitted with acetate liners for continuous soil core sample recovery when needed. The borings will be logged by a Pacific Environmental Group, Inc. (PACIFIC) geologist using the Unified Soil Classification System and standard geologic techniques. Soil samples for logging and laboratory analysis will be collected at a minimum of five feet or continuous core by advancing the hollow-stem rods into undisturbed soil. The sampler will be driven a maximum of 2 to 4 feet using a pneumatic hammer and hydraulic pressure. Soil samples will be analyzed in the field for volatile organic compounds (VOCs) using a photo-ionization detector (PID) by a PACIFIC Geologist. Results of the PID tests will be used to assist in selection of samples for laboratory analysis. Soil samples for chemical analysis will be retained in the acetate liners, capped with Teflon® and plastic end caps and sealed in zip-lock plastic bags. These samples will be placed in a cooler with ice for transport to a California State-certified laboratory accompanied by chain-of-custody documentation. The temperature of the cooler will be recorded upon delivery to the laboratory.

All down-hole drilling equipment will be steam-cleaned prior to drilling and between boring locations.

Organic Vapor Procedures

Soil samples collected during field work will be analyzed in the field for ionizable organic compounds using the HNU Model PI 101 PID with a 10.2 eV lamp. The test procedure involves measuring approximately 30 grams from an undisturbed soil sample, placing this subsample in a clean glass jar, and sealing the jar with aluminum foil secured under a ring-type threaded lid. The jar is then warmed for approximately 20 minutes, then the foil is pierced and the head-space within the jar is tested for total organic vapor measured in parts per million as benzene (ppm; volume/volume). The instrument is previously calibrated using a 100-ppm isobutylene standard (in air) and a sensitivity factor of 0.7, which relates the photo-ionization sensitivity of benzene (7.0 ppm) to that of isobutylene.

Laboratory Procedures

Selected soil samples from the soil borings will be analyzed in the laboratory for the presence of total petroleum hydrocarbons calculated as gasoline, benzene, toluene, ethylbenzene, and xylenes by modified EPA Methods 8015 and 8020. The samples will be examined using the purge and trap technique, with final detection by gas chromatography using a flame-ionization detector as well as a PID. All analyses will be performed by a California State-certified laboratory.