Chevron U.S.A. Inc.
2410 Camino Ramon, San Ramon, California • Phone (415) 842-9500
Mail Address: P.O. Box 5004, San Ramon, CA 94583-0804

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Marketing Operations

R. B. Bellinger
Manager, Operations
S. L. Patterson
Area, Manager, Operations
C. G. Trimbach
Manager, Engineering

March 1, 1991

Mr. Rafat Shahid
Alameda County
Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Re: Chevron Service Station #9-1740
6550 Moraga Avenue
Oakland, CA 94611

Dear Mr. Shahid:

Enclosed we are forwarding a Work Plan prepared by our consultant Pacific Environmental Group, Inc. which describes work steps we propose to take at the above referenced site in preparation for station abandonment in September, 1991. We would appreciate your review and concurrence. Chevron will proceed under self direction unless otherwise informed by your office.

If you have any questions or comments please do not hesitate to call me at (415) 842 - 9625.

Very truly yours,
C. G. Trimbach

By _____
Nancy L. Yukelich

NLV/jmr
Enclosure

cc: Mr. Lester Feldman
RWQCB-Bay Area
1800 Harrison Street
Suite # 700
Oakland, CA 94612

Mr. W.T. Scudder
Chevron Property Management Specialist

PACIFIC
ENVIRONMENTAL
GROUP INC.

T.L.H.

February 27, 1991
Project 320-94.01

Chevron USA, Inc.
P.O. Box 5004
San Ramon, California 94583-0804

Attn: Ms. Nancy Vukelich

Re: Chevron USA Station #1740
6550 Moraga Avenue
Oakland, California

Dear Ms. Vukelich:

This letter presents a workplan prepared by Pacific Environmental Group, Inc. (PACIFIC) for a preliminary soil and groundwater investigation at the Chevron USA service station referenced above.

BACKGROUND

Site Description

The site is currently an active Chevron USA service station located at 6550 Moraga Boulevard in Oakland, California (Figure 1). The site lies within a predominantly commercial area. Figure 2 presents the general service station layout, including station building, product islands and existing underground storage tanks.

The service station currently has four underground fuel storage tanks (three 8,000-gallon fiberglass gasoline storage tanks and one 10,000-gallon fiberglass diesel tank). An underground waste oil tank (1,000-gallon steel) is located west of the service station building. The waste oil, diesel, and gasoline tanks were installed in 1964, 1979, and 1981, respectively.

1601 Civic Center Drive, Suite 202, Santa Clara, California 95050 (408) 984-6563 FAX: (408) 243-3911
620 Contra Costa Boulevard, Suite 209, Pleasant Hill, California 94523 (415) 825-0855 FAX: (415) 825-0882

Hydrogeologic Setting

The site lies on the western slope of the Berkeley Hills in Oakland, California, at an elevation of approximately 600 feet above mean sea level. The area is of moderate relief and the site is located within close proximity of the Hayward Fault Zone (Figure 1). The Hayward Fault is a right-lateral strike-slip fault trending northwest-southeast along the eastern San Francisco Bay Region. The site slopes toward the southwest, and according to regional data is underlain by coarse and medium grained Quaternary alluvial and colluvial deposits (Figure 1).

The most significant natural drainage near the site is Shephard Creek located approximately 1,400 feet southeast of the site. Shephard Creek is an unlined perennial stream which flows southwesterly into the northern portion of San Francisco Bay. Regional groundwater flow in the vicinity of the site, based on topography, is to the southwest. However, local flow direction may be affected by the fault. Groundwater at the site is anticipated at a depth of approximately 30 feet.

PROPOSED SCOPE OF WORK

To evaluate the soil and groundwater conditions beneath the site, PACIFIC proposes installing four groundwater monitoring wells. The monitoring wells will be constructed of 3-inch diameter, schedule 40 PVC casing, and will be constructed in accordance with California Department of Water Resources guidelines for monitoring well installation. Exploratory boring and monitoring well installation procedures are included in Attachment A. The proposed well locations are shown on Figure 2.

