



December 4, 1989

Mr. Marc E. Althen
Manager, Environmental Services
Penske Truck Leasing Co.
Route 10, Green Hills
P.O. Box 563
Reading, Pennsylvania 19603
(215) 775-6268

Re: Workplan for Initial Soil and Ground-Water Assessment, 725 Julie Ann Way,
Oakland, California
(Project No. RC01902)

Dear Mr. Althen:

Geraghty & Miller, Inc. (Geraghty & Miller) is pleased to submit this workplan for environmental services at the above referenced facility, formerly occupied by Penske Truck Leasing Co. (Penske). This workplan was prepared at the request of Alameda County Health Care Services Agency, Department of Environmental Health, Hazardous Materials Division (ACDEH) (ACDEH, October 24, 1989) and is based on the background information obtained from Scott Co., the contractor hired by Penske to perform the underground storage tank excavation and removal (Scott Co., November 6, 1989). The scope of work described in this workplan is designed to assess the extent of petroleum hydrocarbons in the soil and shallow ground water in the vicinity of the former location of the underground storage tanks at the project site.

BACKGROUND

During October 1989, one 10,000-gallon unleaded gasoline storage tank, one 10,000² gallon diesel storage tank, one 550-gallon diesel storage tank, and one 550-gallon waste oil storage tank were excavated and removed from the Penske site. The approximate former locations of the underground storage tanks are shown in Figure 1. During the excavation of the underground storage tanks, a representative of the ACDEH was present to observe the tank removal and soil sampling activities. A representative of EA Engineering, Science, and Technology was present to collect soil samples and document soil sampling and tank locations (Scott Co., November 6, 1989).

At the time the 10,000-gallon unleaded gasoline and the 10,000-gallon diesel storage tanks were removed, several inches of water containing a product odor were observed in the excavation beneath each tank. Water was reportedly observed draining through a hole on the underside of the unleaded gasoline storage tank beneath the fill spout. The 550-gallon waste oil tank appeared to be intact (Scott Co., November 6, 1989).

Following removal of the underground storage tanks, soil samples were collected from the two excavations. The approximate soil sampling locations are shown in Figure 1. Six soil

samples (#1 through #6) were collected from the excavation from which the unleaded gasoline and diesel tanks were removed. The samples were collected from the sidewalls of the excavation at depths ranging from 8 feet to 9.5 feet below the ground surface (Scott Co., November 6, 1989). The samples were collected from the sidewalls of the excavation rather than the base of the excavation because of water present in the excavation (Bob Dias, Scott Co., verbal communication, November 8, 1989). One soil sample (#7) was collected from a depth of 7.5 feet below the ground surface from the base of the waste oil tank excavation. The representative of the ACDEH concurred with the soil sampling locations and laboratory analysis performed. A summary of the laboratory procedures and analytical results is presented in Table 1 (Scott Co., November 6, 1989).

The ACDEH representative requested that the water in the base of the unleaded gasoline and diesel storage tank excavation be purged and that, if water subsequently reentered the excavation, a sample should then be collected. A vacuum truck was scheduled for the following day. When the truck arrived at the site, the excavation was dry (Scott Co., November 6, 1989).

Following receipt of the analytical results for the soil samples, Penske initially planned on backfilling the excavations on Monday October 23, 1989 (Geraghty & Miller, October 18, 1989). Penske subsequently decided to postpone the backfilling operation until receiving a description of what would be required by ACDEH after the excavation was backfilled. A description of these requirements was received by Penske in a letter from ACDEH requesting a workplan to "complete contaminant assessment and begin remediation" (ACDEH, October 24, 1989). The excavations were scheduled to be backfilled on November 2 or 3, 1989 (Geraghty & Miller, October 31, 1989). The backfilling was completed on November 30, 1989 by Scott Co. The excavated soils are currently stockpiled at the site and Penske is arranging to have the stockpiled soils sampled, characterized, and disposed of properly (Marc Althen, Penske, verbal communication, December 1, 1989).

