TMC
Environmental, Inc.

July 30, 1990

Ms. Katherine Chesick
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Dear Ms. Chesick,

Enclosed is our Preliminary Assessment Report for Cavanaugh Motors in Alameda, California. We are currently discussing various remedial options with the client.

We will keep you informed on the progress at this site. If you should have any questions, please do not hesitate to call.

Sincerely,

C.M. Nielson-Cerquone

Chris Nielson-Cerquone
Vice President

cc:

Mr. Lester Feldman, RWQCB

13908 San Pablo Avenue, Suite 101 • San Pablo, California 94806 • (415) 232-8366 • FAX (415) 232-5133

PRELIMINARY ASSESSMENT REPORT

Cavanaugh Motors
1700 Park Street
Alameda, California 94501

TMC Project No. 109001
July 11, 1990

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PRELIMINARY ASSESSMENT REPORT

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APPENDICES

TMC
Environmental, Inc.

1.0 INTRODUCTION

Mr. Dave Cavanaugh, owner of Cavanaugh Motors, has authorized TMC Environmental, Inc. (TMC) to prepare a Preliminary Assessment Report concerning the investigation of soil and groundwater at Cavanaugh Motors in Alameda, California. A site location map is presented in Figure 1. The investigation was performed to evaluate soil and groundwater contamination in the vicinity of a former 550 gallon gasoline tank. The objectives of our investigation were;

- To determine if groundwater directly beneath the site has been impacted,
- To evaluate the lateral and vertical extent of soil and groundwater contamination,
- To describe and classify the soils below the site,
- To establish the hydraulic gradient and direction of groundwater flow beneath the site, and
- To recommend investigation or remedial actions based on the results of work performed.

Our Preliminary Assessment was performed in accordance with the Regional Water Quality Control Board (RWQCB) recommendations for the Initial Evaluation and Investigation of Underground Tanks, June 1988, revised in November 1989. Conclusions and/or recommendations made in this report are based on results of our investigation performed in May and June 1990 and on records kept by Scott Corporation, Cavanaugh Motors and the RWQCB. TMC Environmental was not involved in the removal of the underground tank.

2.0 BACKGROUND/SITE HISTORY

A detailed description of site history can be found in the Preliminary Site Investigation Workplan, dated March 10, 1990. A brief description is presented below.

13908 San Pablo Avenue, Suite 101 • San Pablo, California 94806 • (415) 232-8366 • FAX (415) 232-5133

The property has always been an Auto Dealership. Mr. William S. Bean, the first proprietor, owned the property from 1948 until 1981. In 1981, Mr. Bean sold the property to Dave and Lee Cavanaugh, the present owners.

The 550 gallon underground gasoline tank was installed in 1948. The tank was used from 1948 until it failed a precision test in August, 1989. Inventory records were kept daily. No product loss was ever discovered prior to August, 1989.

3.0 TANK REMOVAL

The tank, dispenser, and associated piping were removed on December 15, 1989, by Scott Corporation. TMC was not involved in the removal of the tank and conclusions made in this report are based on records kept by Scott Company and Cavanaugh Motors. According to witnesses, the tank was free of any holes, cracks, and was in good condition. However, gasoline contamination was discovered in soil below and around the tank. Soil samples were collected directly beneath the tank at the locations shown in Figure 2. The samples were analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline and Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX). The analytical results indicated that soil beneath the tank was contaminated with gasoline constituents. TPH concentrations ranged from 3,700 milligrams per kilograms (mg/kg) to 7,900 mg/kg. BTEX concentrations ranged from 17 to 65 mg/kg, 130 to 350 mg/kg, 75 to 160 mg/kg, and 430 to 870 mg/kg, respectively. Analytical results and the chain-of-custody are presented in Appendix A.

4.0 METHODS OF INVESTIGATION

4.1 Soil Investigation

To investigate potential soil contamination adjacent to the former underground gasoline tank, a controlled excavation of the contaminated soil was attempted on April 26, 1990 by TMC. During the controlled dig it became clear that excavation of all the contaminated soil was an impossibility. The sandy native soils provided minimal stability and the contamination appeared to worsen moving toward the building. In addition, a slight sheen of what appeared to be gasoline was observed on the groundwater. A decision was made to stop the excavation and further the investigation by drilling exploratory borings around the tank excavation. At that time, two soil samples were collected and analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline and Benzene, Toluene, Ethylbenzene, and Total Xylene (BTEX) in an attempt to determine the lateral extent of soil contamination west and south of the former tank (see Figure 3).