Two groundwater monitoring wells are to be placed in the inferred downgradient direction of the existing underground fuel storage tanks to characterize downgradient soil and groundwater conditions (inferred southwesterly groundwater flow direction). One well is to be placed adjacent to Mountain Boulevard in the inferred upgradient to crossgradient direction. In addition, one well will be placed adjacent to the existing waste oil tank.

After installation, the groundwater monitoring wells will be developed and sampled. Before sampling, water levels will be measured in each well and they will be checked for separate-phase hydrocarbons. Sampling procedures are discussed in Attachment A.

Laboratory Analysis

All groundwater samples and selected soil samples will be analyzed by a State-certified laboratory for low-boiling hydrocarbons (calculated as gasoline) including benzene, toluene, ethylbenzene and xylenes, and high-boiling hydrocarbons calculated as diesel. In addition, soil samples in the vicinity of the waste oil tank will be analyzed for oil and grease and volatile organic compounds. Laboratory analyses are discussed in Attachment A.

Report

Upon completion of the above-described field work, a report will be prepared and submitted to Chevron USA. The report will include boring logs, well completion details, soil and groundwater analytical results, a groundwater contour map, a summary of findings, and recommendations, if appropriate.

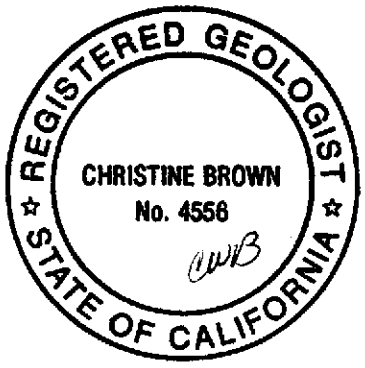
If you have any questions or comments regarding the contents of this work plan, please do not hesitate to call.

Sincerely,

Pacific Environmental Group, Inc.

Jerry Mitchell
Project Geologist

Christine W. Brown
Senior Geologist
RG 4556



REFERENCES

U.S. Geological Survey, 1979, *Flatland Deposits - Their Geology and Engineering Properties and Their Importance to Comprehensive Planning, Selected Examples from the San Francisco Bay Region, California*, U.S. Geological Survey Professional Paper 943.

Department of Water Resources, 1975, *Evaluation of Groundwater Resources, South Bay San Francisco*, Volume III; Bulletin 118-1.

Santa Clara Valley Water District, September 1989, Elevation of Groundwater, North County Map.

ATTACHMENT A

INVESTIGATIVE PROCEDURES

ATTACHMENT A

INVESTIGATIVE PROCEDURES

Exploratory Borings and Monitoring Well Installation

The soil borings will be drilled with hollow-stem auger drilling equipment and will be logged by a PACIFIC geologist using the Unified Soil Classification System and standard geologic techniques. Soil samples for logging and chemical analysis will be collected at 5-foot depth intervals and at significant lithologic changes by advancing a California-modified split-spoon sampler with brass liners into undisturbed soil beyond the tip of the auger. The sampler will be driven a maximum of 18 inches using a 140-pound hammer with a 30-inch drop. Soil samples for chemical analysis will be retained in brass liners, wrapped with aluminum foil and plastic end caps, and sealed in clean glass containers. These samples will be placed on ice for transport to the laboratory accompanied by chain-of-custody documentation.

Soil samples collected during drilling will be analyzed in the field for ionizable organic compounds using the H-NU Model PI 101 photoionization detector with a 10.2 eV lamp. The test procedure involves measuring approximately 30 grams from an undisturbed soil sample, placing this sub-sample in a clean glass jar, and sealing the jar with aluminum foil secured under a ring-type threaded lid. The jar is 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 will be calibrated prior to drilling using a 100 ppm isobutylene standard (in air) and a sensitivity factor of 0.7, which relates the photoionization potential of isobutylene (7.0 ppm) to benzene. The results of the field testing will be noted on the exploratory boring logs.

