

**Results of Initial Soil and Ground-Water
Assessment Activities
Former Penske Truck Leasing Co. Facility
725 Julie Ann Way, Oakland, California**

NH 1990

November 15, 1990
(Revised December 4, 1990)

Prepared for

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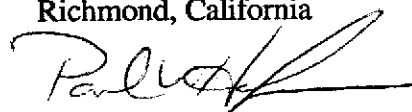
Project No. RC01903

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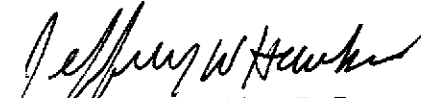
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Respectfully Submitted

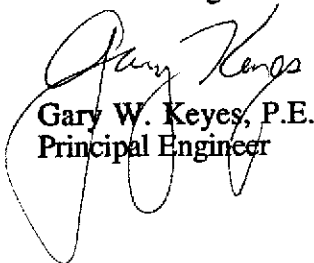
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EXECUTIVE SUMMARY

- During October 1989, one 10,000-gallon unleaded gasoline storage tank, one 10,000-gallon diesel storage tank, one 1,000-gallon diesel storage tank and one 1,000-gallon waste oil storage tank were excavated and removed from the former Penske site. The soil was stockpiled on-site and approximately 235 tons of soil were subsequently transported to the GSX Services disposal facility located in Buttonwillow, California. The excavations were backfilled on approximately November 30, 1989. During the backfilling operations, a discontinuous sheen of phase-separated hydrocarbons was observed on the water in the excavation from which the gasoline and diesel tanks were removed. Approximately 300 gallons of water was purged from the excavation and transported under manifest to Refinery Services located in Patterson, California.
- Six soil samples were collected from depths ranging from 8 feet to 9.5 feet below the ground surface from the sidewalls of the excavation from which the unleaded gasoline and diesel tanks were removed. Total petroleum hydrocarbons (TPH) as gasoline were detected at concentrations ranging from 22.4 mg/kg to 2,100 mg/kg. TPH as diesel were detected at concentrations ranging from 840 mg/kg to 13,000 mg/kg. Two of the samples were also analyzed for oil and grease which were detected at concentrations of 54 mg/kg and 35 mg/kg. One soil sample was collected from the base of the excavation from which the waste oil tank was removed. TPH as gasoline were detected at a concentration of 97 mg/kg; TPH as diesel were detected at a concentration of 240 mg/kg; Oil and grease were detected at a concentration of 7 mg/kg.
- During September 1990, a total of 6 exploratory borings (MW-1 through MW-3, and BH-1 through BH-3) were drilled at the project site. Three of the borings (MW-1 through MW-3) were converted into ground-water monitoring wells. The scope of work for the assessment activities was contained in a workplan prepared by Geraghty & Miller on behalf of Penske Truck Leasing Co. (Penske) and submitted by Penske to the Alameda County Health Care Services Agency, Department of Environmental Health, Hazardous Materials Division (ACDEH).
- Based on the results of the assessment activities, the project site is underlain by primarily clay and silty clay, with interbedded sand, silty sand, and clayey sand to a depth of approximately 36.5 feet below the ground surface, the total depth explored. Depth to water beneath the site during October 1990 ranged from 9.76 to 10.38 feet below the ground surface. Based on these measurements, the direction of shallow ground-water flow is toward the west.
- The highest concentrations of petroleum hydrocarbons were detected in the soil samples collected from depths of approximately 10 to 20 feet below the ground surface from the exploratory borings. Based on the October 1990

depth-to-water data, these soil samples were collected from immediately above (possibly within the capillary fringe) and below the top of water. TPH as gasoline were detected in the soil samples collected from the vadose zone (approximately 5 feet below the ground surface) from only two of the borings; Borings MW-1 (2 mg/kg) and MW-2 (1 mg/kg). TPH as diesel were in the soil samples collected from the vadose zone only in Borings MW-2 (170 mg/kg) and BH-3 (56 mg/kg). Total oil and grease was detected in the vadose zone only in the soil sample collected from Boring MW-2 (1,400 mg/kg). These results suggest that the highest concentrations of petroleum hydrocarbons in the vadose zone are restricted to the immediate vicinity of the former excavation.

- Petroleum hydrocarbons were detected in the water samples collected from the 3 monitoring wells installed at the project site. The highest concentrations were detected in Monitoring Well MW-1, located to the south of the former location of the gasoline and diesel storage tanks. These results indicated that the extent of petroleum hydrocarbons in the shallow ground water has not been defined.

1.0 INTRODUCTION

This report presents the results of the initial soil and ground-water assessment activities performed by Geraghty & Miller, Inc. (Geraghty & Miller) at the former Penske Truck Leasing Co. (Penske) facility located at 725 Julie Ann Way, Oakland, California (Figure 1). The objective of the assessment activities was to better define the extent of petroleum hydrocarbons in the soil and the shallow ground-water in the vicinity of the location of former underground gasoline, diesel and waste oil storage tanks (Figure 2). The scope of work for this project was presented in three Geraghty & Miller documents dated November 1, 1989, September 11, 1990 and September 12, 1990.

2.0 BACKGROUND

During October, 1989, one 10,000-gallon unleaded gasoline storage tank, one 10,000-gallon diesel storage tank, one 1,000-gallon diesel storage tank and one 1,000-gallon waste oil storage tank were excavated and removed from the former Penske site by the Scott Company. The approximate former location of the underground storage tanks are shown in Figure 2. A representative of the Alameda County Health Care Services Agency, Department of Environmental Health, Hazardous Materials Division (ACDEH) was present during the excavation and removal of the underground storage tanks and the soil sampling activities associated with the tank removal. The excavated soils were stockpiled at the site. A representative of EA Engineering, Science and Technology was on site to collect soil samples, document soil sampling and tank locations during the tank removal (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. Six soil samples were collected from the the sidewalls of the gasoline and diesel tank excavation from depths ranging from 8 feet to 9.5 feet below the ground surface (BGS). The samples were collected from the sidewalls of the excavation rather than the base of the excavation because water was present in the excavation (Scott Co., verbal communication, November 6, 1989). One soil sample was also collected from the base of the waste oil tank excavation (Scott Co., November 6, 1989).

Total petroleum hydrocarbons (TPH) as gasoline were detected in the soil samples collected from the diesel and unleaded gasoline tank excavation at concentrations ranging from 22.4 mg/kg to 2,100 mg/kg. Concentrations of TPH as diesel ranged

from 840 mg/kg to 13,000 mg/kg. Two samples collected from the gasoline and diesel tank excavation were analyzed for oil and grease which were detected at concentrations of 54 mg/kg and 35 mg/kg. In the soil sample collected from the base of the waste oil tank excavation, TPH as gasoline were detected at a concentration of 97 mg/kg; TPH as gasoline were detected at a concentration of 240 mg/kg. Oil and grease were detected at a concentration of 7mg/kg.

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 work plan 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. Based on the information supplied to Geraghty & Miller by Penske, a total of 235.38 tons of soil were transported by GSX Service and Cobern Trucking to the GSX Services facility located in Buttonwillow, California for disposal (Geraghty & Miller, September 11, 1990).

During the subsequent backfilling of the excavations, a discontinuous sheen of phase-separated hydrocarbons was observed on the water 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).

3.0 SITE ASSESSMENT ACTIVITIES

3.1 PRE-FIELD ACTIVITIES

The original work plan for the site assessment activities was submitted to ACDEH by Geraghty & Miller on December 5, 1989. A revised work plan which incorporated changes requested by ACDEH was resubmitted and approved by the ACDEH on September 11, 1990. A request for a monitoring well construction permit was submitted to Alameda County on September 14, 1990. A Ground Water Protection Ordinance permit (#90569) was subsequently issued by the Alameda County Flood Control and Water Conservation District on September 19, 1990.

Before site work could begin, permission to access the site was required from Rock Transport Inc., the current tenant. Since the assessment activities would potentially interfere with the trucking operations at the site, Rock Transport restricted the work schedule for the field activities to between 8 am and 2 pm, a time when most of their trucks would be out of the parking area. With the acceptance of this schedule restriction and a letter from Penske holding Rock Transport harmless from potential damage to the monitoring wells by the heavy traffic, the assessment activities were initiated on September 25, 1990.

3.2 EXPLORATORY DRILLING AND SOIL SAMPLING

A total of six exploratory soil borings (BH-1 through BH-3, and MW-1 through MW-3) were drilled at the project site between September 25, 1990 and September 28, 1990. Exploratory boring locations are presented in Figure 2. The borings were drilled by West Hazmat Drilling Corp. of Rancho Cordova, California using an Acker AD-11 truck-mounted auger drilling rig. Borings BH-1 through BH-3 were drilled using 8-inch diameter hollow-stem auger drilling equipment. Borings MW-1 through MW-3 were drilled using 10-inch diameter hollow-stem auger drilling equipment. All drilling equipment that would enter the borehole was steam cleaned prior to drilling each boring.

During drilling, soil samples were collected at 5-foot depth intervals using a modified California split-spoon sampler equipped with three brass liners which was advanced into the undisturbed soil beyond the tip of the augers. The sampler was washed in a tri-sodium phosphate (TSP) solution and rinsed with deionized water prior to each use. The middle brass liner was removed, sealed with Teflon tape and plastic end caps, labeled, placed on ice, and transported to Superior Analytical Laboratory, Inc. in San Francisco, California.

The soil from one of the two remaining brass liners was used for visual inspection and logging. The soils were described by a Geraghty & Miller geologist according to the Unified Soil Classification System. The exploratory boring logs are included in Appendix A. Headspace measurements were performed on the soil from the remaining brass liner. The headspace analysis was performed by placing the soil in a Ziplock™ bag, allowing approximately 30 minutes for any vapors present in the soil to equilibrate in the headspace, then using a Gastech (Model 1314) explosimeter, calibrated to hexane, to obtain measurements of combustible vapors. Explosimeter measurements are included on the exploratory boring logs.

Exploratory Borings MW-1 and MW-3 were drilled to a total depth of 36.5 feet BGS (approximately 20-feet below first encountered water). Boring MW-2 was drilled to a depth of 31.5 BGS (approximately 17-feet below first encountered water). Boring MW-2 was terminated at a depth 5 feet less than Borings MW-1 and MW-3 due to drilling difficulties related to flowing sand and sticking mud plugging the auger and preventing sampler advance.

The soil generated during the drilling activities was stockpiled on plastic sheeting. The water generated during the steam cleaning of the drilling equipment was placed in drums. The soil and water were retained on-site for proper handling and disposal by Penske.

3.3 INSTALLATION OF GROUND-WATER MONITORING WELLS

Upon completion, Borings MW-1 through MW-3 were completed as ground-water monitoring wells by installing 4-inch diameter, flush threaded, Schedule 40 PVC casing. Slotted well screen (0.010-inch manufactured slots) was installed through the hollow-stem augers with an end cap below the well screen. The annulus between the well screen and bore hole was backfilled using #3 Monterey sand to approximately 2-feet above the top of the well screen. A 3-foot thick bentonite seal was placed above the sandpack and the remainder of the annular space was backfilled with cement-grout containing approximately 5% bentonite. A locking well cap and traffic-rated flush-mounted well box were installed at the ground surface. Monitoring well construction details are included on the boring logs presented in Appendix A.

Upon completion, the top of casing elevation and location for each well, and the location and surface elevation for each boring were surveyed relative to the City of Oakland datum by a State licensed surveyor from Bates and Bailey Registered Land Surveyors. The City of Oakland datum is reported to be 3.00 feet above mean sea level. A copy of the survey map is included in Appendix B.

3.4 GROUND-WATER SAMPLING

Water samples were collected on October 20, 1990 from each of the monitoring wells at the site. Prior to sampling, depth-to-water and total well depth measurements were obtained from each well using a Solinst Water Level Probe and each well was checked for the presence of phase-separated hydrocarbons using a disposable polyethylene bailer. The water level probe was washed with TSP and triple rinsed prior to use in each well. Phase-separated hydrocarbons were not observed in any of the wells.

Each well was purged of approximately three to four casing volumes using a 2-inch surface pump. The purged water was monitored for temperature, pH, and specific conductance. A summary of the field data is presented in Table 1. The purge water was retained in 55-gallon drums on-site for proper handling and disposal by Penske. The purge pump was washed with TSP and triple rinsed prior to purging each well.

The water samples were collected using a new polyethylene disposable bailer for each well. All water samples were placed in 40-ml volatile organic compound (VOC) vials and 100-ml amber glass bottles, labeled, and placed on ice and transported to Superior Analytical Laboratory, Inc. Copies of the chain of custody documentation are included in Appendix C.

4.0 LABORATORY ANALYSIS

The laboratory analysis of soil samples included TPH as gasoline and diesel (USEPA Method 8015, modified) and BTEX (USEPA Method 8020). The soil samples collected from the borings drilled in the vicinity of the former waste oil tank were also analyzed for volatile organic compounds (VOCs) (USEPA Method 8240) and total oil & grease (Standard Method 503E).

Water samples collected from Monitoring Wells MW-1 through MW-3 were analyzed for TPH as gasoline and diesel (USEPA Method 8015 modified), BTEX (USEPA Method 8020) and volatile organic compounds (VOC's) (USEPA Method 8240). The water sample collected from Monitoring Well MW-2 was also analyzed for total dissolved solids (EPA method 160), total hardness (EPA method 6010), and chlorides (EPA method 300.0).