An amendment to the workplan was submitted to Alameda County Health Department at the request of Katherine Chesick on May 9, 1990. On the approval of the County, four borings were augured around the former tank, at the locations shown in Figure 3. Each boring was augured to the groundwater, about seven feet below grade. Soil samples were collected at five feet below grade and analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline and Benzene, Toluene, Ethylbenzene, and Total Xylene (BTEX).

The exploratory borings EB-1 through EB-4 were drilled by Ensco Environmental Services. A Dietrich D-24 rig equipped with hollow-stem, continuous-flight auger was used in accordance with ASTM Method D 1452-80, Standard Practice for Soil Investigations and Sampling by Auger Borings. Soil samples were collected at five feet below ground surface using a 2-inch California modified split-tube sampler. The bottom brass tube was used for TPH vapor readings and soil classification. The middle brass tube was sent for laboratory analyses. Each sample sent to Anametrix, Inc. was capped, sealed, and taped to minimize the loss of volatile hydrocarbon constituents. The samples were placed on ice to maintain a temperature of 4 degrees centigrade or less during transport to the lab and were sent under chain-of-custody to ensure accurate sample representation.

The lithology, soil classification and other pertinent data were recorded by a geologist on a field boring log in accordance with ASTM Method D-2488-84 for visual description and identification of soils. The auger and associated drilling equipment were steam cleaned prior to the drilling of each boring. Cuttings and spoils from the borings were stockpiled and covered on site pending analytical results.

The four borings were converted to vapor recovery wells in anticipation of using a vapor extraction system to remediate the soil left in place. A design schematic of a typical vapor well can be seen in Figure 4.

4.2 Groundwater Investigation

Monitoring wells MW-1 through MW-4 were installed, at the locations shown in Figure 3. The monitoring wells were drilled by Ensco Environmental Services following the same protocol used during the auguring of the exploratory borings. The lithology, soil classification and other pertinent data were recorded by a geologist on a field boring log in accordance with ASTM Method D-2488-84 for visual description and identification of soils. Detailed boring logs for wells MW-1 through MW-4 and exploratory borings EB-1 through EB-4 can be seen in Appendix B.

Soil samples were collected at five feet below grade during the installation of each monitoring well. The samples were analyzed for TPH as gasoline and BTEX by Anametrix, Inc. in San Jose, California. Each sample was capped, sealed, and iced to minimize the loss of volatile gasoline constituents. They were also sent under chain-of-custody to ensure accurate sample representation. The wells were completed by placing a four-inch diameter PVC pipe through the hollow-stem auger. Each well was constructed with 0.20 micron screen from five to fifteen feet and solid pipe from ground surface to five feet below grade. Lonestar, 2/16 sand was used as filter pack and was tremied through the auger to one foot above the top of the screening. A one and a half foot bentonite seal was placed on top of the filter pack and each well was grouted to the surface. Locking monitoring well covers were also installed to provide security.

Testing and Technology of Novato, California developed and sampled the monitoring wells. The wells were developed by extracting a minimum of fifteen well volumes of water from each well, or until the water ran clear. The extracted groundwater was placed in drums pending analytical results.

The monitoring wells were sampled for total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Groundwater extracted from monitoring well MW-1 was also analyzed for total lead. Prior to sampling, stagnant water was removed in order to obtain a representative groundwater sample. Purging was accomplished by extracting a minimum of three well volumes of groundwater. The field parameters pH, temperature, and conductivity were monitored during the purging process. Stabilization of the parameters pH, temperature and conductivity was indicated by at least three near-constant pH, temperature, and conductivity values. The acceptable range of values for stabilization were $\pm$0.5 C for temperature, $\pm$0.2 for pH, and $\pm$10 percent of the total value for conductivity. Well development and sampling field logs are presented in Appendix C.