The borings to be converted to groundwater monitoring wells will penetrate a maximum of 20 feet into the water-bearing zone, taking care not to penetrate a 5-foot thick aquitard. Three-inch diameter Schedule 40 PVC casing and 0.020-inch factory-slotted screen will then be installed. Graded sand pack will be placed into the annular space across the screen interval, and will extend approximately 2 to 3 feet above the top of the screens. 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 each well. The well locations will be noted, and the surface elevation of each vault box and top of casing will be surveyed to the nearest 0.01 foot based on the mean sea level datum by a licensed surveyor. This information will be used to calculate the groundwater flow direction and gradient.

All downhole drilling equipment will be steam cleaned between each boring and monitoring well. Steam cleaning water will be contained in 55-gallon drums and secured at the site pending disposal.

Groundwater Sampling

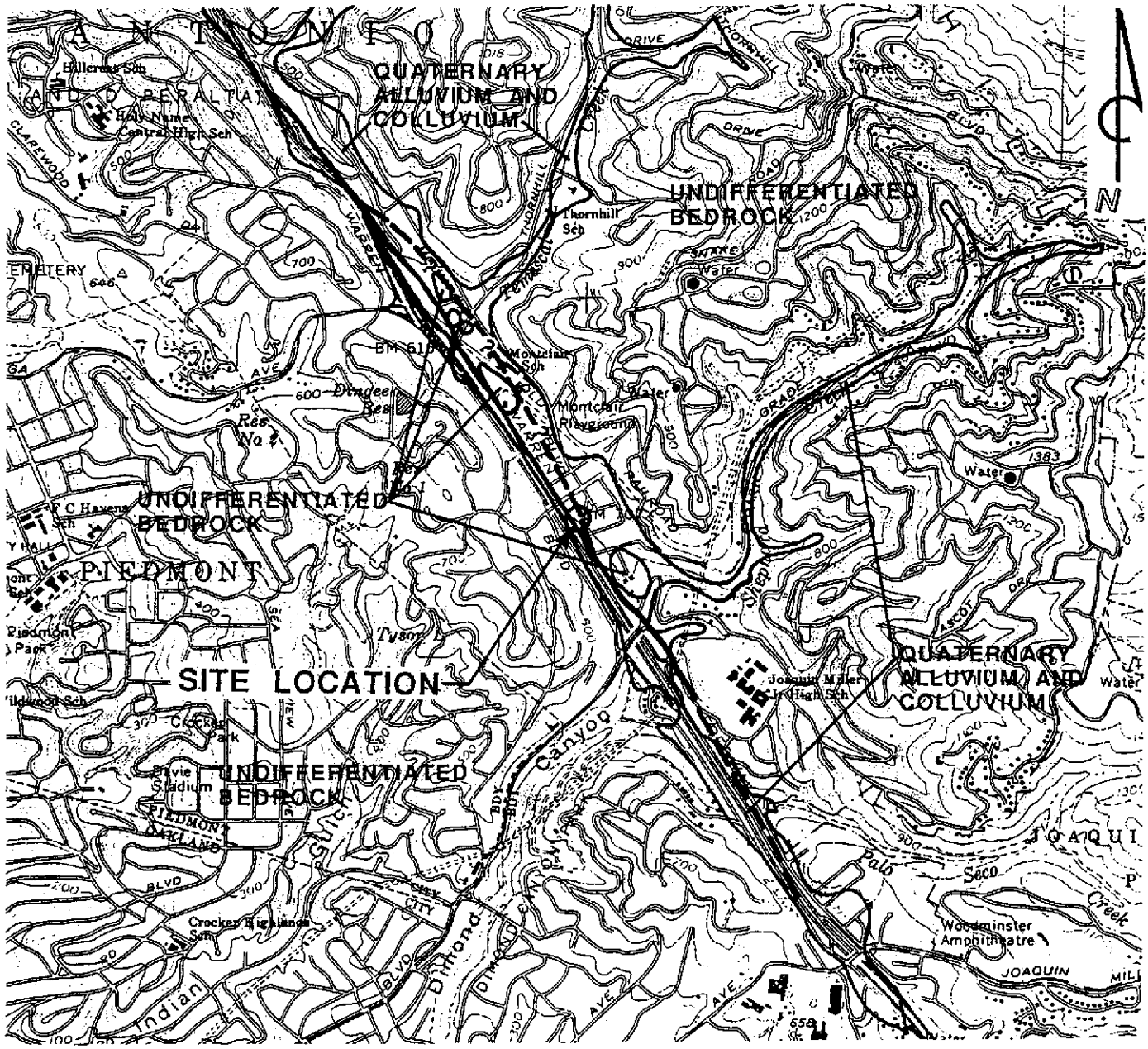
The wells will be developed after installation by surging and pumping until the water pumped from the well is substantially free of sediment. The wells will not be sampled until at least 24 hours after installation, and will be allowed to recover for 24 hours after development prior to sampling.