5.0 REGIONAL HYDROGEOLOGIC SETTING

The former Penske Truck Leasing Facility is located approximately 1/2 mile northeast of San Leandro Bay and 3 miles east of San Francisco Bay. The site is approximately 2,300 feet northwest of the confluence of Lion and Arroyo Viejo Creeks. The area of the Penske site was historically a tidal marsh area which has been subsequently filled for development (US Geological Survey). Open surface drainage channels border the property to the northeast. The elevation at the site is between approximately 5 feet and 7 feet above mean sea level.

The site is located within an area of regional subsidence bordered to the east by the Oakland Hills. The highlands that include the Berkeley - Oakland Hills are part of the Franciscan Formation which is composed of sandstone, chert, and metamorphosed basalt. The erosion of these uplands during the last 10,000 to 20,000 years before present has deposited alluvial fill material of interbedded sands, silts, clays, and gravel to the west, towards San Francisco Bay. Interfingering with and overlying the earlier alluvial material are Holocene (less than 10,000 years before present) estuarine bay mud deposits. The more recent bay muds are locally interbedded with silt, sand and gravels deposited within the local alluvial environments. These interbedded deposits result in local facies changes both laterally and to the east (US Geological Survey, 1979).

The regional shallow ground-water flow direction is inferred to be toward the south-southwest, in the direction of San Leandro Bay. Alameda County has used injection wells to limit salt water intrusion which may locally affect ground-water flow direction (California Ground Water, 1975). Several storm drains and channels, which may act as sources of ground-water recharge, are located in the site vicinity.

6.0 RESULTS OF ASSESSMENT ACTIVITIES

6.1 HYDROGEOLOGIC CONDITIONS

Based on the results of the exploratory drilling activities conducted during the assessment activities, the project site is underlain by primarily clay and silty clay, with interbedded sand, silty sand and clayey sand to a depth of approximately 36.5 feet BGS, the total depth explored (Borings MW-1 and MW-3). Depth-to-water measured on October 2, 1990 ranged from 9.76 feet (Well MW-1) to 10.38 feet (Wells MW-2 and MW-3) BGS. A ground-water contour map is presented in Figure 3. Based on this data, the direction of shallow ground-water flow is toward the west. The hydraulic gradient (slope of the water table) at the time of the measurement was approximately 0.002 ft/ft between monitoring wells MW-1 and MW-2.

6.2 SOIL ANALYTICAL RESULTS

The analytical results for soil samples are summarized in Table 2. Copies of the certified analytical reports are included in Appendix C. Borings BH-1 and BH-3 were drilled within the area of the former excavation from which the unleaded gasoline and diesel tanks were removed. TPH as gasoline were detected in the soil samples collected from Boring BH-1 from depths of 15 feet BGS (380 mg/kg) and 20 feet BGS (150 mg/kg). TPH as gasoline were not detected in the soil sample collected from a depth of 10 feet BGS. TPH as diesel were detected at a concentration of 460 mg/kg in the soil sample collected from 15 feet BGS and was not detected in the soil samples collected from 10 and 20 feet BGS. Concentrations of BTXE ranged from below detection limits to 28 mg/kg. In the soil samples collected from Boring BH-3, TPH as gasoline were detected at concentrations of 22 mg/kg (10 feet BGS) and 35 mg/kg (15 feet BGS). TPH as gasoline were not detected in the soil sample collected from 5 feet BGS. TPH as diesel were detected at concentrations of 56 mg/kg (5 feet BGS), 54 mg/kg (10 feet BGS), and 200 mg/kg (15 feet BGS). Concentrations of BTXE ranged from below detection limits to 0.44 mg/kg.

Boring BH-2 was drilled within the area of excavation of the former waste oil tank. Soil samples were collected from depths of 10 feet and 15 feet BGS. TPH as gasoline were not detected. TPH as diesel were detected at a concentration of 36 mg/kg in the soil sample collected from a depth of 15 feet BGS and was not detected in the soil sample collected from 10 feet BGS. Total oil and grease and VOCs were not detected in the soil samples collected from Boring BH-2.

Soil samples were collected from Boring MW-1, located to the south of the former location of the gasoline and diesel storage tanks, from depths of 5 feet, 10 feet, and 15 feet BGS. TPH as gasoline were detected at concentration of 2 mg/kg, 820 mg/kg, and 2 mg/kg respectively. TPH as diesel were detected at concentrations of 760 mg/kg (10 feet BGS) and 980 mg/kg (15 feet BGS), and was not detected in the soil sample from 5 feet BGS. Concentrations of BTXE ranged from 0.01 mg/kg to 4.5 mg/kg.

Soil samples were collected from Boring MW-2, located to the east of the former location of the gasoline and diesel storage tanks and to the south of the former location of the waste oil storage tank, from depths of 5 feet, 10 feet, and 15 feet BGS. TPH as gasoline were detected at concentrations of 1 mg/kg and 4 mg/kg in the soil samples collected from 5 feet and 15 feet BGS respectively and was not detected in the sample collected from 10 feet BGS. TPH as diesel were detected at concentrations of 170 mg/kg (5 feet BGS), 32 mg/kg (10 feet BGS), and 85 mg/kg (15 feet BGS). Total oil and grease were detected in the samples collected from 5 feet (1,400 mg/kg) and 10 feet (68 mg/kg) BGS. BTXE were detected only in the sample collected from 5 feet BGS at concentrations ranging from 0.0006 mg/kg to 0.14 mg/kg. The soil samples were also analyzed for VOCs. VOCs were detected only in the soil samples from a depth of 5 feet BGS. Benzene (0.072 mg/kg), toluene (0.03 mg/kg), xylenes (0.015 mg/kg) and acetone (0.072 mg/kg) were the only VOCs detected in that sample.

Soil samples were collected from Boring MW-3, located to the north of the former location of the gasoline and diesel storage tanks, from depths of 5 feet, 10 feet, 15 feet, and 20 feet BGS. TPH as gasoline were detected at concentration of 26 mg/kg (10 feet BGS) and 44 mg/kg (15 feet BGS). TPH as gasoline were not detected in the soil samples collected from depths of 5 feet and 20 feet BGS. TPH as diesel were

detected at concentrations of 190 mg/kg (10 feet BGS) and 150 mg/kg (15 feet BGS). TPH as diesel were not detected in the soil samples from 5 feet and 20 feet BGS. Concentrations of BTXE ranged from below detection limits to 0.18 mg/kg.

6.3 GROUND-WATER ANALYTICAL RESULTS

A summary of the ground-water analytical results is presented in Table 3. Copies of the certified laboratory analytical reports are included in Appendix C. TPH as gasoline were detected in the water sample collected from Monitoring Well MW-1 at a concentration of 170 µg/L and was not detected in the water samples collected from Monitoring Wells MW-2 and MW-3. TPH as diesel were detected at concentrations of 2,900 µg/L (Well MW-1), 80 µg/L (Well MW-2), and 90 µg/L (Well MW-3). Benzene was detected at concentration of 20 µg/L (Well MW-1), 0.4 µg/L (Well MW-2), and 28 µg/L (Well MW-3). Toluene was detected at concentrations of 18 µg/L (Well MW-1) and 3.1 µg/L (Well MW-3). Xylenes were detected at concentrations of 5.7 µg/L (Well MW-1), 0.5 µg/L (Well MW-2), and 1.5 µg/L (Well MW-3). Ethylbenzene was detected at concentrations of 1.9 µg/L (Well MW-1) and 0.6 µg/L (well MW-3). Toluene and ethylbenzene were not detected in the water sample collected from Well MW-2.

The water sample collected from Well MW-2 was also analyzed for chlorides (1,200 mg/L), TDS (3,000 mg/L), and hardness (300 mg/L).

7.0 DISCUSSION

Based on the results of the assessment activities described in this report, the highest concentrations of petroleum hydrocarbons were detected in the soil samples collected from depths of approximately 10 feet below the ground surface and deeper. Depth-to-water during October 1990, ranged from 9.76 feet to 10.38 feet BGS. This suggests that soil samples collected from depths of 10 feet BGS and deeper were collected from below the water table or may have been collected from within the capillary fringe and may not be indicative of concentrations of petroleum hydrocarbons within the vadose zone. Soil samples collected from the vadose zone from depths of approximately 5 feet BGS contained lower concentrations of petroleum hydrocarbons. TPH as gasoline were detected in the soil samples collected from the vadose zone in only 2 of the borings; Boring MW-1 (2 mg/kg) and MW-2 (1 mg/kg). TPH as diesel were also detected in the soil samples collected from only 2 of the borings; MW-2 (170 mg/kg) and BH-3 (56 mg/kg). Total oil and grease was detected in the soil sample collected from Boring MW-2 at a concentration of 1,400 mg/kg. Based on these results, the highest concentrations of petroleum hydrocarbons detected to date in the vadose zone have been detected in soil samples which were collected from the sidewalls of the tank excavation. This suggests that the extent of petroleum hydrocarbons in the vadose zone is limited to the immediate vicinity of the former location of the underground gasoline and diesel storage tanks.

The direction of shallow ground-water flow beneath the site during October 1990 was found to be toward the west. Petroleum hydrocarbons were detected in the ground-water samples collected from the 3 monitoring wells installed during the assessment activities. The highest concentrations of petroleum hydrocarbons were detected in the water sample collected from Well MW-1, located to the south of the former location of the underground gasoline and diesel storage tanks. These results indicate that the extent of petroleum hydrocarbons in the shallow ground-water in the vicinity of the former location of the underground storage tanks has not been defined.

8.0 REFERENCES

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US Geological Survey, 1979, Professional Paper 943, Flatland Deposits- Their Geology and Engineering Properties and Their Importance to Comprehensive Planning, E.J. Helley and K.R. Lajoie (USGS), and W.E. Spangler and M.L. Blair (William Spangler & Associates), US Government Printing Office.

Table 1 - Summary of Field Sampling Data
 Former Penske Truck Leasing Facility, 725 Julie Ann Way, Oakland, CA.

Well	Date	Depth to Water (A) (feet)	Top of Casing Elevation (feet MSL)	Top of Water Elevation (feet MSL)	Measured Depth of Well (A) (feet)	Calculated Purge Volume (B) (gallons)	Actual Purge Volume (gallons)	pH	Stabilized Temp. (F)	SC (μ hos/cm)	Casing Diameter (inches)
MW-1	2-Oct-90	9.76	5.42	-4.34	37.28	59	47	6.71	87.5	5,360	4
MW-2	2-Oct-90	10.38	6.21	-4.17	32.97	48	47	6.92	86.4	5,460	4
MW-3	2-Oct-90	10.38	6.10	-4.28	37.08	57	54	6.89	88.4	6,390	4

Notes:

- (A) Measured from top of PVC casing.
- (B) Based on three casing volumes.

SC = Specific Conductance
 MSL = Mean Sea-Level

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Table 2 - Soil Analytical Results
Former Penske Truck Leasing Facility, 725 Julie Ann Way, Oakland, CA.

Boring	Date	Depth (feet)	TPH Gasoline (A) (mg/kg)	TPH Diesel (A) (mg/kg)	Benzene (B) (mg/kg)	Toluene (B) (mg/kg)	Ethylbenzene (B) (mg/kg)	Xylenes (B) (mg/kg)	Total Oil & Grease (mg/kg)	VOCs (C)
MW-1	25-Sep-90	5	2	ND(<10)	0.04	0.015	0.01	0.051	NA	NA
		10	820	760	1	0.56	0.46	4.1	NA	NA
		15	2	980	0.53	2.2	0.93	4.5	NA	NA
MW-2	26-Sep-90	5	1	170	0.14	0.02	0.006	0.031	1400	(D)
		10	ND(<1)	32	ND(<.003)	ND(<.003)	ND(<.003)	ND(<.003)	ND (<50)	ND (E)
		15	4	85	ND(<.003)	ND(<.003)	ND(<.003)	ND(<.003)	68	ND (E)
MW-3	27-Sep-90	5	ND(<1)	ND(<10)	0.005	ND (<.003)	ND(<.003)	ND(<.003)	NA	NA
		10	26	190	ND(<.003)	0.018	0.007	0.096	NA	NA
		15	44	150	0.025	0.18	0.087	0.33	NA	NA
		20	ND (<1)	ND(<10)	ND(<.003)	0.017	ND (<.003)	0.005	NA	NA
BH-1	25-Sep-90	10	ND(<1)	ND(<10)	0.01	ND(<.003)	ND(<.003)	0.006	NA	NA
		15	380	460	3.2	15	4.4	28	NA	NA
		20	150	ND(<10)	2.1	8.1	2.1	12	NA	NA
BH-2	27-Sep-90	10	ND(<1)	ND(<10)	ND (<.003)	ND (<.003)	ND (<.003)	ND (<.003)	ND (<50)	ND (E)
		15	ND(<1)	36	ND(<.003)	ND(<.003)	ND(<.003)	ND(<.003)	ND (<50)	ND (E)
BH-3	28-Sep-90	5	ND(<1)	56	0.004	0.13	0.004	0.019	NA	NA
		10	22	54	ND(<.003)	0.015	0.006	0.057	NA	NA
		15	35	200	0.049	0.44	0.33	1.9	NA	NA

Notes:

(A) Total Petroleum Hydrocarbons Analyzed by USEPA Method 8015, modified.

