PES Environmental, Inc.
Engineering & Environmental Services

March 11, 1994

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Alameda County Health Care Services Agency
Department of Environmental Health (ACHCS)
80 Swan Way, Room 200
Oakland, California 94621

Attention: Ms. Eva Chu

WORKPLAN
MONITORING WELL INSTALLATION AND GROUNDWATER MONITORING
DUBLIN ROCK AND READY MIX FACILITY
DUBLIN, CALIFORNIA

Dear Ms. Chu:

This workplan was prepared by PES Environmental Inc. (PES) on behalf of Michael Dolan for additional groundwater investigation and quarterly groundwater monitoring at the Dublin Rock and Ready Mix facility at 6393 Scarlett Court, Dublin, California. The workplan was prepared in response to your September 30, 1993 request to Mr. Dolan.

BACKGROUND

An underground fuel storage tank was removed from the site in February 1990. The excavation was backfilled following tank removal and paved with concrete. An investigation performed in October 1990 indicated that petroleum hydrocarbons were present in soil and groundwater in the proximity of the former underground tank location (Henneman, 1990).

PES conducted an investigation in November 1991 to evaluate the presence of petroleum hydrocarbons in soil and groundwater at the site. The investigation consisted of installing four groundwater monitoring wells (Plate 1), collecting soil and groundwater samples, and performing chemical analyses. The results of PES' previous investigation were presented in a report entitled *Soil and Groundwater Investigation, Dublin Rock and Ready Mix Facility, 6393 Scarlett Court, Dublin, California,* dated January 31, 1992 (PES, 1992).

During the 1991 instigation, elevated petroleum hydrocarbon concentrations were identified in groundwater samples from a monitoring well (Well MW-2) at the former location of the underground storage tank. Low concentrations of petroleum hydrocarbons were identified in groundwater samples from a monitoring well (Well MW-4) south of the former tank.

Petroleum hydrocarbons were not detected in monitoring wells located north (Well MW-1) or southeast (Well MW-3) of the former tank.

During a 1992 soil and groundwater investigation, 13 borings were drilled to evaluate the extent of groundwater contamination at the site. Based on the results of the investigation, groundwater contamination associated with the former underground tank appears limited to the site. The results of this investigation were presented in an August 13, 1993 report entitled *Phase II Soil and Groundwater, Dublin Rock and Ready Mix Facility, Dublin, California.*

SCOPE OF WORK

The scope of work consists of: (1) the installation of two monitoring wells at the site east and west of the former underground storage tank location , and (2) quarterly monitoring of groundwater from all onsite monitoring wells for one year. The results of the monitoring will be used to evaluate whether groundwater remediation is necessary. The specific tasks to be performed are described below.

Monitoring Well Installation

The proposed locations of the monitoring wells are shown on the attached site plan. PES will retain a utility locator service and clear the proposed monitoring well locations for utilities. PES will obtain well construction permits from ACHCS. The borings will be drilled using a hollow-stem auger drilling rig to a depth of approximately 15 feet below ground surface (bgs). Soil samples will be collected at 5-foot intervals, at changes in lithology, and at the bottom of the boring by driving brass or stainless steel lined split-spoon samplers into the undisturbed soil beneath the cutting bit of the augers.

The soil samples will be screened using an organic vapor meter (OVM). Based on the results of screening and/or visual observations, one soil sample from each boring will be analyzed for total petroleum hydrocarbons quantified as gasoline (TPHg) using EPA Test Method 8015 and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Test Methods 8020.