The groundwater samples were analyzed by Pace Laboratories in Novato, California. All the samples were collected in an order such that those parameters most sensitive to volatilization were sampled first. In this case, the volatile organic constituents BTEX were sampled first, total petroleum hydrocarbons second, and total lead third. The samples were sealed and labelled with a sample tag having a unique sample number, project number, date, time, and sample location. The samples were placed on ice to maintain a temperature of 4 degrees centigrade or less during transport to Pace, and all samples were sent under chain-of-custody to ensure accurate sample representation.

4.3 Groundwater Gradient and Direction of Flow

To determine the groundwater gradient and the direction of groundwater flow, the location and elevation of each monitoring well was surveyed by Mr. Andreas P. Deak, a California Licensed Land Surveyor, No. 4739. The northern edge of the well casing was used as a datum for surveying. Groundwater level measurements were taken on June 20, 1990. Actual groundwater elevations were extrapolated by subtracting the groundwater level measurement from the surveyed well elevation.

5.0 RESULTS

5.1 Soil Sampling

As Table 1 indicates, soil samples collected in exploratory borings EB-1 through EB-4 and during the initial attempted excavation of contaminated soil showed no presence of total petroleum hydrocarbons as gasoline. In addition, BTEX's were not detected in any of the samples, with the exception of 0.034 mg/kg of total xylenes in soil sample EB-4. Analytical results are presented in Appendix D.

Table 1
Summary of Gasoline Constituents Detected
in Exploratory Boring and Initial Excavation Soil Samples

Date Sampled	Well Number	TPHg (mg/kg)	Benzene	Toluene	E. Benzene	Xylenes
				(mg/kg)		
4-26-90	South-1	ND	ND	ND	ND	ND
4-26-90	West-1	ND	ND	ND	ND	ND
5-19-90	EB-1	ND	ND	ND	ND	ND
5-19-90	EB-2	ND	ND	ND	ND	ND
5-19-90	EB-3	ND	ND	ND	ND	ND
5-19-90	EB-4	ND	ND	ND	ND	0.034

ND -- Not Detected
See Appendix D for Laboratory Reports

Soil samples collected during the installation of monitoring wells MW-2, MW-3 and MW-4 showed no presence of total petroleum hydrocarbons as gasoline and benzene, toluene, ethylbenzene, and total xylenes (Table 2). However, the soil sample collected

during the installation of monitoring well MW-1 was found to contain 3,500 milligrams per kilogram (mg/kg) total petroleum hydrocarbons as gasoline. Benzene, toluene, ethylbenzene and total xylenes concentrations were non-detectable, 190 mg/kg, 76 mg/kg, and 510 mg/kg, respectively. Analytical results are presented in Appendix D.

Table 2
Summary of Gasoline Constituents
Detected in Monitoring Well Soil Samples

Date Sampled	Well Number	TPHg (mg/kg)	Benzene	Toluene	E. Benzene	Xylenes
				(mg/kg)		
5-17-90	MW-1,5'	3,500	ND	190	76	510
5-17-90	MW-2,5'	ND	ND	ND	ND	ND
5-17-90	MW-3,5'	ND	ND	ND	ND	ND
5-17-90	MW-4,5'	ND	ND	ND	ND	ND

ND -- Not Detected
See Appendix D for Laboratory Reports

5.2 Groundwater Sampling

Analytical results from the June 8, 1990 sampling event indicate that groundwater in the vicinity of the former tank has been impacted (Table 3). Groundwater collected from well MW-1 had 28,000 parts per billion (ppb) total petroleum hydrocarbons and 6,200, 630, 7000, and 6100 ppb benzene, ethylbenzene, toluene, and total xylene, respectively. Groundwater extracted from monitoring well MW-2, MW-3 and MW-4 was also slightly contaminated with volatile hydrocarbons. In monitoring well MW-2, 1.0 ppb of toluene and 1.7 ppb of total xylene were detected. Groundwater extracted from monitoring well MW-3 contained 0.9 ppb of total xylene. Likewise, groundwater sampled from monitoring well MW-4 contained 1.1 ppb of toluene and 2.2 ppb of total xylene. Analytical results are presented in Appendix E.