(B) Analyzed by USEPA Method 8020.

(C) Analyzed by USEPA Method 8240.

(D) Detected: acetone (0.072 mg/kg); benzene (0.045 mg/kg); toluene (0.03 mg/kg); xylenes (0.015 mg/kg).

(E) For detection limits of individual compounds see certified laboratory reports.

() = Detection limit

ND= Not detected

NA = Not analyzed

Analysis by Superior Analytical Laboratories, Inc. Martinez, California.

Project No. RC01903

Table 3 - Ground-Water Analytical Results
 Former Penske Truck Leasing Facility, 725 Julie Ann Way, Oakland, CA.

Well	Date	TPH Gasoline (A) (µg/l)	TPH Diesel (A) (µg/l)	Benzene (B) (µg/l)	Toluene (B) (µg/l)	Ethyl- benzene (B) (µg/l)	Xylenes (B) (µg/l)
MW-1	2-Oct-90	170	2,900	20.0	18.0	1.9	5.7
MW-2	2-Oct-90	ND(<50)	80	0.4	ND(<0.3)	ND(<0.3)	0.5
MW-3	2-Oct-90	ND(<50)	90	28	3.1	0.6	1.5

Water Quality Analysis

Well	Date	Hardness mg/l	Chloride mg/l	TDS mg/l
MW-2	12-Oct-90	300	1,200	3,000

Notes:

(A) Total Petroleum Hydrocarbons analyzed by USEPA Method 8015, modified.

(B) Analyzed by USEPA Method 8020.

() - Reported detection limit

ND - Not Detected

NA - Not Analyzed.

Analysis by Superior Analytical Laboratories, Inc. Martinez, California.



Reference: USGS Oakland East, Ca. 7 1/2 Min. Quad
 Scale: 1: 24,000

● = Site



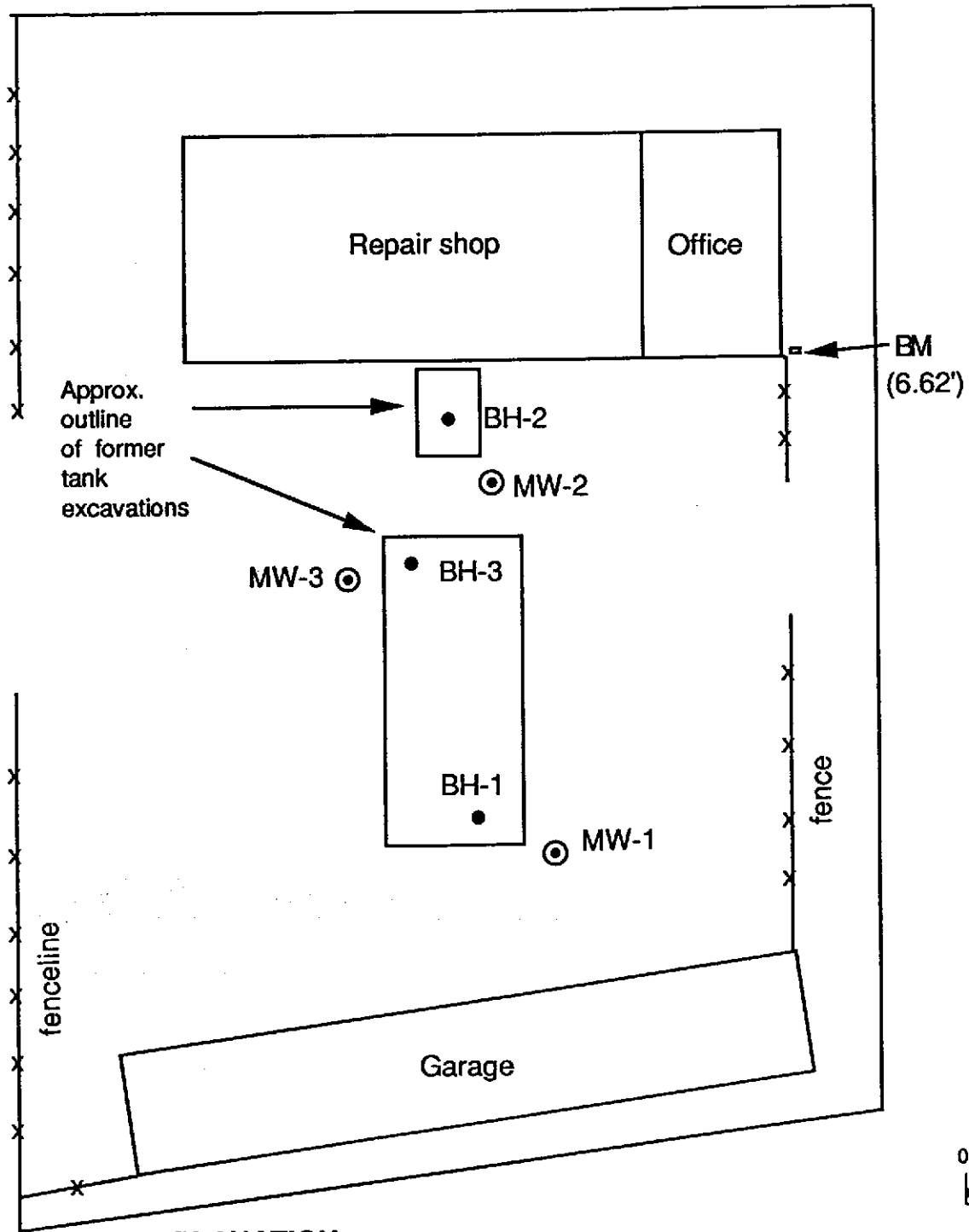
GERAGHTY & MILLER, INC.
Environmental Services

Proj. No. RC01903 Date: Oct 15, 1990

SITE LOCATION MAP
 Former Penske Truck Leasing Co.
 724 Julie Ann Way
 Oakland, California

FIGURE

1



EXPLANATION

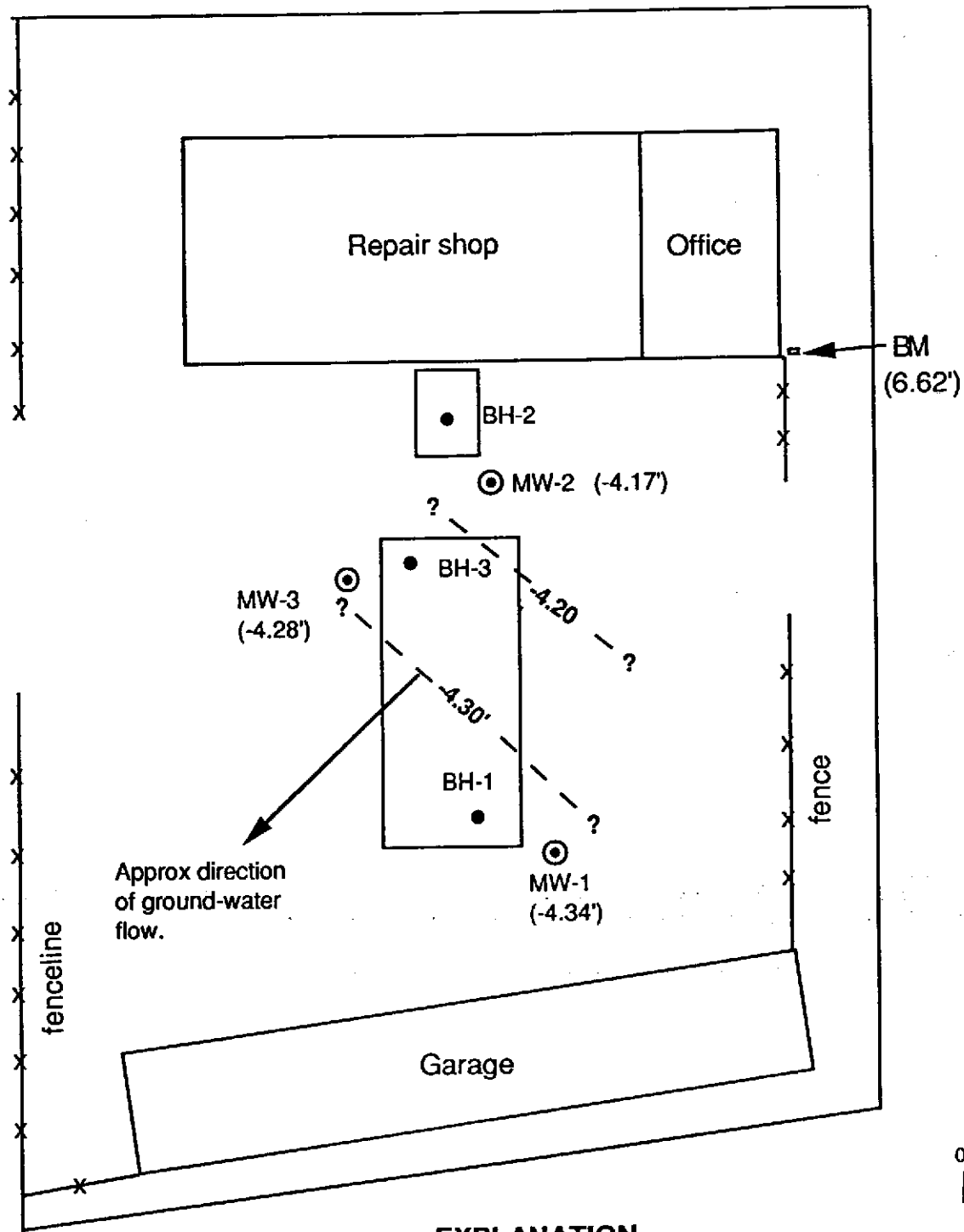
- BH-1 ● = Approximate location of soil borings
- MW-1 ⊙ = Approximate location of ground-water monitor wells
- = BM = Survey Bench Mark (based on City of Oakland datum which is 3 feet higher than Mean Sea Level.)

SITE PLAN MAP

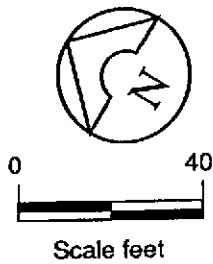
Former Penske Truck Leasing Co.
724 Julie Ann Way
Oakland, California

FIGURE

2



Julie Ann Way



EXPLANATION

- BH-1 ● = Approximate location of soil borings
- MW-1 ⊙ = Approximate location of ground-water monitor wells
- = BM = Survey Bench Mark (based on City of Oakland datum which is 3 feet higher than Mean Sea Level).

- (-4.17) = Ground-Water elevation (feet), measured Oct. 2, 1990.
- 4.25 - -? = Ground-water elevation contour (feet); Dashed where inferred, ? where uncertain; (contour interval equals 0.10 foot).
















GROUND-WATER CONTOUR MAP



Former Penske Truck Leasing Co.
724 Julie Ann Way
Oakland, California




FIGURE


3

KEY TO BORING LOG SYMBOLS

UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D2487					
MAJOR DIVISIONS			SYMBOL/ GRAPHIC	DESCRIPTIONS	
COARSE GRAINED SOILS (>50% by weight larger than #200 sieve)	GRAVELS (More than 50% of coarse fraction is larger than the #4 sieve size.)	Clean gravels with little or no fines	GW		Well Graded Gravels, Gravel - Sand Mixtures
			GP		Poorly Graded Gravels, Gravels - Sand Mixtures
		Gravels with over 12% fines	GM		Silty Gravels, Poorly Graded Gravel - Sand - Silt Mixtures
			GC		Clayey Gravels, Poorly Graded Gravel - Sand - Clay Mixtures
	SANDS (More than 50% of coarse fraction is smaller than #4 sieve size.)	Clean sands with little or no fines	SW		Well Graded Sands, Gravelly Sands
			SP		Poorly Graded Sands, Gravelly Sands
		Sands with over 12% fines	SM		Silty Sands, Poorly Graded Sand - Silt Mixtures
			SC		Clayey Sands, Poorly Graded Sand - Clay Mixtures
FINE GRAINED SOILS (>50% smaller than #200 sieve)	SILTS AND CLAYS (liquid limit less than 50)		ML		Inorganic Silts and Very Fine Sands, Silty or Clayey Fine Sands
			CL		Inorganic Clays of Low to Medium Plasticity; Gravelly, Sandy or Silty Clays; Lean Clays
			OL		Organic Clays and Organic Silty Clays of Low Plasticity
			MH		Inorganic Silts, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silts
			CH		Inorganic Clays of High Plasticity, Fat Clays
			OH		Organic Clays of Medium to High Plasticity, Organic Silts
HIGHLY ORGANIC SOILS			PI		Peat and other Highly Organic Soils

-  Stabilized water level (date)
-  Water level encountered during drilling
- PID Photo-ionization Detector
- FID Flame-ionization Detector
- EXP Gastech Explosimeter
- DEGREE OFF VERTICAL refers to the angle at which the boring is drilled with respect to a plumb line.

	Asphaltic Concrete
	Portland Cement Concrete
	Cement Grout

 Soil sample depth interval (Blackened interval indicates portion of sample prepared for laboratory chemical analyses.)