During the subsequent backfilling of the excavations, water with a broken sheen of phase-separated hydrocarbons was observed in the excavation. Approximately 300 gallons of water were purged from the excavation and transported under manifest to Refinery Services in Patterson, California (Mr. Jay Grow, Scott Co., verbal communication, December 1, 1989). The site is located approximately one-quarter mile northeast of San Francisco Bay; therefore, the anticipated direction of shallow ground water flow is toward the southwest. Based on the proximity of the site to San Francisco Bay, the site may lie within the zone of tidal influence.

SOIL SAMPLE RESULTS

Table 1 presents a summary of the laboratory analytical results for soil samples collected from the tank excavations. Concentrations of total petroleum hydrocarbons (TPH) as gasoline detected in the soil samples collected from the diesel fuel and unleaded gasoline tank excavation ranged from 22.4 mg/kg (#6) to 2,100 mg/kg (#4). Concentrations of TPH as diesel ranged from 840 mg/kg (#6) to 13,000 mg/kg (#3). TPH as gasoline was detected in the soil sample collected from the base of the waste oil tank excavation at a concentration of 97 mg/kg. TPH as diesel was detected at a concentration of 240 mg/kg. Soil samples #3, #5, and #7 were also analyzed for oil and grease. The highest concentration of oil and grease (54 mg/kg) was detected in Sample #3 collected from within the diesel fuel and unleaded gasoline tank excavation. Sample #7 was also analyzed for

total cadmium, total chromium, total lead, total zinc (USEPA Method 6010) (see Table 1), volatile organic compounds (USEPA Method 8240), and purgeable halocarbons (USEPA Method 8010). Volatile organic compounds and purgeable halocarbons were not detected.

According to the guidelines typically followed by the California Regional Water Quality Control Board (RWQCB), a soil/ground-water investigation is required if the concentration of either TPH and/or oil and grease is greater than 100 mg/kg in soil samples collected from within the first two feet of native soil beneath the tank. According to these guidelines, the 100 mg/kg level is not a clean-up level, but was developed as a method to prioritize the case load and indicate whether a significant volume of fuel had been released or discharged. The clean-up level for a site is determined by assessing the potential impact of residual soil contamination on the ground water (RWQCB, June 2, 1988, Revised May 18, 1989).

The following scope of work is designed to address the requests of the ACDEH for assessing the extent of petroleum hydrocarbons in the soil and shallow ground-water in the vicinity of the former locations of the underground storage tanks. As requested, a health and safety plan has also been prepared and is included as Attachment 1.

SCOPE OF WORK

Task 1 - Pre-Field Activities

Geraghty & Miller will schedule subcontractors, materials, and supplies. Prior to drilling, the required drilling and well installation permits will be obtained. An underground locating company will be scheduled to clear all proposed drilling locations of subsurface obstructions.

Task 2 - Exploratory Drilling, Soil Sampling, Well Installation, and Ground-Water Sampling

In order to better define the extent of petroleum hydrocarbons in the vicinity of the former location of the underground storage tanks, and to assess whether petroleum hydrocarbons have impacted the shallow ground water beneath the site, up to six exploratory borings will be drilled at the approximate locations shown in Figure 1. Three exploratory borings are proposed within the areas of the former excavations and are designed to better define the vertical extent of petroleum hydrocarbons. The proposed borings within the area of the former location of the diesel fuel and unleaded gasoline storage tank excavation are located in areas where the highest concentrations of TPH were detected in the soil samples collected during removal of the storage tanks. Exploratory drilling and soil sampling procedures are described in Attachment 2.

The total depth of the exploratory borings will be determined during drilling. Exploratory borings which will not be converted into ground-water monitoring wells will be terminated at a depth of (1) approximately 50 feet below the ground surface, or first encountered water, or the depth at which field screening of soil samples indicates that petroleum hydrocarbons are not present in the soil, whichever depth is shallowest. The field screening technique for soil samples is described in Attachment 2.