Field and laboratory quality control (QC) procedures for the soil borings will include the following:

- All sampling equipment will be decontaminated by steam cleaning and/or washing with phosphate-free soap and rinsing with distilled water;

- All soil samples will be covered with teflon tape, capped, sealed with silicon adhesive tape, and stored on ice in a cooler until delivery to the laboratory;
- All soil sample holding times and analyses will be pursuant to the Regional Water Quality Control Board's Tri-Regional guidelines;
- All samples will be appropriately labeled and submitted to the laboratory accompanied by chain-of-custody documentation;
- All lithologic logs will be reviewed by a registered geologist or professional engineer;
- Laboratory QC will be performed pursuant to the procedures inherent with the specific methods used for analyses; and

All chemical analyses will be performed by a laboratory certified by the State of California using the approved methods described in the Tri-Regional guidelines.

All cuttings generated during drilling will be stored in 55-gallon drums on site until laboratory analysis is completed and proper disposal is arranged.

The borings will be converted to monitoring wells using 2-inch diameter flush-threaded PVC pipe and well screen. During previous site investigations, groundwater was encountered within 5 feet below the ground surface (bgs). The wells will be screened between 2.5 and 15 feet bgs. The wells will have a threaded cap on the bottom of the casing and have a clean sand pack extending from the bottom of the borehole to approximately one foot above the top of the screen. A bentonite pellet seal will be placed above the sand pack and a cement grout will be placed above the bentonite pellet seal to the ground surface. The wells will be fitted with locking water-tight plug caps and completed below grade in traffic-rated well vaults.

The wells will be developed by using a combination of surging and pumping until the discharge water is reasonably clear of sediment. Groundwater samples will be collected from the newly installed wells at least 48-hours after development. Top-of-casing elevations of the monitoring wells will be measured by a California-licensed surveyor and will be used to evaluate groundwater flow direction and gradient.

<u>Quarterly Groundwater Monitoring</u>

Quarterly groundwater monitoring of the existing four monitoring wells and the two newly-installed wells will be conducted for a period of one year. The monitoring will include: (1) measurement of water levels and free product, (2) collection of groundwater samples

from six onsite monitoring wells; and (3) chemical analyses of the groundwater samples for TPHg and BTEX using EPA Methods 8015 and 8020.

Prior to sampling from the wells, a minimum of three casing volumes will be purged using a stainless steel bladder pump equipped with a teflon bladder. Purge water will be contained on site in 55-gallon steel drums until proper disposal is arranged. Groundwater samples will be collected using a stainless steel bailer and decanted into laboratory-supplied sample containers.
The following QC procedures will be followed during the collection of groundwater samples:

- All sampling equipment will be decontaminated by steam cleaning and/or washing with phosphate-free soap and rinsing with distilled water.

- All groundwater samples will be placed in appropriate containers, preserved, and analyzed within the appropriate holding times; and

- All samples will be appropriately labeled, placed in a chilled, thermally insulated cooler, and transported to the project laboratory under appropriate chain-of-custody documentation.

Laboratory QC will be performed pursuant to the procedures inherent with the specific methods used for analyses, as follows:

- One laboratory blank will be analyzed for volatile constituents; and

- All analyses will be performed by a laboratory certified by the State of California using the approved methods described in the RWQCB's Tri-Regional guidelines.

Quarterly Reporting

PES will prepare quarterly groundwater monitoring reports for the site which will include a summary of quarterly activities, field and laboratory methods, tables summarizing previous and current chemical analysis results, and illustrations presenting monitoring well locations. The initial quarterly report will also include boring logs and well completion details. The reports will be submitted to the ACHES.

Following completion of the fourth round of monitoring, PES will evaluate the need to: (1) perform additional monitoring, (2) request no further action from the ACHCS, or (3) recommend remediation at the site.

We trust that this is the information you require at this time. Please call if you have any questions or require additional information.