LOG OF BORING BH-1

Former Penske Truck Leasing Facility
725 Julie Ann Way
Oakland, California

Repair Shop Office



Garage

Julie Ann Way

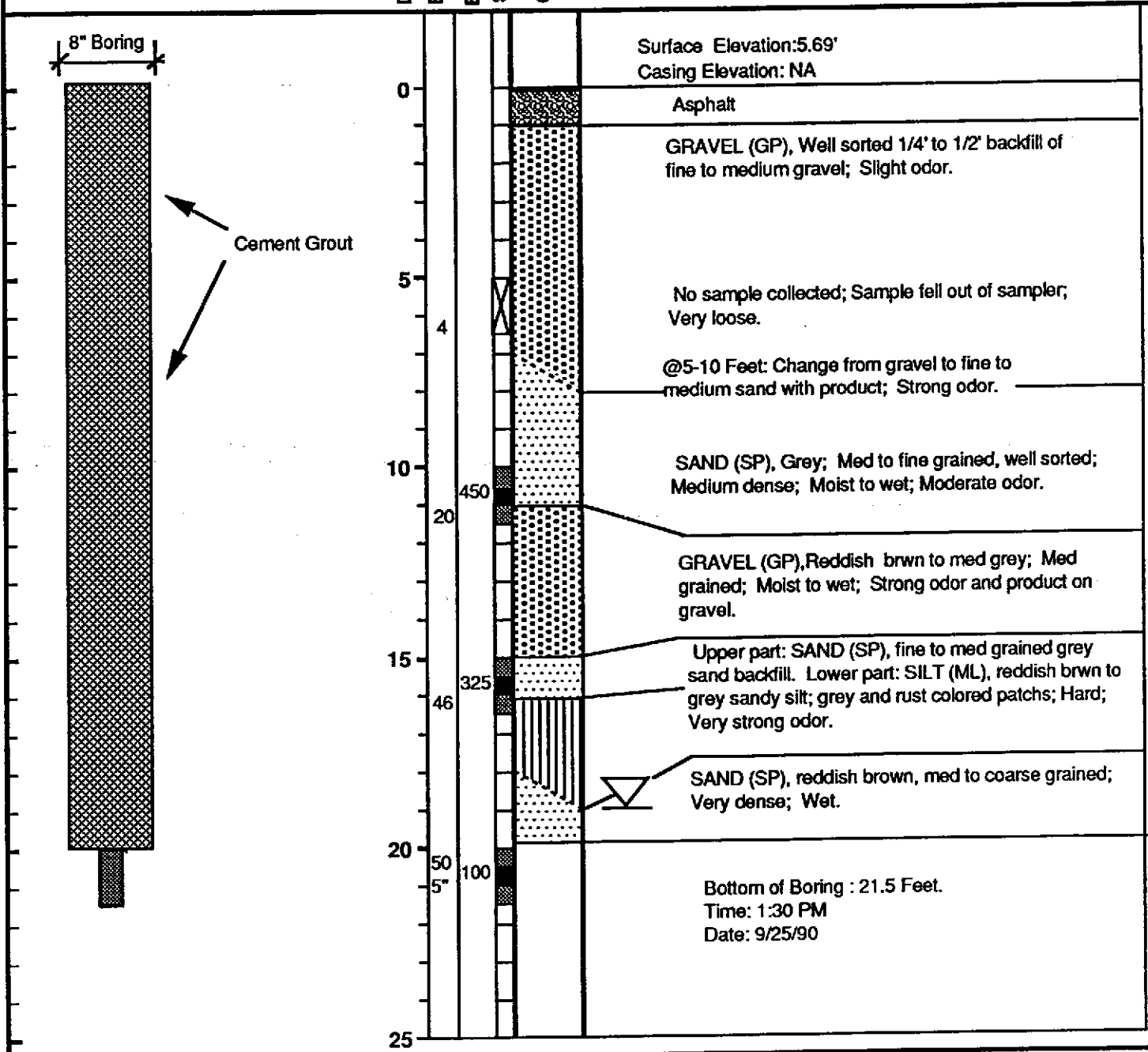
Project No.: RC01903
Logged By: Paul V. Hehn
Drilling Co.: West HazMat
Driller: Mark Thorp

Date Drilled: September 25, 1990
Drilling Method: 8" Hollow Stem Auger.
Sampling Method: 2" Split spoon
Inclination: Vertical

WELL CONSTRUCTION

Depth (ft.)
Blows/ft.
EXP
Samples
Graphic

DESCRIPTION

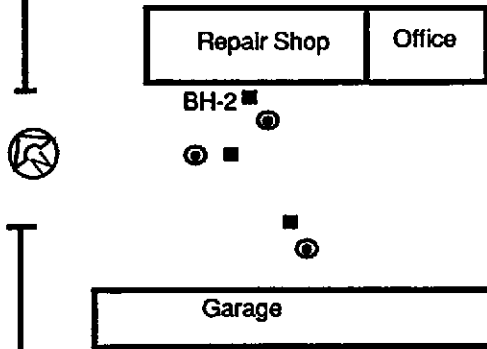


LOG OF BORING BH-2

Former Penske Truck Leasing Facility
725 Julie Ann Way
Oakland, California

Project No.: RC01903
Logged By: Paul V. Hehn
Drilling Co.: West HazMat
Driller: Mark Thorp

Date Drilled: September 27, 1990
Drilling Method: 8" Hollow Stem Auger.
Sampling Method: 2" Split spoon
Inclination: Vertical



Julie Ann Way

WELL CONSTRUCTION

Depth (ft.)

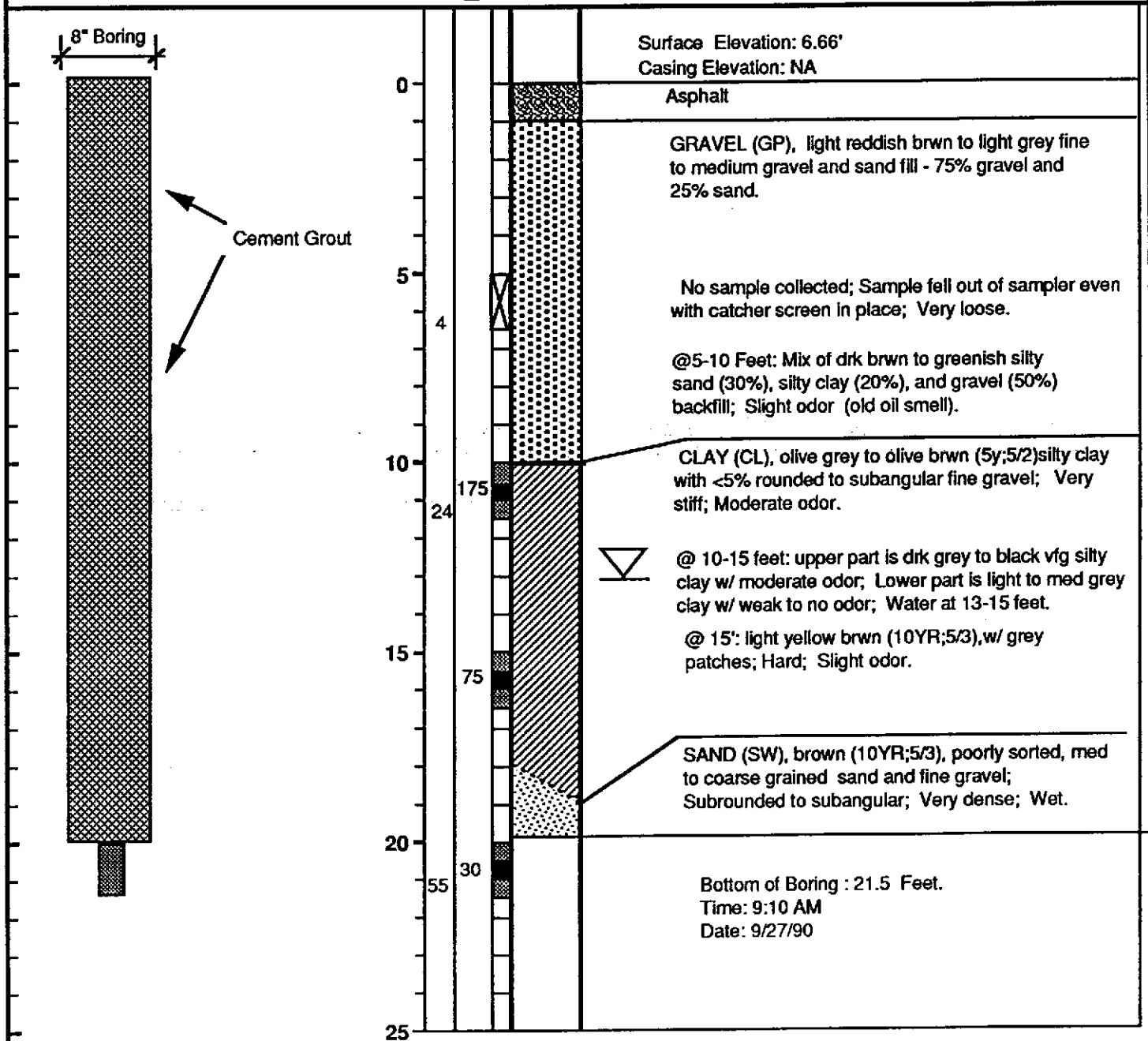
Blows/ft.

EXP

Samples

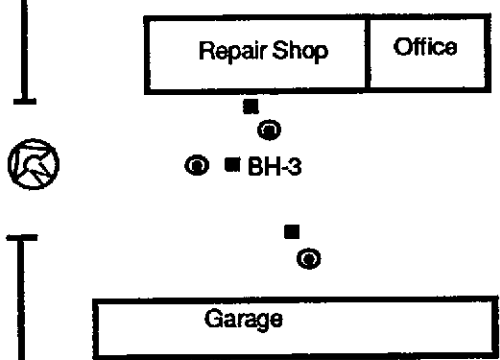
Graphic

DESCRIPTION



LOG OF BORING BH-3

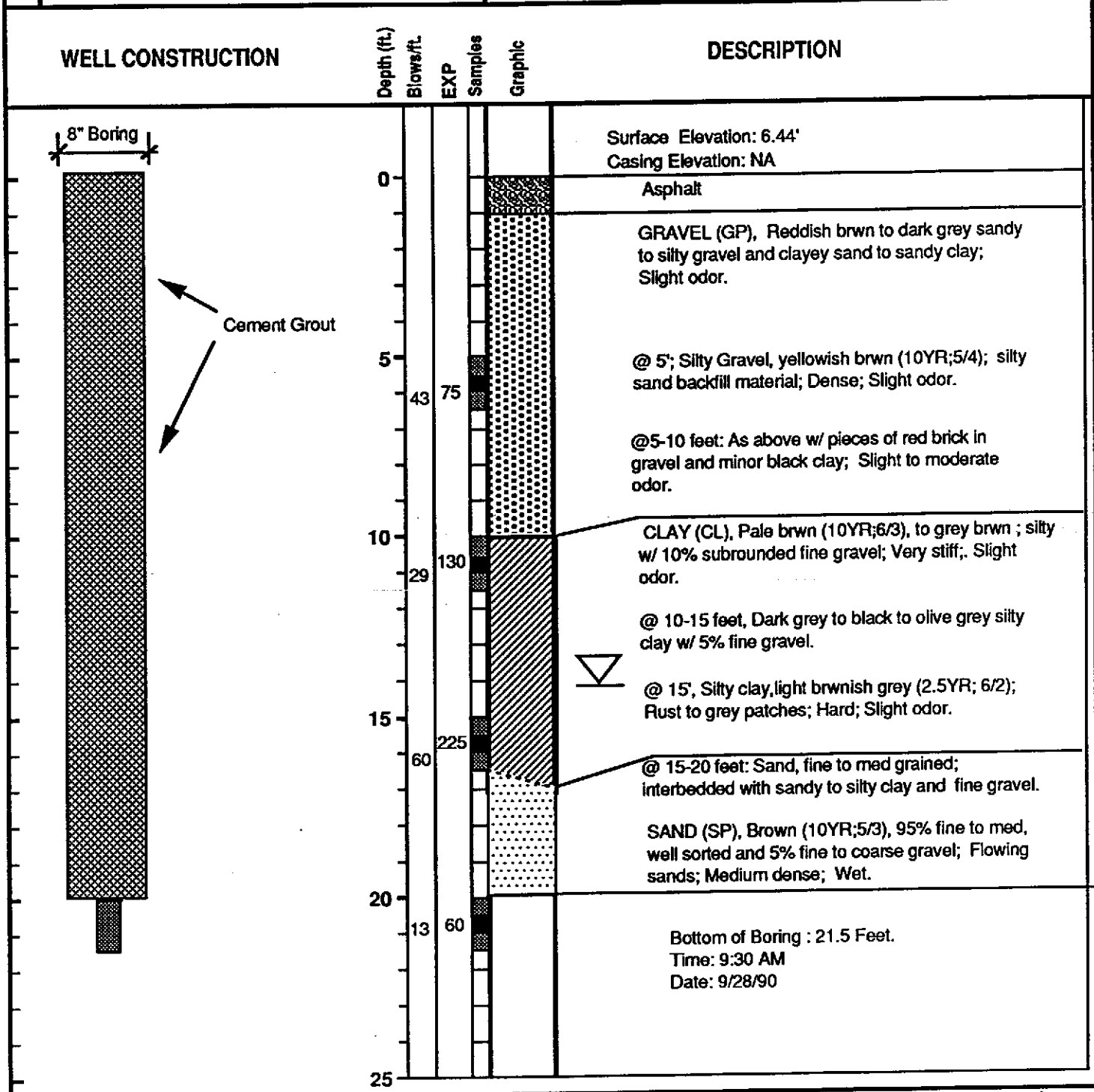
Former Penske Truck Leasing Facility
725 Julie Ann Way
Oakland, California