In order to better define the lateral extent of petroleum hydrocarbons in the soil and to assess whether the shallow ground water beneath the site has been impacted by petroleum hydrocarbons, three exploratory borings will be drilled around the perimeter of the

excavations (see Figure 1). If first encountered water occurs deeper than 50 feet below the ground-surface and field screening of soil samples indicates that petroleum hydrocarbons are not present in the soil at a depth of 50 feet below the ground surface, the borings will be terminated and will not be converted into ground-water monitoring wells. If water is encountered at a depth of less than 50 feet below the ground surface, the exploratory borings will be extended to a depth approximately 20 feet below first encountered water or terminated in a minimum of three feet of low permeability soil. Upon completion, the borings will be converted into ground-water monitoring wells by installing 4-inch diameter PVC casing. The slotted portion of the casing will extend from the bottom of the well to approximately 10 feet above first encountered water. The well completion may vary based on the actual hydrogeologic conditions encountered during the exploratory drilling. The top of casing and ground surface elevation for each well, relative to mean sea-level, will be surveyed by a state licensed surveyor.

The locations of the proposed ground-water monitoring wells are based on the anticipated direction of shallow ground-water flow. The well proposed in the vicinity of the southern corner of the former diesel and unleaded tank excavation is anticipated to be hydraulically down-gradient of the former location of the underground storage tanks. The well proposed in the vicinity of the northern side of the former excavation is anticipated to be hydraulically cross-gradient or down-gradient of the former location of the tanks, depending on the direction of shallow ground-water flow beneath the site. The well proposed to the east of the former location of the waste oil tank is anticipated to be hydraulically up-gradient of the former storage tanks.

Based on field observations during drilling, if petroleum hydrocarbons are detected in the soil or water, additional borings or wells may be installed further from the location of the former excavations to better define the extent of petroleum hydrocarbons in the soil and/or shallow ground water. Additional borings or wells would be drilled at locations 50 to 100 feet from a boring in which hydrocarbons were detected in the field.

Ground-water samples will be collected from monitoring wells installed during the exploratory drilling activities. Ground-water sampling procedures are described in Attachment 2.

Task 3 - Laboratory Analysis

Soil samples will be submitted to a state-certified laboratory and analyzed for TPH as gasoline and as diesel (Modified USEPA Method 8015), and for benzene, toluene, xylenes, and ethylbenzene (BTXE) (USEPA Method 8020).

Ground-water samples collected from the monitoring wells will be submitted to a state-certified laboratory and analyzed for TPH as gasoline and as diesel (Modified USEPA Method 8015), BTXE (USEPA Method 602), total dissolved solids (USEPA Method 160), total hardness (USEPA Method 6010), and chlorides (USEPA Method 300.0).

Task 4 - Single Well Aquifer Tests

Two wells will be selected for aquifer testing. The testing will consist of single well tests (slug test) in the selected wells to provide order-of-magnitude estimates of hydraulic conductivity of the water-bearing formation in the immediate vicinity of the wells tested. The data will be used in the conceptual design of remediation options, if appropriate.

Task 5 - Report Preparation

Following receipt of all data, Geraghty & Miller will prepare a report of the results of the assessment activities including the following:

- Description of the regional hydrogeology;
- Description of the exploratory drilling, soil sampling, well installation, and ground-water sampling activities;
- Exploratory boring logs and well completion details;
- A summary and discussion of the findings and analytical results;
- Conceptual description of soil and/or ground-water remediation options.

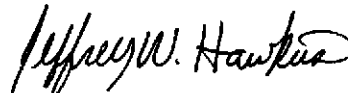
Based on the results of the initial site assessment activities described in this workplan, recommendations for additional characterization and/or remediation will be made, at the request of Penske.

PROJECT SCHEDULE

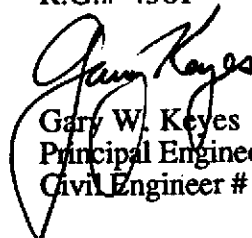
We estimate that the required subcontractors can be scheduled to begin the drilling activities within three weeks following receipt of approval of the workplan, depending on availability of appropriate drilling contractors. We estimate that the drilling and well installation activities will require one week to complete. Well development and ground-water sampling activities will require approximately two weeks. The aquifer testing will require approximately two weeks. Analytical results will be received from the laboratory two weeks after ground-water sampling is complete. Analysis of the data and preparation of the report will require approximately three weeks to complete.