Site groundwater monitoring wells will be sampled by first measuring the water level and checking for the presence of separate-phase hydrocarbons using an electronic interface probe. If no separate-phase hydrocarbons are noted, the wells will then be purged a minimum of four casing volumes of water (or until dry) using a centrifugal pump, during which time temperature, pH, and electrical conductivity will be monitored to indicate that a representative groundwater sample has been obtained. After purging, the water levels in the wells will be allowed to partially restabilize before sampling. Groundwater samples will be collected using a Teflon bailer, placed into appropriate EPA-approved containers, labeled, logged onto chain-of-custody documents, and transported on ice to the laboratory. A trip blank and a duplicate water sample will

accompany the samples to the laboratory. Well development and purged groundwater will be contained in 55-gallon drums and secured on site pending disposal.

Laboratory Analysis

Groundwater samples and selected soil samples will be analyzed for low-boiling hydrocarbons (calculated as gasoline) including benzene, toluene, ethylbenzene, and xylene (BTEX) compounds, as well as high-boiling hydrocarbons (calculated as diesel and waste oil). The analyses for low- and high-boiling hydrocarbons will be performed according to Modified EPA Method 8015 by the purge-and-trap technique, with final detection by gas chromatography using a flame-ionization detector and a photoionization detector. The analysis for BTEX will be performed according to EPA Method 602. In addition, soil samples collected in the vicinity of the waste oil tank will be analyzed for oil and grease (method 503E), and volatile organic compounds (EPA method 8240) Laboratory quality assurance documentation will accompany the laboratory results. Laboratory detection limits will be in accordance with to RWQCB minimum detection limits.



LEGEND

QUADRANGLE LOCATION

HAYWARD FAULT

GEOLOGIC CONTACT

REFERENCES

HAYWARD FAULT ZONE: Oakshott, Gordon B.; "Hayward Fault Zone and a Western Outlier of the Coast Range Thrust in the Montclair District of Oakland, California" special publication 62, (Fig. 1, p. 56) California Division of Mines and Geology, 1962

GEOLOGY: Radbroch, Dorothy H.; "Aerial and Engineering Geology of the Oakland East Quadrangle, California"; USGS Map GQ-769; 1969