Julie Ann Way

Project No.: RC01903
Logged By: Paul V. Hehn
Drilling Co.: West HazMat
Driller: Mark Thorp

Date Drilled: September 28, 1990
Drilling Method: 8" Hollow Stem Auger.
Sampling Method: 2" Split spoon
Inclination: Vertical

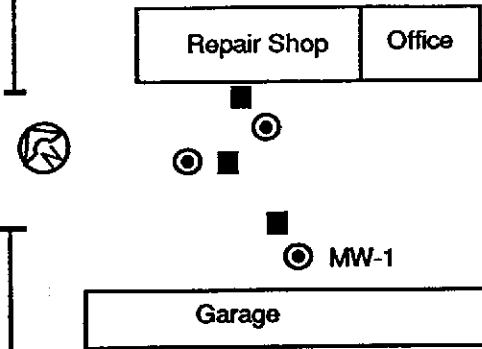


LOG OF BORING MW-1

Former Penske Truck Leasing Facility
725 Julie Ann Way
Oakland, California

Project No.: RC01903
Logged By: Paul V. Hehn
Drilling Co.: West HazMat
Driller: Mark Thorp

Date Drilled: September 25, 1990
Drilling Method: 10" Hollow Stem Auger.
Sampling Method: 2" Split spoon
Inclination: Vertical

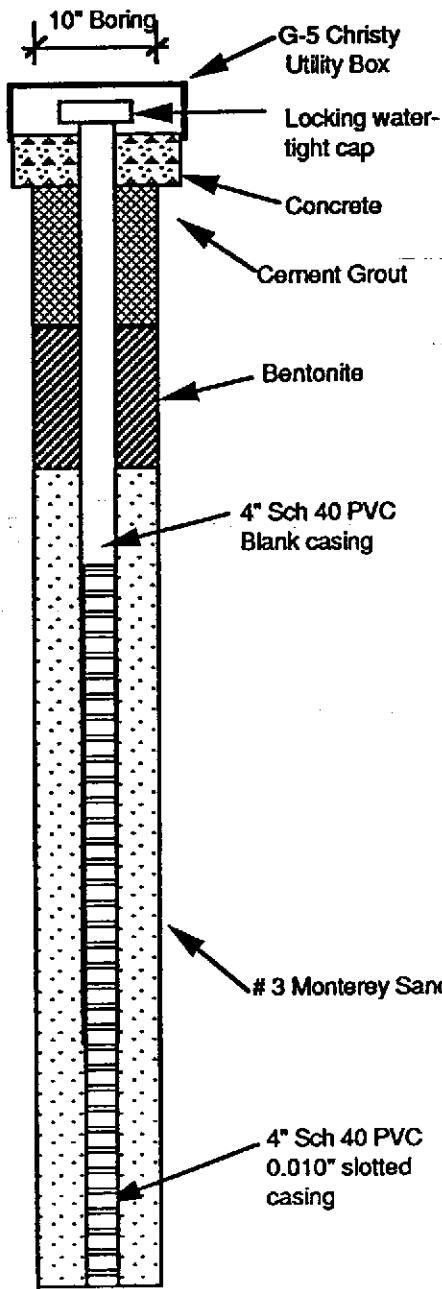


Julie Ann Way

WELL CONSTRUCTION

Depth (ft.)
Blowefft.
EXP
Samples
Graphic

DESCRIPTION



Surface Elevation: 5.42'
Casing Elevation: 4.98'

Asphalt

CLAY (CL), red brick, sand, gravel and clay fill. Light yellowish brown silty, sandy clay w/<10% fine gravel; mixed with layers of dark brwn silty, sandy clay; Gravel to cobbles increase to 20 to 30% at bottom.

@5 feet, Sandy to silty, dark brown, w/10% fine gravel; Very stiff; Slight odor.

@5-10 Feet: Interbedded sand and gravel; Dark gray to black; moderate odor.

@10 feet, Silty to very slighty sandy clay w/ 10% fine gravel; Medium grey to medium olive green; Minor interbedded sandy lenses; Very stiff; Moderate odor.

@ 10-15 feet: Sandy lenses; dark grey to black.

@15 feet,, same as above; interbedded layers of sandy silt to silty sand (light brwn) & dark grey to black clay to silty, sandy clay; Slightly moist; Hard; Slight odor.

@15-20 feet: Interbedded silty, sandy clay (dark grey) and light to medium reddish brwn fine grained to very fine grained silty sand.

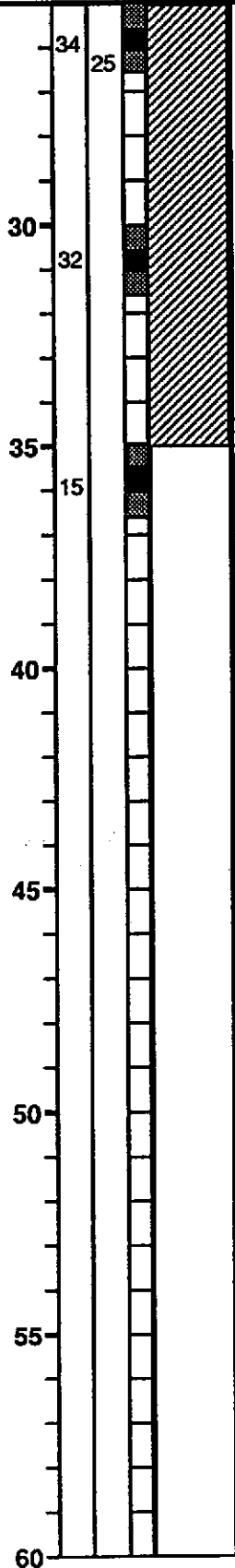
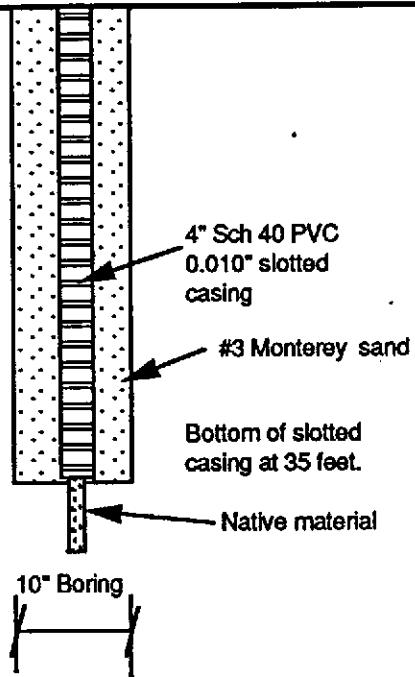
SILTY SAND (SM), light brwn to reddish brwn, interbedded with light to medium brwn fine to coarse sand with subangular fine gravel; Reddish brwn stain; Dense; Slight odor.

**LOG OF BORING MW-1
(continued)**

WELL CONSTRUCTION

Depth (ft.)
Blows/ft.
EXP
Samples
Graphic

DESCRIPTION



CLAY (CL), Lght brwnish grey to greyish brwn; Fine grained silty w/minor fg sand; Scattered rusty patches and streaks. Hard; Wet.

@ 30 feet, Silty, reddish brwn (5YR;4/3); Very stiff; Slight odor; Wet.

@ 35 feet, Interbedded silty clay, yellowish brown (5RY;4/3), with small pieces of coarse sand to fg silty sand ; Stiff; Sticky, hard drilling.

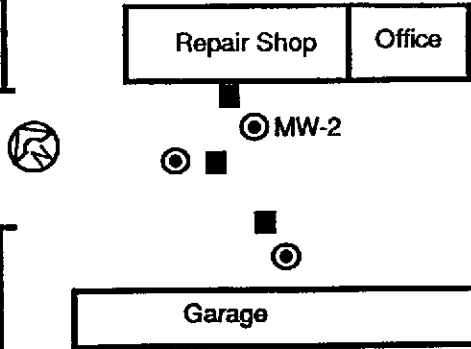
Bottom of Boring: 36.5 Feet.
Time: 10:20 AM
Date: 9/25/90

LOG OF BORING MW-2

Former Penske Truck Leasing Facility
725 Julie Ann Way
Oakland, California

Project No.: RC01903
Logged By: Paul V. Hehn
Drilling Co.: West HazMat
Driller: Mark Thorp

Date Drilled: September 26, 1990
Drilling Method: 10" Hollow Stem Auger.
Sampling Method: 2" Split spoon
Inclination: Vertical



Julie Ann Way

WELL CONSTRUCTION

Depth (ft.)

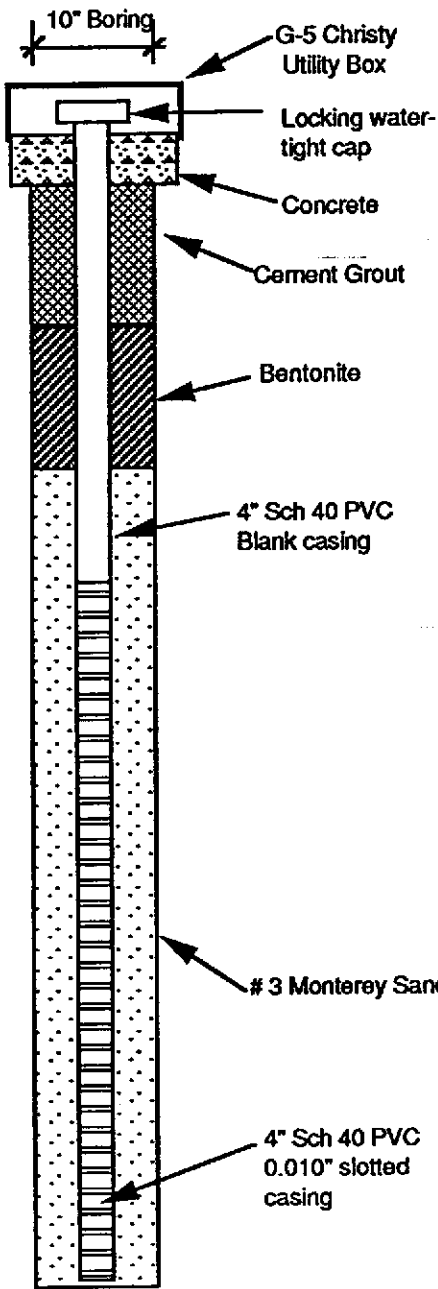
Blows/ft.

EXP

Samples

Graphic

DESCRIPTION



Surface Elevation: 6.21'

Casing Elevation: 5.85'

Asphalt

CLAY (CL), clay, red brick and backfill material as part of fill under parking lot. Red brick pieces in cuttings to approx. 4.5 feet.

@ 5 feet: Silty, Dark grey to black to dark olive grey; With pieces of red brick in sample; Hard; Slight odor.

@5-10 Feet: Clayey, Light olive green to brwn to dark grey; With red brick pieces; moderate odor.

@ 10 feet: Silty, pale olive (5Y;6/3), to olive grey; Stiff; Slight odor.

@ 10-15 feet: Med to light grey; With <5% fine gravel. Slight to mod odor.

@ 15 feet: Silty, Light olive grey (5Y;6/2); Very stiff; Tight; Dry to moist.

SAND (SW), Pale brwn (10YR;6/3), fine to med grained with 10-40% fine rounded to sudangular gravel; Dense; Wet; Slight odor.