If you have any questions regarding this workplan, please do not hesitate to call.

Sincerely,
GERAGHTY & MILLER, INC.



Jeffrey W. Hawkins
Senior Geologist
R.G.# 4361



Gary W. Keyes
Principal Engineer
Civil Engineer # 045065

Attachments: References

Table 1 - Soil Sample Analytical Results

Figure 1 - Site Plan

Attachment 1 - Health and Safety Plan

**Attachment 2 - Exploratory Drilling, Soil Sampling, and Ground-Water
Sampling Procedures**

REFERENCES

ACDEH, October 24, 1989, Unauthorized Release, Underground Fuel and Waste Oil Tanks, 725 Julie Ann Way, Oakland, CA 94606.

Geraghty & Miller, October 31, 1989, Underground Storage Tank Removal, Penske Truck Leasing Co. Facility, 725 Julie Ann Way, Oakland, California.

Geraghty & Miller, October 18, 1989, Underground Storage Tank Removal, Penske Truck Leasing Co. Facility, 725 Julie Ann Way, Oakland, California.

Scott Co., November 6, 1989, Summary of activities of tank pull at Hertz Penske, 725 Julie Ann Street, Oakland, California, October 10th, 1989.

RWQCB, June 2, 1988, Revised May 18, 1989, Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks, Tri-Regional Recommendations.

Table 1 - Soil Sample Analytical Results
Penske Truck Leasing Co. Facility, 725 Julie Ann Way, Oakland, California.

Petroleum Hydrocarbons

Sample	Date	Depth (1) (feet)	TPH - Gasoline (2) (mg/kg)	TPH - Diesel (2) (mg/kg)	Benzene (3) (mg/kg)	Toluene (3) (mg/kg)	Xylenes (3) (mg/kg)	Ethylbenzene (3) (mg/kg)	Grease & Oil (4) (mg/kg)
#1	11-Oct-89	9	161	2,300	0.46	0.27	0.09	<.05	—
#2	11-Oct-89	9	430	4,400	10.3	21.2	36	6.5	—
#3	11-Oct-89	8	1,410	13,000	32	79	66	9.1	54
#4	11-Oct-89	8	2,100	2,800	36	110	185	38	—
#5	11-Oct-89	8	830	4,200	12	38	61	11	35
#6	11-Oct-89	9.5	22.4	840	<.05	<.05	<.05	<.05	—
#7	11-Oct-89	7.5	97	240	0.16	0.08	<.05	0.05	7

Metals (5)

Sample	Date	Depth (1) (feet)	Total Cadmium (mg/kg)	Total Chromium (mg/kg)	Total Lead (mg/kg)	Total Zinc (mg/kg)
#7	11-Oct-89	7.5	<0.5	46	11	36