5.3 Description of Hydrogeology

Soils encountered showed characteristics of the Merit Sand Formation. Silty sands, clayey sands, and clean sands were found throughout the stratum beneath this site. The geologic make-up of the soils followed a general pattern, as illustrated in Figure 5. Silty sand and clean sand were found from ground surface to about six feet. Below this a distinct clayey sand layer, much

stiffer and more plastic than the silty sand, was present to about seven and a half feet below grade. From about eight feet to fifteen feet, a uniform well-sorted clean sand was present. Boring logs are presented in Appendix B.

Groundwater elevation measurements for monitoring wells MW-1 through MW-4 are shown in Table 4. Groundwater beneath this site appears to flow in a northerly direction toward the tidal canal between Alameda and Oakland. A groundwater gradient contour is shown in Figure 6. The hydraulic gradient from MW-2 to MW-3, based on groundwater elevation measurement taken June 8, 1990, is 0.007.

Table 3
Summary of Petroleum Hydrocarbons
Detected in Groundwater

		Results (ppb)					
Date	Well	TPHg (50 ppb)	Ben.	Tol. (5 ppb)	E.benzene	Xylenes	Total Lead (3 ppb)
6-8-90	MW-1	28000	6200	7000	630	6100	ND
6-8-90	MW-2	ND	ND	1.0	ND	1.7	NA
6-8-90	MW-3	ND	ND	ND	ND	0.9	NA
6-8-90	MW-4	ND	ND	1.1	ND	2.2	NA

ND - Below Detection Limit
See Appendix I for Analytical Reports

6.0 CONCLUSIONS

The lateral extent of soil contamination has been established. Samples collected during the initial attempt to dig out of the contamination and those collected in borings EB-1 through EB-4, indicate that the area of contaminated soil is limited in extent. An illustration depicting the estimated area of contaminated soil remaining below ground can be seen in Figure 3. The bulk of soil contamination is located between four and seven feet below surface. As much as 400 cubic yards of soil may still remain below ground. It appears, as expected, that the gasoline migrated downward to the groundwater and then spread laterally. The limited lateral extent of gasoline contamination indicates that a large amount of gasoline may not have leaked from the tank.

However, enough gasoline did leak from the underground tank system to impact the groundwater. Groundwater sampled from MW-1 was heavily contaminated with volatile gasoline constituents. The benzene concentration of 6,200 ppb exceeds several water quality standards, including the California Maximum Concentration Level (MCL) of 1 ppb, the EPA's Suggested No-Adverse-Response Level (SNARL) of 235 ppb, and the California Proposition 65 level of 10 ppb.

Table 4
Monitoring Well Groundwater Elevations

Date Measured	Well	Groundwater Level	Top of Casing Elevation	Groundwater Elevation
6-20-90	MW-1	7.08	16.39	9.31
6-20-90	MW-2	7.16	16.73	9.57
6-20-90	MW-3	7.37	16.89	8.52
6-20-90	MW-4	7.60	16.39	8.79

Benzene was not the only volatile gasoline constituent that exceeded national or state water quality standards. The toluene concentration of 7,000 ppb detected in groundwater from MW-1 exceeds the California MCL of 2,000 ppb and the Department of Health Services action level of 100 ppb. The total xylene concentration of 6,100 ppb also exceeds the California MCL of 1,750 ppb. By contrast, gasoline concentrations detected in groundwater sampled from monitoring wells MW-2, MW-3, and MW-4 did not exceed any national or state water quality standards.

Silty sands, clayey sands and clean sands were encountered beneath the site. A distinct clayey sand layer was discovered between five and seven feet below grade. Groundwater was found approximately seven feet below surface. Using groundwater level measurements taken June 20, 1990, groundwater appears to flow north toward the tidal canal between Alameda and Oakland. The hydraulic gradient from monitoring well MW-2 to MW-3 was 0.007.