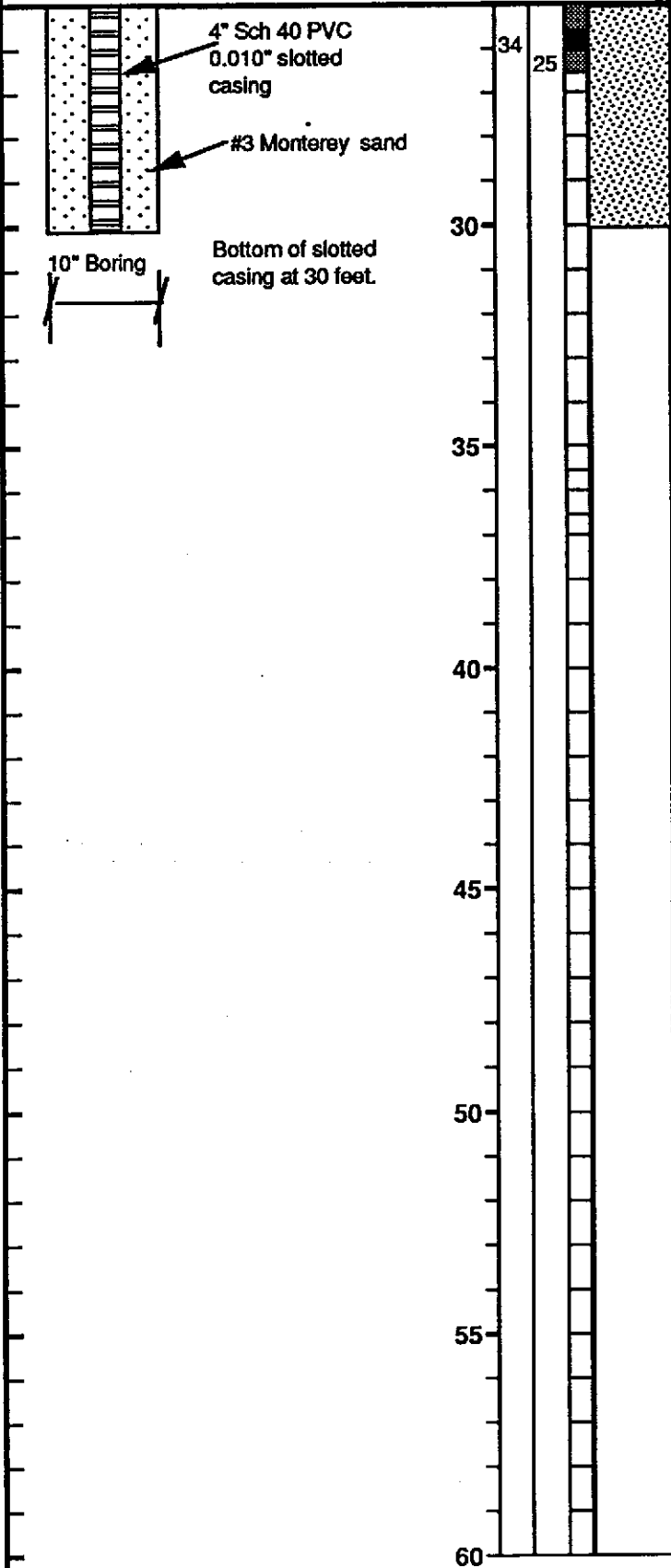
@ 22 feet: CLAY (CL), Light olive brwn; sandy to silty with fine gravel.

LOG OF BORING MW-2 (continued)

WELL CONSTRUCTION

Depth (ft.)
 Blows/ft.
 EXP
 Samples
 Graphic

DESCRIPTION



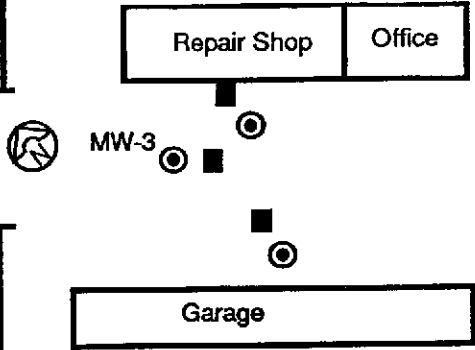
SAND (SW), Yellowish brwn (10YR;5/4); Med to coarse grained ; With 10% clay and 20% subangular to rounded 1/4" gravel; Dense; Wet; Very slight odor.

No sample collected. Sticking, heaving mud and flowing sands prevent sample collection or further drilling advance. Trouble pulling out sample tube and inner drill rods. Boring stopped at 30-feet.

Bottom of Boring: 30 Feet.
 Time: 11:20 AM
 Date: 9/26/90

LOG OF BORING MW-3

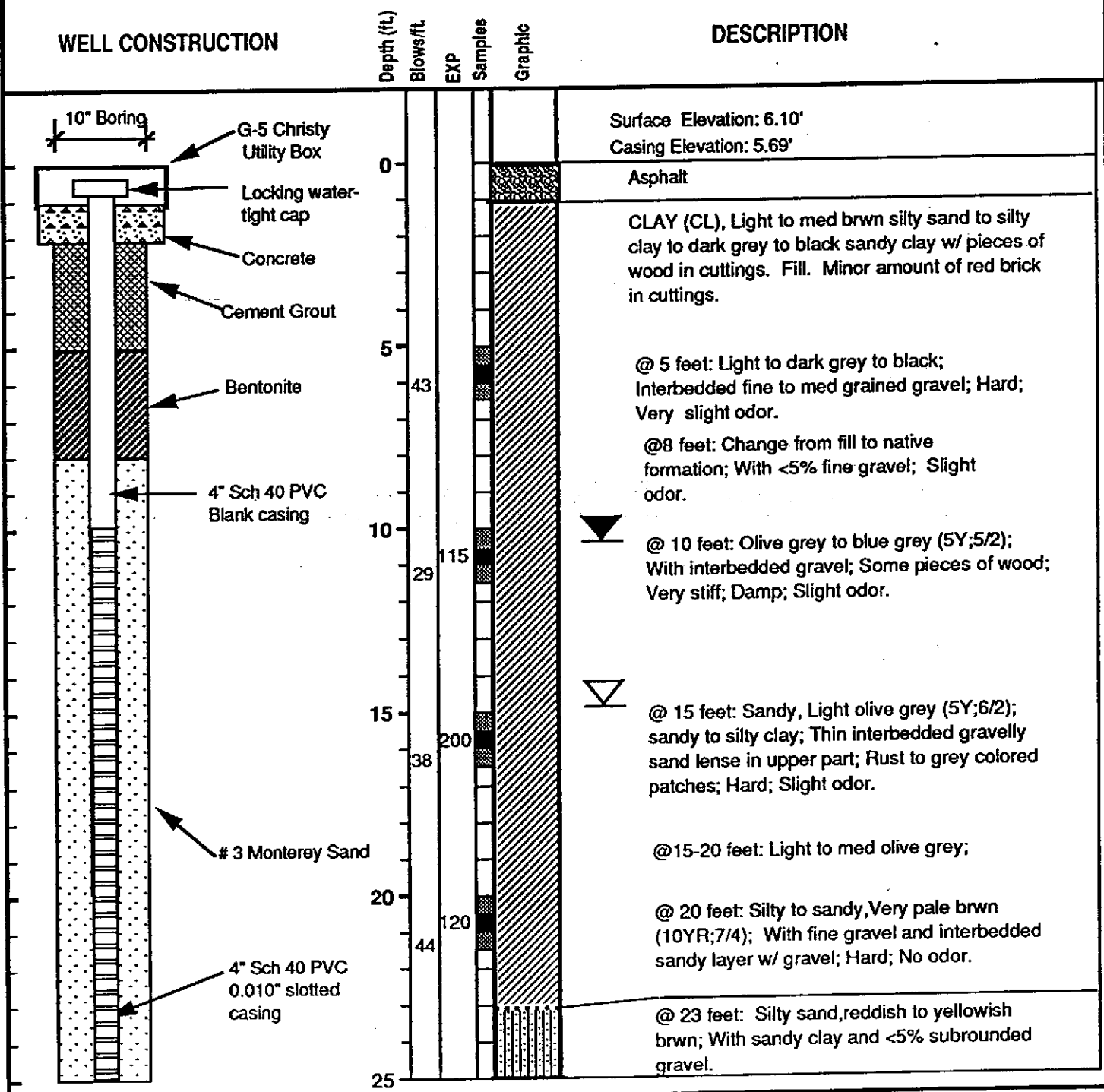
Former Penske Truck Leasing Facility
725 Julie Ann Way
Oakland, California



Julie Ann Way

Project No.: RC01903
Logged By: Paul V. Hehn
Drilling Co.: West HazMat
Driller: Mark Thorp

Date Drilled: September 27, 1990
Drilling Method: 10" Hollow Stem Auger.
Sampling Method: 2" Split spoon
Inclination: Vertical

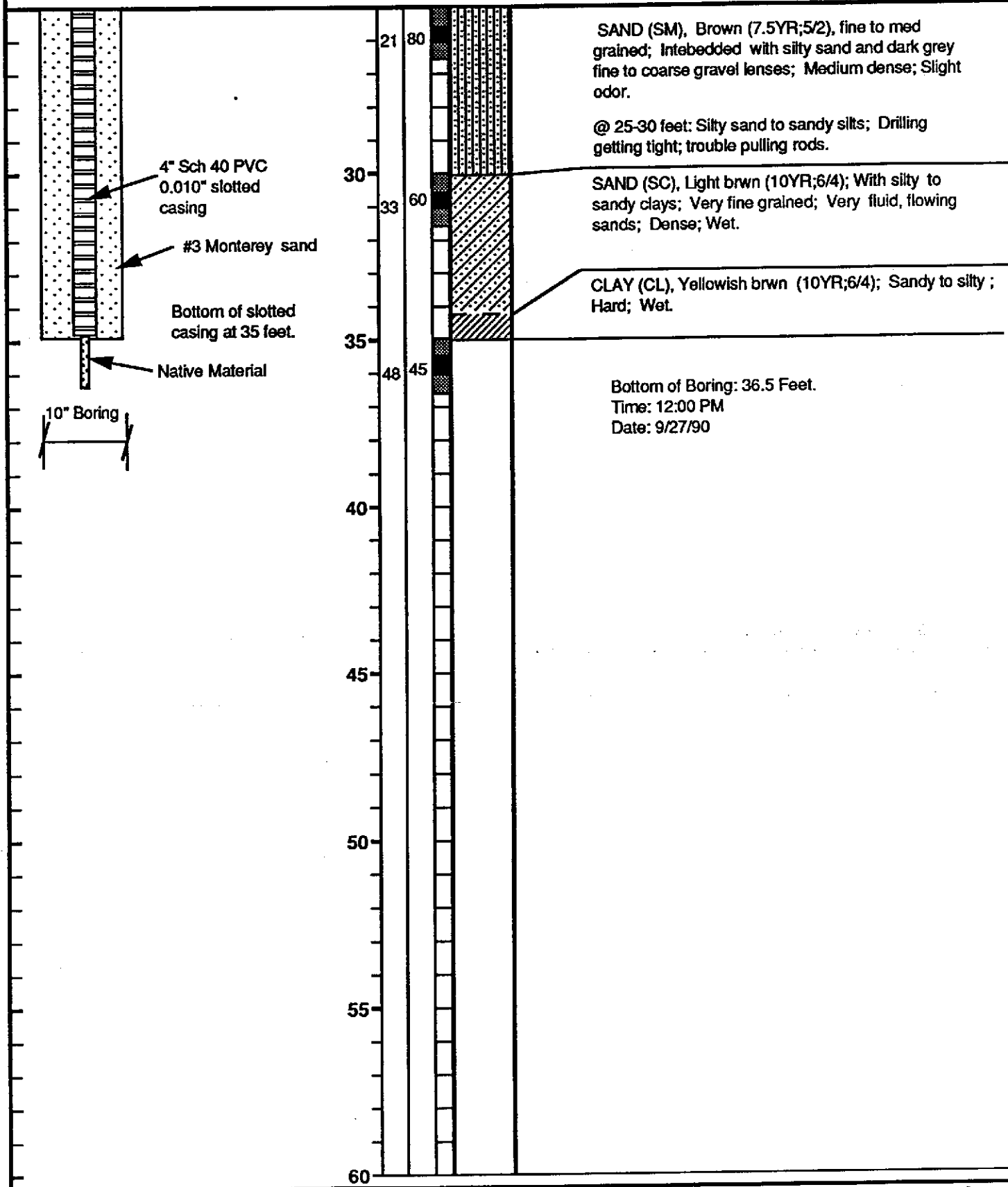


LOG OF BORING MW-3 (continued)

WELL CONSTRUCTION

Depth (ft.)
 Blows/ft.
 EXP
 Samples
 Graphic

DESCRIPTION



Bottom of Boring: 36.5 Feet.
 Time: 12:00 PM
 Date: 9/27/90

BATES AND BAILEY

LAND SURVEYORS

15 SHATTUCK SQUARE • BERKELEY, CA 94704
TELEPHONE (415) 843-2007

P.O. BOX 592
BERKELEY, CA 94701-0592

October 3, 1990

Geraghty & Miller, Inc.
1050 Marina Way South
Richmond, CA 94804

Attention: Paul V. Hehn

RE: W.O. #RC-01903
Penske, Oakland

Dear Paul,

Listed below are the elevations of the monitor well casings and the bore holes. A bench mark was set at the southern corner of the building as shown on the enclosed sketch. The elevation is 6.62 which is based on City of Oakland datum.