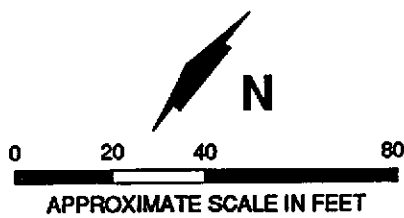
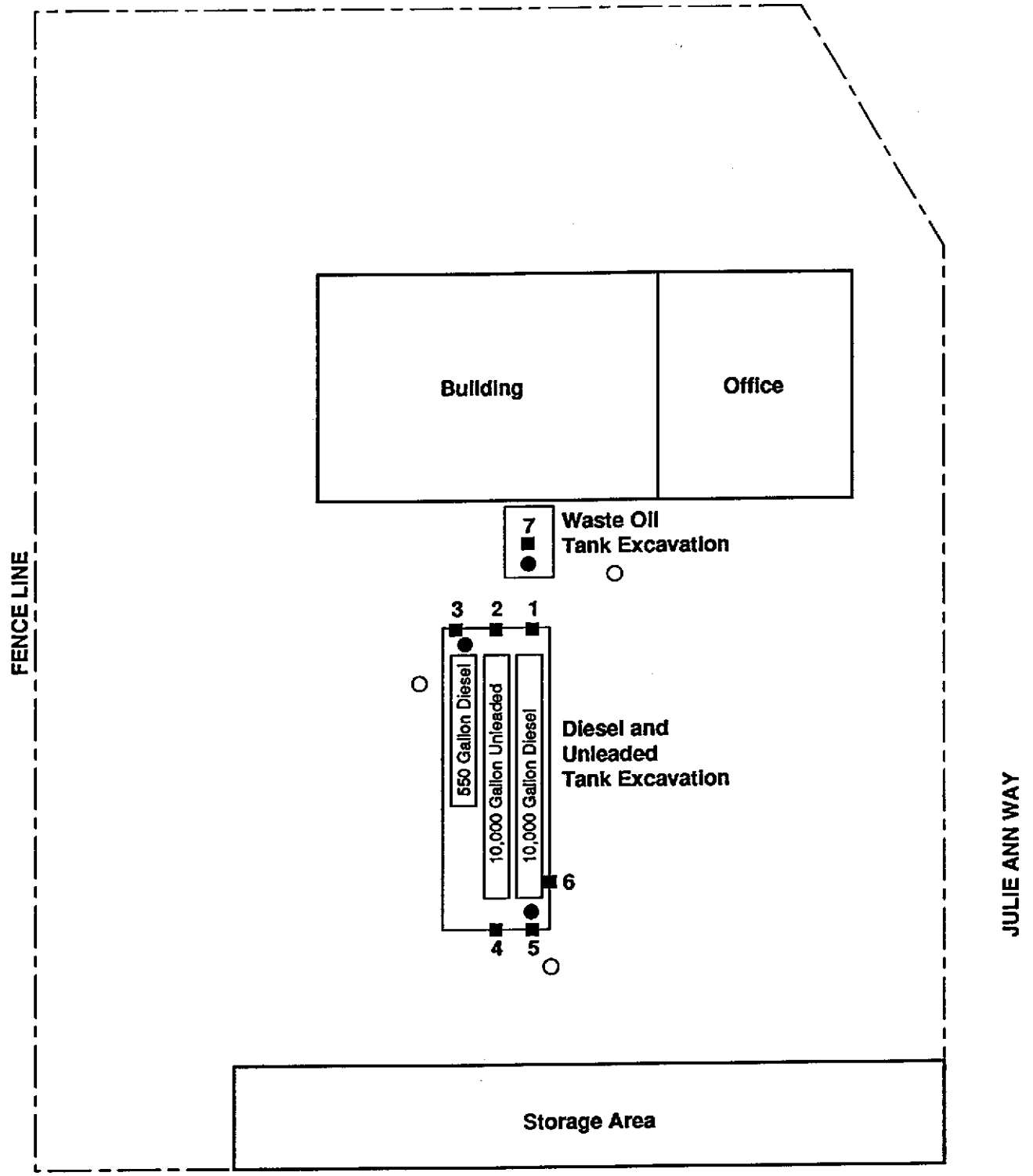
Notes:

- (1) Depth reported as feet below ground surface.
- (2) Analyzed using Modified USEPA Method 8015.
- (3) Analyzed using USEPA Method 8020.
- (4) Analyzed using USEPA Method 9071. Results reported in percent on certified laboratory report.
- (5) Analyzed using USEPA Method 6010.

— Not analyzed

For certified laboratory reports see Scott Co., November 6, 1989.

Project RC01902



LEGEND

- 1 Approximate Location of Soil Sample Collected by EA Engineering, Science, and Technology (Scott Co., November 6, 1989)
- Proposed Ground-water Monitoring Well
- Proposed Exploratory Boring

GERAGHTY & MILLER, INC.