Yours very truly,

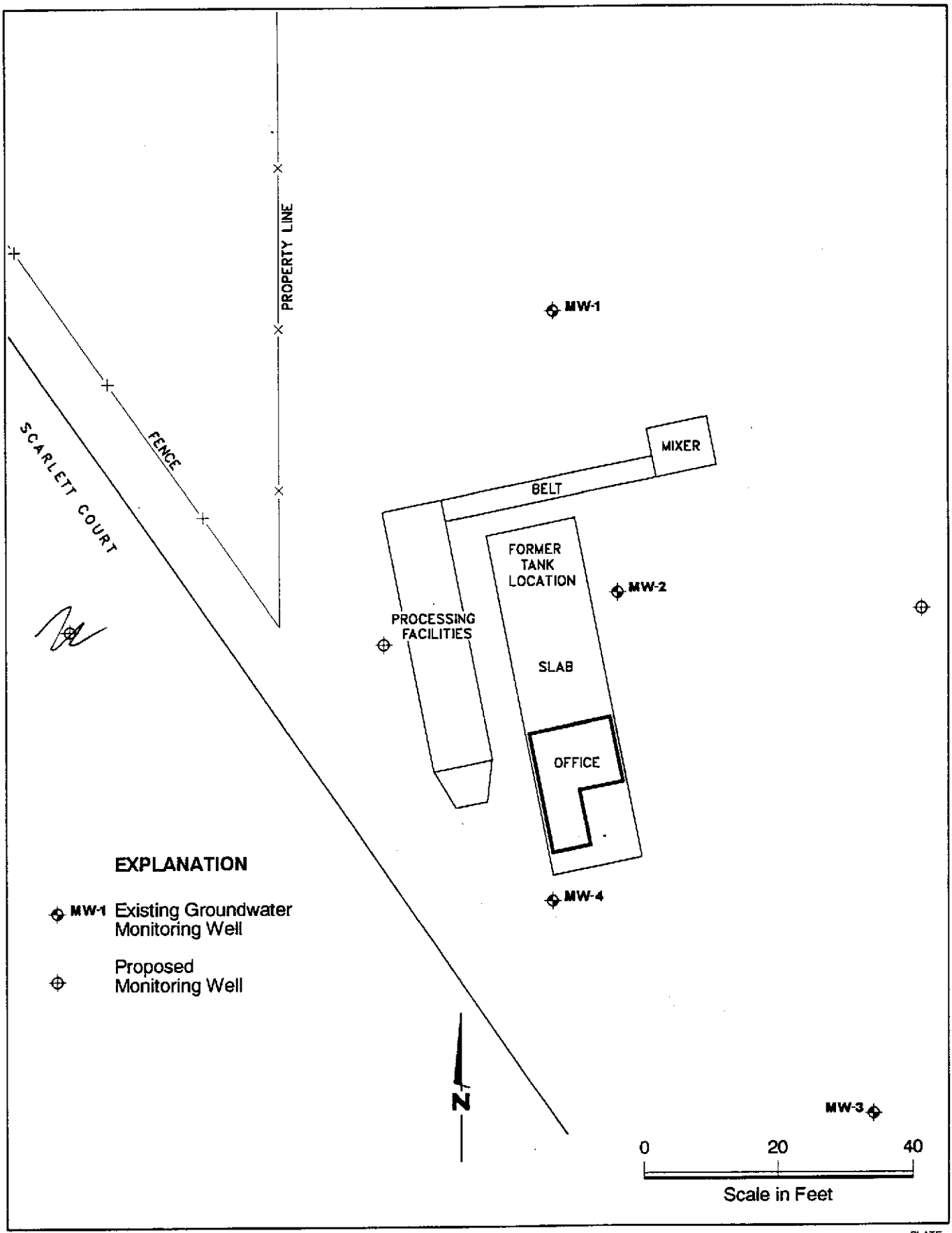
PES ENVIRONMENTAL, INC.

James R. Ash
Senior Staff Engineer

Michael D. Thompson, P.E.
Senior Engineer

Attachment: Site Plan

cc: Michael Dolan



PES Environmental, Inc.
Engineering & Environmental Services

Site Map
Dublin Rock & Ready Mix
6393 Scarlett Court
Dublin, California

PLATE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE	REVISED DATE
102.01.003		3/94		