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

SCALE

2000 0 2000 FEET

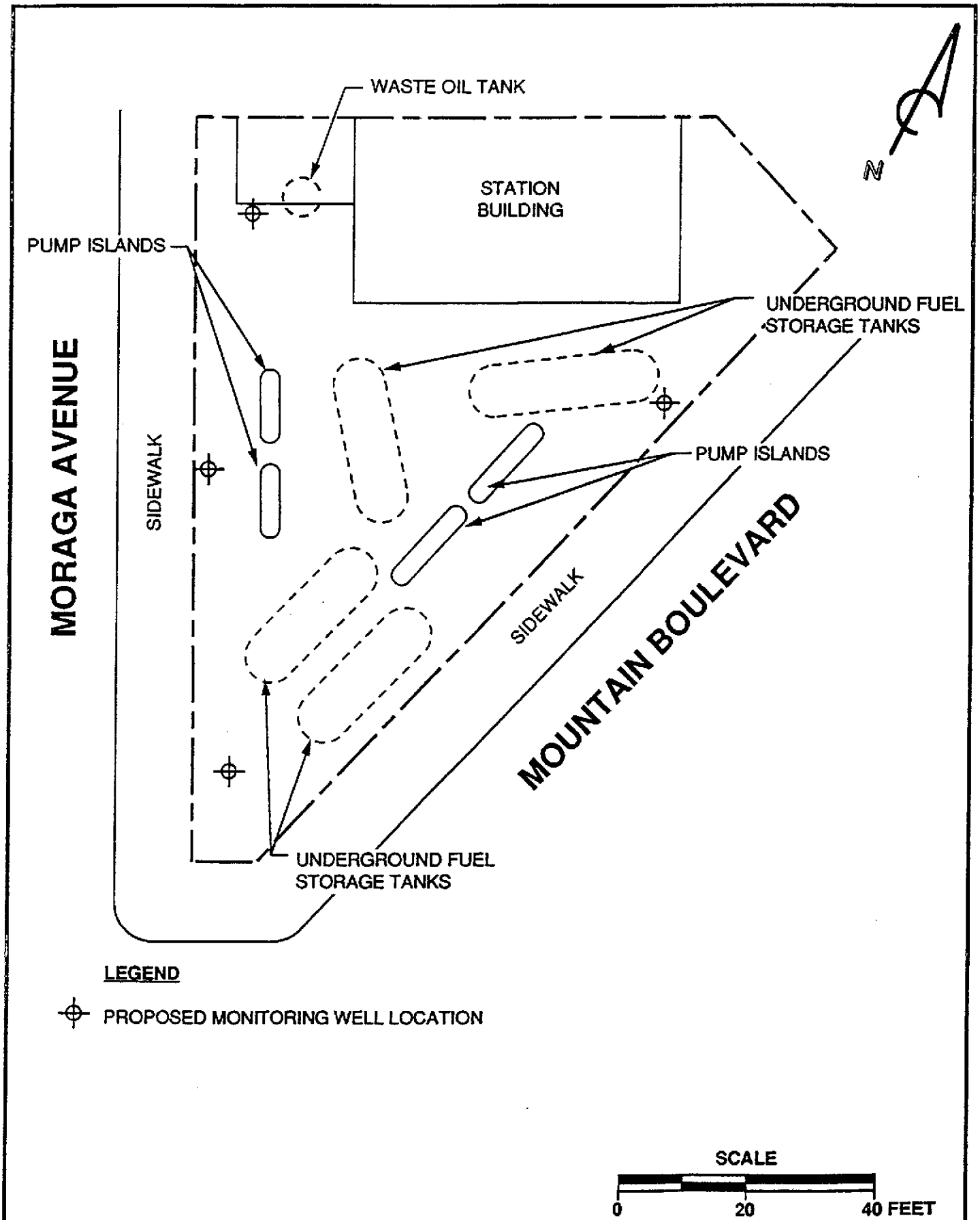
PACIFIC ENVIRONMENTAL GROUP, INC.

CHEVRON USA STATION #1740
6550 Moraga Avenue at Mountain Boulevard
Oakland, California

SITE LOCATION MAP

FIGURE: 1

PROJECT: 320-94.01



PACIFIC ENVIRONMENTAL GROUP, INC.

CHEVRON SERVICE STATION #1740
Moraga Avenue and Mountain Boulevard,
Oakland, California

SITE MAP

FIGURE:
2
PROJECT:
320-94.01