ATTACHMENT 1

**SITE HEALTH AND SAFETY PLAN
HYDROCARBON INVESTIGATION
PENSKE TRUCK LEASING COMPANY
725 JULIE ANN WAY
OAKLAND, CALIFORNIA**

ATTACHMENT 1

SITE HEALTH AND SAFETY PLAN
HYDROCARBON INVESTIGATION
PENSKE TRUCK LEASING COMPANY
725 JULIE ANN WAY
OAKLAND, CALIFORNIA

INTRODUCTION

This site-specific Health and Safety Plan (HSP) has been prepared for Penske Truck Leasing Company (Penske), by Geraghty & Miller, Inc. (G&M). This HSP applies specifically to the hydrocarbon investigation at the Penske facility located at 725 Julie Ann Way in Oakland.

The Scope of Work involves the drilling of soil borings and installation of monitor wells to a depth of approximately 50 feet below land surface to evaluate the presence or absence of hydrocarbons in the underlying soils and ground water. Based on data supplied to G&M by Penske, there is a high likelihood of drilling through hydrocarbons, particularly at locations adjacent to the former underground storage tanks.

HAZARD EVALUATION

The drilling and well installation activities are designed to better define the extent of petroleum hydrocarbons in the soils and ground water in the area. A variety of organic constituents may be detected in the subsurface. Benzene, toluene, ethylbenzene, xylene, and other related additives used in gasoline may be found when exploratory soil borings are drilled.

Respiratory hazards related to the above-listed chemicals might arise if vapors and gases are released into the breathing zone during drilling and/or monitoring. Respiratory hazards are unlikely; previous air monitoring experience indicates that dilution occurs in the immediate vicinity of the boreholes, and thus it is not anticipated that there will be any exposure in excess of 5 ppm of organic compounds (vapors) in the breathing zone. If vapors in excess of 5 ppm are observed 2 feet above the open borehole for any prolonged period of time (5 minutes or more), the site Health and Safety officer will require all personnel to move away from the borehole until the breathing zone is deemed safe, or until all personnel are properly protected. In order to confirm airborne levels of organic vapors, a direct-reading air monitoring device (Gas Tech Model 1314) will be utilized.

Dermal hazards could arise if product (gasoline liquid or vapor) observed in the borehole or well comes into contact with a person's hand or body (skin) during the field investigation. A low hazard level exists where there is no contact, and when proper dermal protection is worn. The use of protective clothing and chemical resistant gloves is required if gasoline is present or chemicals are observed on the soils.

The working conditions at the site could involve (but may not be limited to) the following potential physical hazards: heat stress, moving or falling objects, and vehicular traffic. Heat stress hazards are associated with exposure to high ambient temperatures, wearing of protective clothing, a heavy physical work load, and/or a combination of the above. Daily environmental conditions (temperature, humidity, wind conditions, etc.) must be

GERAGHTY & MILLER, INC.

considered when evaluating this hazard. To reduce the risk of heat stress, the G&M Health & Safety officer may direct personnel to take any of the following steps: drink plenty of fluids (water, juice, or soft drinks), reduce the level of exertion by workers, and take more frequent and longer rest periods.

Moving or falling objects are hazards present around a working drill rig. Only essential personnel and no bystanders will be permitted near the drill rig itself. Hard hats, steel-toed boots, and safety glasses will be worn at all times. All personnel will be instructed how and when to use the drill rig's kill switch(es).

Personnel drilling in an open area along the driveways or roadways should be watchful for traffic and will be required to wear reflective, bright colored vests as directed by the site Health and Safety Officer. The area around the immediate vicinity of the drilling rig will be cordoned off with traffic cones or barricades to minimize traffic and on-lookers.

Absolutely no smoking is allowed in any areas on the facility. If product is found beneath the site, all borings/wells will be properly secured to prevent any accidental ignition of product.

A telephone is not available at the facility for personnel to keep in contact with the Project Health and Safety Officer. In the event of an emergency, therefore, personnel should request to use the telephone at Rock Transport Inc., adjacent to the Penske facility.

LEVELS OF PROTECTION

Level D protection is required during field activities as specified by the G&M site Health and Safety Officer or designated representative. It may become necessary during the course of the work to upgrade the level of protection to Level C in the immediate work area. Changes in the level of protection will be determined by the G&M site Health and Safety Officer.