STATION	ELEVATION
MW #1	5.42
BH #1	5.69
MW #2	6.21
BH #2	6.66
MW #3	6.10
BH #3	6.44

Yours truly,

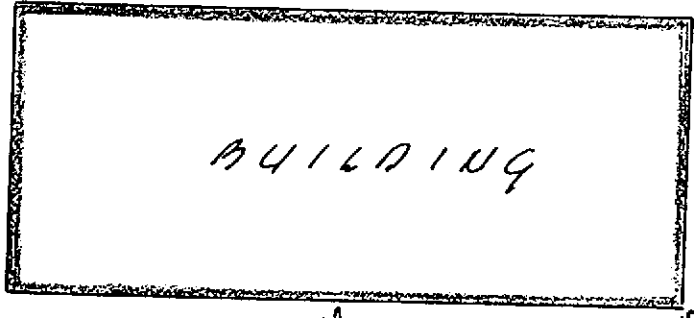


Robert W. Wilson
Robert W. Wilson L.L.S.3833

RWW/dd

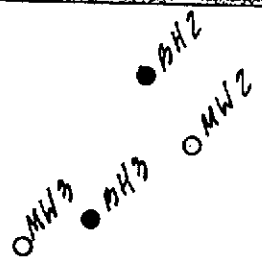
MONUMENT

Scale 1" = 40'



BUILDING

35'



BH3

MW3

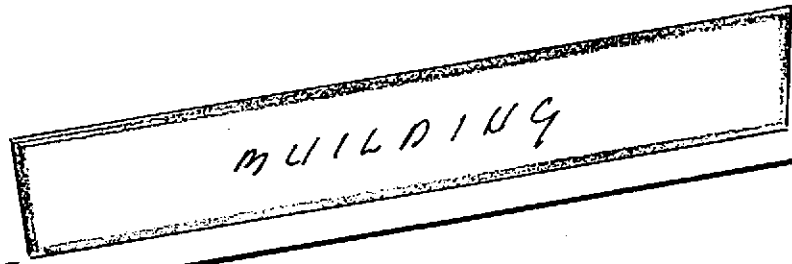
BH3

MW2

BH1

MW1

Fence 2



BUILDING

Fence 1

DRIVEWAY

JULIE ANN WAY

COLISEUM WAY

MONUMENT

Rec'd
10/9/90
PPB

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52559
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC01903

DATE RECEIVED: 09/27/90
DATE REPORTED: 10/04/90

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/kg)			
		Benzene	Toluene	Ethyl Benzene	Xylenes
1	MW-1-10'	1000	560	460	4100
2	MW-1-15'	530	2200	920	4500
3	MW-1-5'	40	15	10	51
4	MW-2-5'	140	20	6	31
5	MW-2-10'	ND<3	ND<3	ND<3	ND<3
6	MW-2-15'	ND<3	ND<3	ND<3	15
7	BH-1-10'	10	ND<3	ND<3	6
8	BH-1-15'	3200	15000	4400	28000
9	BH-1-20'	2100	8400	2100	12000

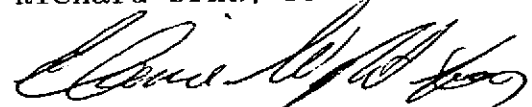
ug/kg - parts per billion (ppb)

Minimum Detection Limit in Soil: 3.0ug/kg

QA/QC Summary:

Daily Standard run at 20ug/L: %Diff 8020 = <15%
MS/MSD Average Recovery = 102% : Duplicate RPD = 3%

Richard Srna, Ph.D.


Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52559
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC01903

DATE RECEIVED: 09/27/90
DATE REPORTED: 10/04/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/kg) Gasoline Range
1	MW-1-10'	820
2	MW-1-15'	220
3	MW-1-5'	2
4	MW-2-5'	1
5	MW-2-10'	ND<1
6	MW-2-15'	4
7	BH-1-10'	ND<1
8	BH-1-15'	380
9	BH-1-20'	150

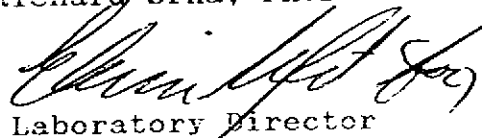
mg/kg - parts per million (ppm)

Minimum Detection Limit for Gasoline in Soil: 1mg/kg

QAQC Summary:

Daily Standard run at 2mg/L: %Diff Gasoline = <15 %
MS/MSD Average Recovery = 90%: Duplicate RPD = 0 %

Richard Srna, Ph.D.



Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52559
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC01903

DATE RECEIVED: 09/27/90
DATE REPORTED: 10/04/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS by Modified EPA SW-846 Method 8015

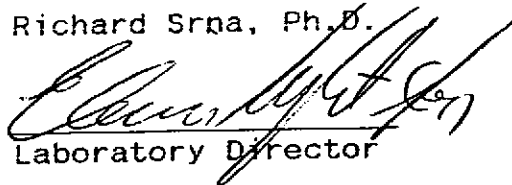
LAB #	Sample Identification	Concentration (mg/kg) Diesel Range
1	MW-1-10'	760
2	MW-1-15'	980
3	MW-1-5'	ND<10
4	MW-2-5'	170
5	MW-2-10'	32
6	MW-2-15'	85
7	BH-1-10'	ND<10
8	BH-1-15'	460
9	BH-1-20'	ND<10

Minimum Detection Limit for Diesel in Soil: 10mg/kg

QAQC Summary:

Daily Standard run at 200mg/L: %Diff Diesel = 9 %
MS/MSD Average Recovery = 96%: Duplicate RPD = 5 %

Richard Srna, Ph.D.


Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 52559-4
 CLIENT: Geraghty & Miller Inc.

DATE RECEIVED: 09/27/90
 DATE REPORTED: 10/04/90
 JOB NO. RCO1903

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
 by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-2-5'

Compound	ug/kg	Compound	ug/kg
Chloromethane	ND<50	Cis-1,3-Dichloropropene	ND<15
Bromomethane	ND<50	Trichloroethene	ND<15
Vinyl Chloride	ND<50	Dibromochloromethane	ND<15
Chloroethane	ND<50	1,1,2-Trichloroethane	ND<15
Methylene Chloride	ND<50	Benzene(MDL=ND<10)	45
Acetone (MDL=ND<50)	72	Trans-1,3-Dichloropropene	ND<15
Carbon disulfide	ND<15	2-Chloroethyl vinyl ether	ND<15
Trichlorofluoromethane	ND<15	Bromoform	ND<15
1,1-Dichloroethene	ND<15	4-Methyl-2-Pentanone	ND<50
1,1-Dichloroethane	ND<15	2-Hexanone	ND<50
1,2-Dichloroethene (total)	ND<15	Tetrachloroethene	ND<15
Chloroform	ND<15	1,1,2,2-Tetrachloroethane	ND<15
1,2-Dichloroethane	ND<15	Toluene (MDL=ND<15)	30
2-Butanone	ND<100	Chlorobenzene	ND<15
1,1,1-Trichloroethane	ND<15	Ethylbenzene	ND<15
Carbon Tetrachloride	ND<15	Styrene	ND<15
Vinyl Acetate	ND<50	Total Xylenes(MDL=ND<15)	15
Bromodichloromethane	ND<15	1,3-Dichlorobenzene	ND<15
1,2-Dichloropropane	ND<15	1,2&1,4-Dichlorobenzenes	ND<15

ug/kg = part per billion (ppb)

QC DATA:

Surrogate Recoveries

QC Limits

1,2-DCA-d4.....	92%
Toluene-d8.....	108%
Bromofluorobenzene.....	80%

water	soil
76-114	81-117
88-110	81-140
86-115	74-121

comments:

Richard Srna, Ph.D.

Richard Srna
 Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO. 52559-5
 CLIENT: Geraghty & Miller Inc.

DATE RECEIVED: 09/27/90
 DATE REPORTED: 10/04/90
 JOB NO. RCO1903

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
 by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-2-10'

Compound	ug/kg	Compound	ug/kg
Chloromethane	ND<50	Cis-1,3-Dichloropropene	ND<15
Bromomethane	ND<50	Trichloroethene	ND<15
Vinyl Chloride	ND<50	Dibromochloromethane	ND<15
Chloroethane	ND<50	1,1,2-Trichloroethane	ND<15
Methylene Chloride	ND<50	Benzene	ND<10
Acetone	ND<50	Trans-1,3-Dichloropropene	ND<15
Carbon disulfide	ND<15	2-Chloroethyl vinyl ether	ND<15
Trichlorofluoromethane	ND<15	Bromoform	ND<15
1,1-Dichloroethene	ND<15	4-Methyl-2-Pentanone	ND<50
1,1-Dichloroethane	ND<15	2-Hexanone	ND<50
1,2-Dichloroethene (total)	ND<15	Tetrachloroethene	ND<15
Chloroform	ND<15	1,1,2,2-Tetrachloroethane	ND<15
1,2-Dichloroethane	ND<15	Toluene	ND<15
2-Butanone	ND<100	Chlorobenzene	ND<15
1,1,1-Trichloroethane	ND<15	Ethylbenzene	ND<15
Carbon Tetrachloride	ND<15	Styrene	ND<15
Vinyl Acetate	ND<50	Total Xylenes	ND<15
Bromodichloromethane	ND<15	1,3-Dichlorobenzene	ND<15
1,2-Dichloropropane	ND<15	1,2&1,4-Dichlorobenzenes	ND<15

ug/kg = part per billion (ppb)

QC DATA:

	Surrogate Recoveries	QC Limits	
		water	soil
1,2-DCA-d4.....	99%	76-114	81-117
Toluene-d8.....	102%	88-110	81-140
Bromofluorobenzene.....	93%	86-115	74-121

comments:

Richard Srna, Ph.D.

Richard Srna
 Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081
 C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 52559-6
 CLIENT: Geraghty & Miller Inc.

DATE RECEIVED: 09/27/90
 DATE REPORTED: 10/04/90
 JOB NO. RCO1903

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
 by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-2-15'

Compound	ug/kg	Compound	ug/kg
Chloromethane	ND<50	Cis-1,3-Dichloropropene	ND<15
Bromomethane	ND<50	Trichloroethene	ND<15
Vinyl Chloride	ND<50	Dibromochloromethane	ND<15
Chloroethane	ND<50	1,1,2-Trichloroethane	ND<15
Methylene Chloride	ND<50	Benzene	ND<10
Acetone	ND<50	Trans-1,3-Dichloropropene	ND<15
Carbon disulfide	ND<15	2-Chloroethyl vinyl ether	ND<15
Trichlorofluoromethane	ND<15	Bromoform	ND<15
1,1-Dichloroethene	ND<15	4-Methyl-2-Pentanone	ND<50
1,1-Dichloroethane	ND<15	2-Hexanone	ND<50
1,2-Dichloroethene (total)	ND<15	Tetrachloroethene	ND<15
Chloroform	ND<15	1,1,2,2-Tetrachloroethane	ND<15
1,2-Dichloroethane	ND<15	Toluene	ND<15
2-Butanone	ND<100	Chlorobenzene	ND<15
1,1,1-Trichloroethane	ND<15	Ethylbenzene	ND<15
Carbon Tetrachloride	ND<15	Styrene	ND<15
Vinyl Acetate	ND<50	Total Xylenes	ND<15
Bromodichloromethane	ND<15	1,3-Dichlorobenzene	ND<15
1,2-Dichloropropane	ND<15	1,2&1,4-Dichlorobenzenes	ND<15

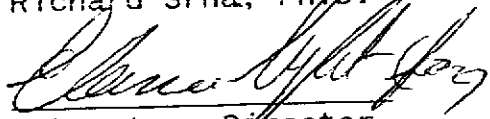
ug/kg = part per billion (ppb)

QC DATA:

	Surrogate Recoveries	QC Limits	
		water	soil
1,2-DCA-d4.....	102%	76-114	81-117
Toluene-d8.....	106%	88-110	81-140
Bromofluorobenzene.....	97%	86-115	74-121

comments:

Richard Srna, Ph.D.



Laboratory Director

Project Number R01903
 Project Location PENSKE-OAKLAND
 Laboratory SUPERIOR
 Sampler(s)/Affiliation GERAGHTY+MILLER

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	SAMPLE BOTTLE / CONTAINER DESCRIPTION						TOTAL
				TPH AS GASOLINE EPA 8015, MODIFIED	TPH AS DIESEL 8015 MODIFIED	BTXE EPA 8020	VERATILE 8240			
1 MW 2 - 10'	S			X	X	X				
2 MW 2 - 15'	S			X	X	X				
3 MW 2 - 5'	S			X	X	X				
4 MW 2 - 5'	S			X	X	X	X			
5 MW 2 - 10'	S			X	X	X	X			
6 MW 2 - 15'	S			X	X	X	X			
7 BH 2 10'	S			X	X	X				
8 BH 2 15'	S			X	X	X				
9 BH 2 20'	S			X	X	X				

Sample Code: L = Liquid; (S) = Solid; A = Air

Total No. of Bottles/ Containers

Relinquished by: <u>Jeff Hawpin</u>	Organization: <u>GAM</u>	Date <u>1/1</u> Time _____	Seal Intact? Yes No N/A
Received by: <u>[Signature]</u>	Organization: <u>EXPRES-IT</u>		
Relinquished by: <u>[Signature]</u>	Organization: <u>ECS</u>	Date <u>09/27/90</u> Time <u>1400</u>	Seal Intact? Yes No N/A
Received by: <u>[Signature]</u>	Organization: <u>BAL</u>		

Special Instructions/Remarks: _____

Delivery Method: In Person Common Carrier Lab Courier Other _____

SPECIFY _____ SPECIFY _____

SUPERIOR ANALYTICAL LABORATORY, INC.