Protective equipment for Level C and Level D includes:

Level D - Mandatory

- Steel-toe boots
- Approved hard hat
- Approved safety glasses with side shields, splash shield, or chemical splash goggles
- Long-sleeved work shirt
- Long pants

Level D - at discretion of G&M site Health & Safety Officer

- Tyvek coveralls
- Plastic-coated Tyvek

Level C

GERAGHTY & MILLER, INC.

- All required Level D protective equipment
- Air-purifying cartridge-equipped respirator (half- or full-face respirators)

GENERAL SAFETY RULES

- Smoking, eating, and drinking are prohibited.
- Project personnel who participate in field sampling activities should thoroughly wash hands and faces with mild soap and water before eating or drinking.

EMERGENCY RESPONSE

In the event of fire, explosion, injury, or other accident, contact an appropriate site emergency response group. Site emergency telephone numbers are below:

- Paramedics 911
- Fire Department 911
- Poison Control Center (800) 523-2222
- Geraghty & Miller, Inc. (415) 233-3200

The nearest hospital is the French Hospital, located 2 blocks south of the site, on 5th Avenue at Geary Blvd.

GERAGHTY & MILLER, INC.

ATTACHMENT 2

**EXPLORATORY DRILLING, SOIL SAMPLING, AND GROUND-WATER
SAMPLING PROCEDURES**

ATTACHMENT 2

EXPLORATORY DRILLING, SOIL SAMPLING, AND GROUND-WATER
SAMPLING PROCEDURES

Exploratory Drilling and Soil Sampling Procedures

The exploratory borings will be drilled using 8-inch diameter hollow-stem auger drilling equipment. All drilling and soil sampling equipment which will enter the borehole will be steam cleaned prior to drilling each boring. Soil samples will be collected at approximately five-foot depth intervals using a modified California split-spoon sampler equipped with brass liners, which is advanced into the undisturbed soil beyond the tip of the augers. The soil samples will be logged by a Geraghty & Miller geologist.

During drilling, a combustible gas detector (Gas Tech Model 1314) will be used to screen soil samples for the presence of combustible vapors. The detector will be calibrated to hexane. A sample of the soil from each sampling interval will be placed into a glass jar and sealed with aluminum foil. After any volatile vapors which may be present in the soil sample are allowed time to equilibrate with the headspace in the jar (approximately 10 minutes), a measurement of the concentration of combustible vapors in the headspace will be made by inserting the tip of the detector through the aluminum foil. The concentration of combustible vapors measured as hexane will be recorded.

Upon completion, exploratory borings which are not converted into ground-water monitoring wells will be backfilled with a cement/bentonite grout. All soil and water generated during the exploratory drilling activities will be containerized in 55-gallon drums and stored on-site for proper disposal by Penske. Following receipt of all laboratory analytical data, Geraghty & Miller will supply recommendations for proper disposal, if so requested by Penske.

Soil samples for laboratory analysis will be retained in the brass liners, sealed with non-adhesive Teflon tape and plastic end caps, stored in plastic zip-lock bags, placed on ice and transported to a state-certified laboratory along with chain-of-custody documentation.

Ground-Water Sampling Procedures

Prior to purging, depth to water and total depth measurements will be obtained, and each well will be checked for the presence of phase separated hydrocarbons, using an acrylic bailer. A ground-water sample will be collected from each well which does not contain floating product. A minimum of four casing volumes of water will be purged from each well, using a low-discharge submersible pump, so that a ground-water sample representative of the formation is obtained. Purged water will be monitored for temperature, pH, and specific conductance. All equipment which enters the well will be washed in a solution of tri-sodium phosphate and triple rinsed in deionized water.

Ground-water samples for laboratory analysis will be collected with a Teflon™ bailer and transported in appropriate USEPA approved containers on ice to a state-certified laboratory along with appropriate chain-of-custody documentation. All water generated during the ground-water sampling activities will be containerized in 55-gallon drums and stored on-

GERAGHTY & MILLER, INC.

site for proper disposal by Penske. Following receipt of all laboratory analytical data, Geraghty & Miller will supply recommendations for proper disposal, if so requested by Penske.