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C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52571
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC-01903

DATE RECEIVED: 09/28/90
DATE REPORTED: 10/05/90

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/kg)			
		Benzene	Toluene	Ethyl Benzene	Xylenes
1	BH-2-10	ND<3	ND<3	ND<3	ND<3
2	BH-2-15	ND<3	ND<3	ND<3	ND<3
3	MW-3-5	5	ND<3	ND<3	4
4	MW-3-10	ND<3	18	7	96
5	MW-3-15	25	180	87	330
6	BH-3-5	4	130	4	19
7	BH-3-10	ND<3	15	6	57
8	BH-3-15	49	440	330	1900
9	MW-3-20	ND<3	17	ND<3	5

ug/kg - parts per billion (ppb)

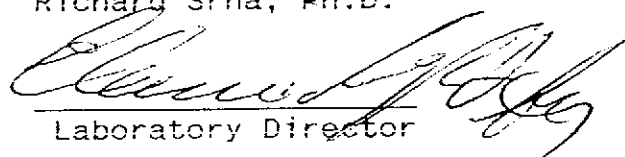
Minimum Detection Limit in Soil: 3.0ug/kg

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%

MS/MSD Average Recovery = 104% : Duplicate RPD = <1%

Richard Srna, Ph.D.



Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

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C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52571
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC-01903

DATE RECEIVED: 09/28/90
DATE REPORTED: 10/05/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/kg) Gasoline Range
1	BH-2-10	ND<1
2	BH-2-15	ND<1
3	MW-3-5	ND<1
4	MW-3-10	26
5	MW-3-15	44
6	BH-3-5	ND<1
7	BH-3-10	22
8	BH-3-15	35
9	MW-3-20	ND<1

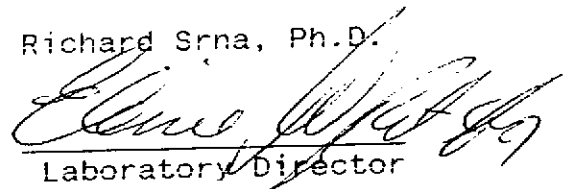
mg/kg - parts per million (ppm)

Minimum Detection Limit for Gasoline in Soil: 1mg/kg

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = <15%
MS/MSD Average Recovery = 95%: Duplicate RPD = <4%

Richard Srna, Ph.D.



Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

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CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52571
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC-01903

DATE RECEIVED: 09/28/90
DATE REPORTED: 10/05/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

LAB #	Sample Identification	Concentration (mg/kg) Diesel Range
1	BH-2-10	ND<10
2	BH-2-15	36
3	MW-3-5	ND<10
4	MW-3-10	190
5	MW-3-15	150
6	BH-3-5	56
7	BH-3-10	54
8	BH-3-15	200
9	MW-3-20	ND<10

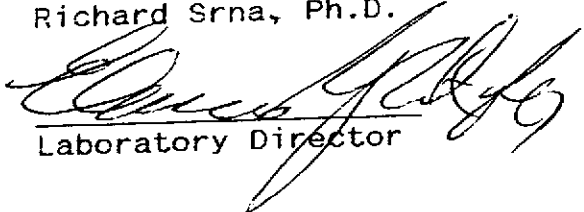
mg/kg - parts per million (ppm)

Minimum Detection Limit for Diesel in Soil: 10mg/kg

QAQC Summary:

Daily Standard run at 200mg/L: RPD Diesel = <15%
MS/MSD Average Recovery = 93%: Duplicate RPD = 1%

Richard Srna, Ph.D.


Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

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C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 52571-1
CLIENT: Geraghty & Miller

DATE RECEIVED: 09/28/90
DATE REPORTED: 10/05/90
JOB NO. RC-01903

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: BH-2-10

Compound	ug/kg	Compound	ug/kg
Chloromethane	ND<50	Cis-1,3-Dichloropropene	ND<15
Bromomethane	ND<50	Trichloroethene	ND<15
Vinyl Chloride	ND<50	Dibromochloromethane	ND<15
Chloroethane	ND<50	1,1,2-Trichloroethane	ND<15
Methylene Chloride	ND<50	Benzene	ND<10
Acetone	ND<50	Trans-1,3-Dichloropropene	ND<15
Carbon disulfide	ND<15	2-Chloroethyl vinyl ether	ND<15
Trichlorofluoromethane	ND<15	Bromoform	ND<15
1,1-Dichloroethene	ND<15	4-Methyl-2-Pentanone	ND<50
1,1-Dichloroethane	ND<15	2-Hexanone	ND<50
1,2-Dichloroethene (total)	ND<15	Tetrachloroethene	ND<15
Chloroform	ND<15	1,1,2,2-Tetrachloroethane	ND<15
1,2-Dichloroethane	ND<15	Toluene	ND<15
2-Butanone	ND<100	Chlorobenzene	ND<15
1,1,1-Trichloroethane	ND<15	Ethylbenzene	ND<15
Carbon Tetrachloride	ND<15	Styrene	ND<15
Vinyl Acetate	ND<50	Total Xylenes	ND<15
Bromodichloromethane	ND<15	1,3-Dichlorobenzene	ND<15
1,2-Dichloropropane	ND<15	1,2&1,4-Dichlorobenzenes	ND<15

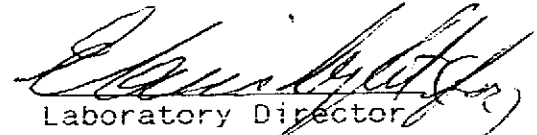
ug/kg = part per billion (ppb)

QC DATA:

	Surrogate Recoveries	QC Limits	
		water	soil
1,2-DCA-d4.....	94%	76-114	81-117
Toluene-d8.....	102%	88-110	81-140
Bromofluorobenzene.....	96%	86-115	74-121

comments:

Richard Srna, Ph.D.


Laboratory Director

OUTSTANDING QUALITY AND SERVICE

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C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 52571-2
CLIENT: Geraghty & Miller

DATE RECEIVED: 09/28/90
DATE REPORTED: 10/05/90
JOB NO. RC-01903

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: BH-2-15

Compound	ug/kg	Compound	ug/kg
Chloromethane	ND<50	Cis-1,3-Dichloropropene	ND<15
Bromomethane	ND<50	Trichloroethene	ND<15
Vinyl Chloride	ND<50	Dibromochloromethane	ND<15
Chloroethane	ND<50	1,1,2-Trichloroethane	ND<15
Methylene Chloride	ND<50	Benzene	ND<10
Acetone	ND<50	Trans-1,3-Dichloropropene	ND<15
Carbon disulfide	ND<15	2-Chloroethyl vinyl ether	ND<15
Trichlorofluoromethane	ND<15	Bromoform	ND<15
1,1-Dichloroethene	ND<15	4-Methyl-2-Pentanone	ND<50
1,1-Dichloroethane	ND<15	2-Hexanone	ND<50
1,2-Dichloroethene (total)	ND<15	Tetrachloroethene	ND<15
Chloroform	ND<15	1,1,2,2-Tetrachloroethane	ND<15
1,2-Dichloroethane	ND<15	Toluene	ND<15
2-Butanone	ND<100	Chlorobenzene	ND<15
1,1,1-Trichloroethane	ND<15	Ethylbenzene	ND<15
Carbon Tetrachloride	ND<15	Styrene	ND<15
Vinyl Acetate	ND<50	Total Xylenes	ND<15
Bromodichloromethane	ND<15	1,3-Dichlorobenzene	ND<15
1,2-Dichloropropane	ND<15	1,2&1,4-Dichlorobenzenes	ND<15

ug/kg = part per billion (ppb)

QC DATA:

Surrogate Recoveries

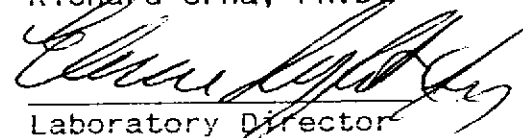
QC Limits

1,2-DCA-d4.....	92%
Toluene-d8.....	102%
Bromofluorobenzene.....	97%

water	soil
76-114	81-117
88-110	81-140
86-115	74-121

comments:

Richard Srna, Ph.D.



Laboratory Director

OUTSTANDING QUALITY AND SERVICE

CHAIN-OF-CUSTODY RECORD

50571

Project Number RC-01903

Project Location Penske - Oakland

Laboratory Superior

Sampler(s) Paul V. Hehn
J. Hawkins

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Date Sampled	SAMPLE BOTTLE / CONTAINER DESCRIPTION						TOTAL
		TPH as Gasoline (EPA 8015, modified)	TPH as Diesel (EPA 8015, modified)	BTEX (EPA 8020)	Volatile Organics (8240)			
1 BH-2-10	9-27-90	X	X	X	X			1
2 BH-2-15	9-27-90	X	X	X	X			1
3 MW-3-5	9-27-90	X	X	X				1
4 MW-3-10	"	X	X	X				1
5 MW-3-15	"	X	X	X				1
6 BH-3-5	9-28-90	X	X	X				1
7 BH-3-10	"	X	X	X				1
8 BH-3-15	"	X	X	X				1
9 MW-3-20	9/27/90	X	X	X				1

Total No. of Bottles/Containers 9

Relinquished by: <u>Paul V. Hehn</u>	Organization: <u>Sec. Mfg. & Miller, Inc.</u>	Date: <u>9/28/90</u> Time: <u></u>	Seal Intact? <u></u>
Received by: <u>J. M. Coy 8677</u>	Organization: <u>EXPRESS-IT</u>	Date: <u>9/28/90</u> Time: <u>15:20</u>	Yes No N/A
Relinquished by: <u>Ernie Walter 8673</u>	Organization: <u>EXPRESS-IT</u>	Date: <u>9/28/90</u> Time: <u>18:10</u>	Seal Intact? <u></u>
Received by: <u>J. M. Coy</u>	Organization: <u>Superior Lab</u>	Date: <u>9/28/90</u> Time: <u>18:10</u>	Yes No N/A

Special Instructions/Remarks: _____

Delivery Method: In Person Common Carrier EXPRESS-IT Lab Courier Other _____

SPECIFY

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 81639
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC01903

DATE RECEIVED: 10/03/90
DATE REPORTED: 10/10/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/L) Gasoline Range
1	MW-1	0.17
2	MW-2	ND<0.05
3	MW-3	ND<0.05

mg/L - parts per million (ppm)

Method Detection Limit for Gasoline in Water: 0.05 mg/L

QA/QC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 0%
MS/MSD Average Recovery = 104%: Duplicate RPD = <4%

Richard Srna, Ph.D.

Richard Srna
Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 81639
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC01903

DATE RECEIVED: 10/03/90
DATE REPORTED: 10/10/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

LAB #	Sample Identification	Concentration (mg/L) Diesel Range
1	MW-1	2.9
2	MW-2	0.08
3	MW-3	0.09

mg/L - parts per million (ppm)

Method Detection Limit for Diesel in Water: 0.05 mg/L

QAQC Summary:

Daily Standard run at 200mg/L: RPD Gasoline = 1%
RPD Diesel = 3%
MS/MSD Average Recovery = 104%: Duplicate RPD = 1%

Richard Srna, Ph.D.

Richard Srna
Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 81639
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC01903

DATE RECEIVED: 10/03/90
DATE REPORTED: 10/10/90

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/L)			
		Benzene	Toluene	Ethyl Benzene	Xylenes
1	MW-1	20	18	1.9	5.7
2	MW-2	0.4	0.3	ND<0.3	0.5
3	MW-3	28	3.1	0.6	1.6

ug/L - parts per billion (ppb)

Method Detection Limit in Water: 0.3ug/L

QA/QC Summary:

Daily Standard run at 20ug/L: RPD = 15%
MS/MSD Average Recovery = 87 %: Duplicate RPD = 13%

Richard Orna, Ph.D.

Richard Orna
Laboratory Manager

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52623-1

DATE RECEIVED: 10/12/90

CLIENT: Geraghty & Miller

DATE REPORTED: 10/26/90

JOB NO.: RC01903

ANALYSIS REPORT
Sample Identification: MW-2

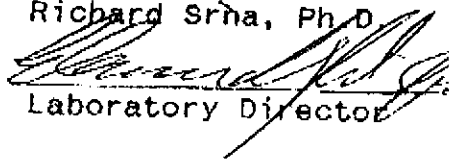
Analysis	Units	Analytical Results	Det. Lim.
1 TDS	mg/l	3000	10
2 Hardness	mg/l	300	--
3 Chloride	mg/l	1200	300

REFERENCE(S)

- 1 EPA Method 160.1
- 2 EPA Method 6010
- 3 EPA Method 300.0

Analysis subcontracted to Curtis & Thompkins

Richard Srna, Ph.D.


Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52626
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC01903

DATE RECEIVED: 10/11/90
DATE REPORTED: 10/17/90

ANALYSIS FOR TOTAL PETROLEUM OIL AND GREASE by EPA Method 503E

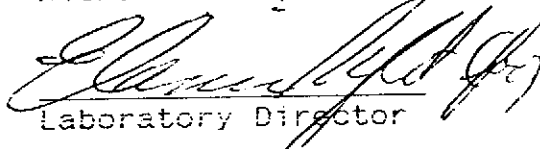
LAB #	Sample Identification	Concentration (mg/kg) Total oil & grease
1	BH-2-10	ND<50
2	BH-2-15	ND<50
3	MW-2-5	1400
4	MW-2-10	ND<50
5	MW-2-15	68

mg/kg - parts per million (ppm)

Minimum Detection Limit for oil & grease in Soil: 50mg/kg

QAQC Summary:
MS/MSD average recovery = 73%
Duplicate RPD = 3%

Richard Srna, Ph.D.



Laboratory Director

OUTSTANDING QUALITY AND SERVICE