7.0 RECOMMENDATIONS

Although the preliminary site investigation provided a wealth of hydrogeologic information concerning the magnitude of the fuel release, additional groundwater investigation is recommended before remedial measures are started. Up gradient and down gradient groundwater concentrations were established by

installing monitoring wells MW-2 and MW-3. However, additional monitoring wells should be installed to better define the soluble groundwater gasoline plume discovered in the vicinity of the former tank. We recommend that two additional wells be installed inside the building to better define the soluble plume and to monitor hydrogeologic conditions during groundwater remediation. One should be located about fifteen to twenty feet inside the building northeast of the former tank (see Figure 3) to reduce the linear distance from contaminated groundwater in well MW-1 to clean groundwater in MW-3. Another well should also be placed east of the former gasoline tank about twenty feet inside the wall of the building.

Additional exploratory borings are not recommended at this time, nor is additional soil excavation. The lateral extent of soil contamination has been established. A soil remediation system can be designed to clean the contaminated soils left in place. The soil that could be removed without damaging the building was removed during our initial attempt to excavate all the contaminated soil. We believe due to the close proximity of the contaminated soils to the building, additional soil cannot be removed without subjecting the building to structural damage. The silty sands and clean sands which make up the majority of the soils beneath this site provide minimal stability around foundation piers of the building. Excavating the remaining soils around the building is an impossibility without demolishing the pre-1940 structure.

8.0 ONGOING AND UPCOMING REMEDIATION

About 70 cubic yards of contaminated soil was excavated during the investigation of the fuel release. The soil was stockpiled on the site and is being aerated. Initial soil samples were collected on May 5, 1990, indicating the concentration of gasoline contaminants at the beginning of the aeration process. The soil was spread out to a lift of approximately one foot and periodically tilled. On July 9, 1990 additional samples were collected in anticipation of finding clean soil that can be taken to the Durham Road landfill. Analytical results of the initial soil sampling can be found in Appendix F. Analytical results for the samples collected on the ninth of July are pending.

Groundwater extracted during the development and sampling of the monitoring wells was placed in drums pending analytical results. The drummed groundwater was treated using a mobile carbon absorption unit and placed in a 1,000 gallon above ground tank. A sample was collected to determine if any gasoline constituents remained in the water after treatment. Analytical results are

pending. If the water is clean, a request to the RWQCB will be submitted to attain a permit for a one time discharge into the sewer.

We recommend that air stripping and vapor extraction, two proven technologies, be used in conjunction to remediate soil and groundwater at this site. A soil vapor extraction system can be used to clean the contaminated soils left in place and an air stripping unit can be used to remediate groundwater gasoline contamination. The two systems can be piped together to increase the efficiency of the treatment system, while at the same time meet air quality standards established by the Bay Area Air Quality Management District. The geology of the site favors such a remedial process. Clean washed pea gravel was used as backfill to increase vacuum efficiency if an in-situ vapor extraction system was installed. In addition, as previously mentioned, the soil borings were finished as vapor wells in anticipation of the possibility for vapor extraction.

At this time an interim groundwater sampling protocol of quarterly sampling for total petroleum hydrocarbons as gasoline and benzene, toluene, ethylbenzene, and total xylenes should be adopted.

9.0 REMARKS AND SIGNATURES

This Preliminary Assessment Report was prepared in accordance with current industry standards and practice. All work performed at this site is performed under the direct supervision of a California Registered Geologist.

Prepared by:

C. M. Nielson-Cerquone

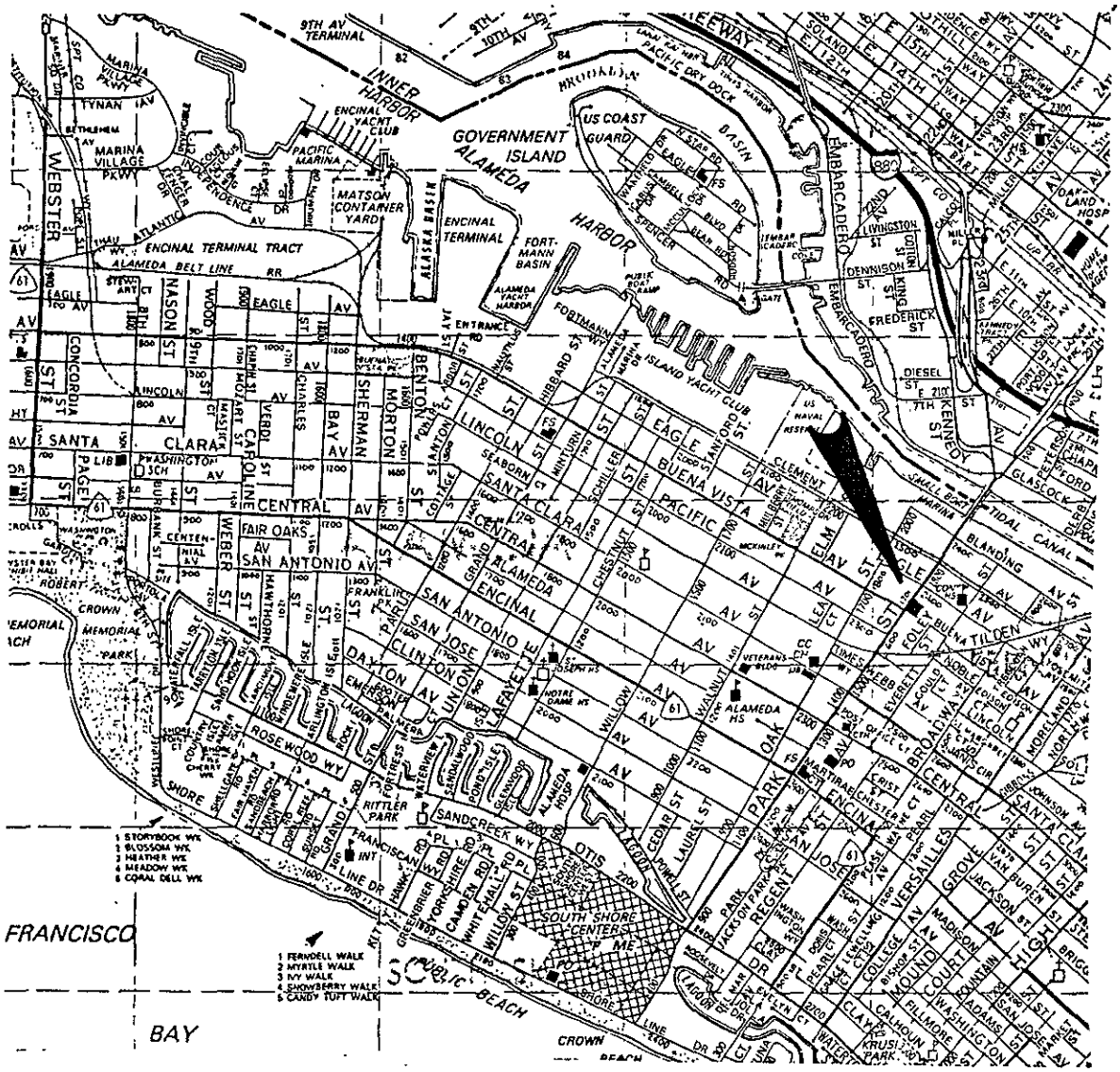
Chris Nielson-Cerquone
Associate

Approved by:

Mark Youngkin

Mark Youngkin
California Registered
Geologist No. 3888

FIGURE 1

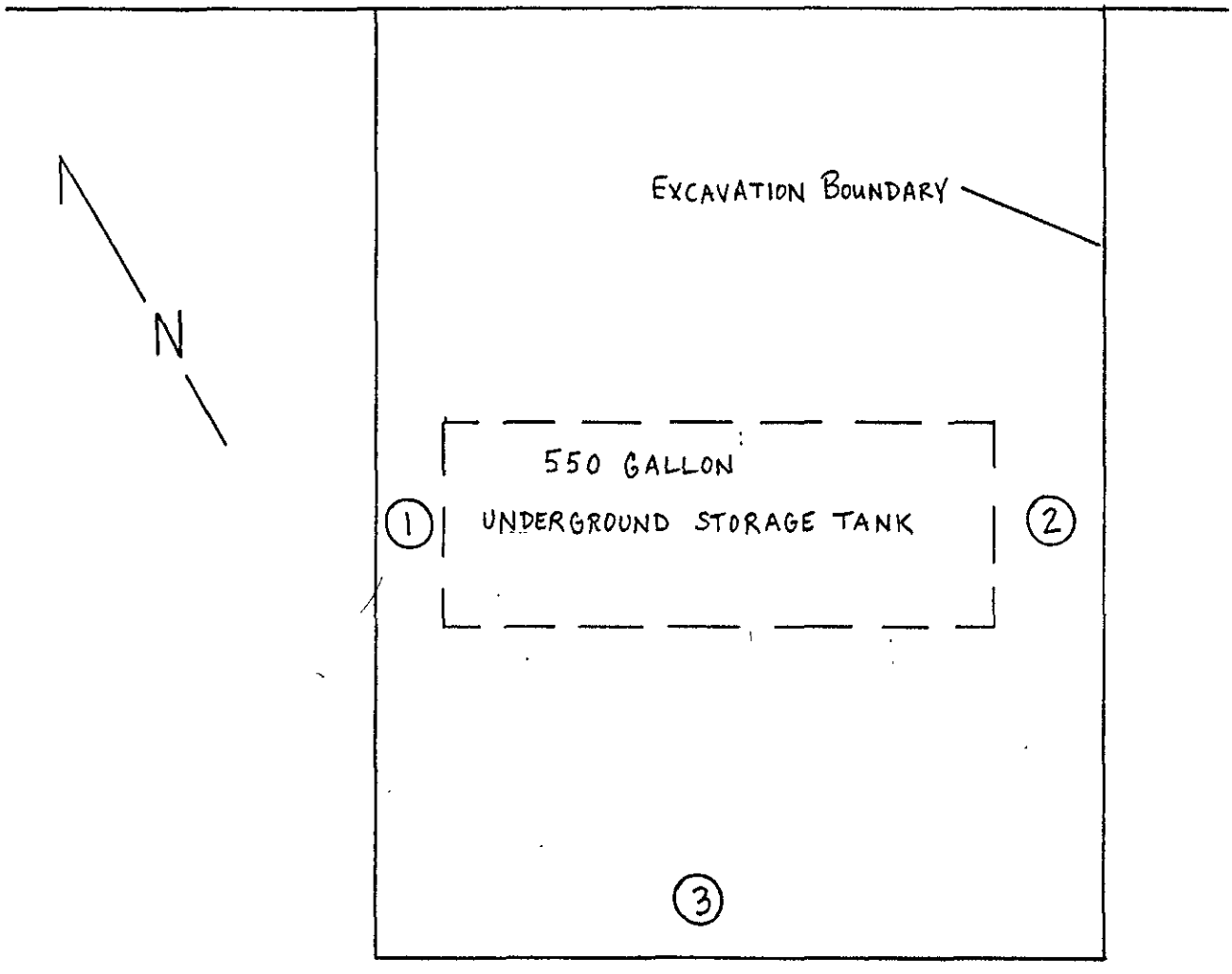


TOM EDWARDS & ASSOCIATES

TITLE: SITE LOCATION MAP					
PROJECT NAME/NUMBER: CAVANAUGH MOTORS, 109001					
SITE LOCATION: 1700 PARK STREET, ALAMEDA, CA.					
REV. #	DATE	DRAWN BY	CHECKED BY	APPROVED BY	SCALE
FIG. 1	4-6-90	CNC	CNL	CNL	NONE

FIGURE 2

SERVICE AND REPAIR SHOP



EXPLANATION

NOTE:

ALL SAMPLES COLLECTED 8.0' BELOW GRADE. (WORK PERFORMED BY SCOTT COMPANY)

(#) SOIL SAMPLE NUMBER AND LOCATION (SEE ANALYTICAL RESULTS - APPENDIX D).

TOM EDWARDS & ASSOCIATES

TITLE: SOIL SAMPLE LOCATION MAP					
PROJECT NAME/NUMBER: CAVANAUGH MOTORS, 109001					
SITE LOCATION: 1700 PARK ST., ALAMEDA, CA.					
REV. #	DATE	DRAWN BY	CHECKED BY	APPROVED BY	SCALE
FIG. 2	4-2-90	CNC	MY	MY	1"= 3.0'

FIGURE 3

FIGURE 4

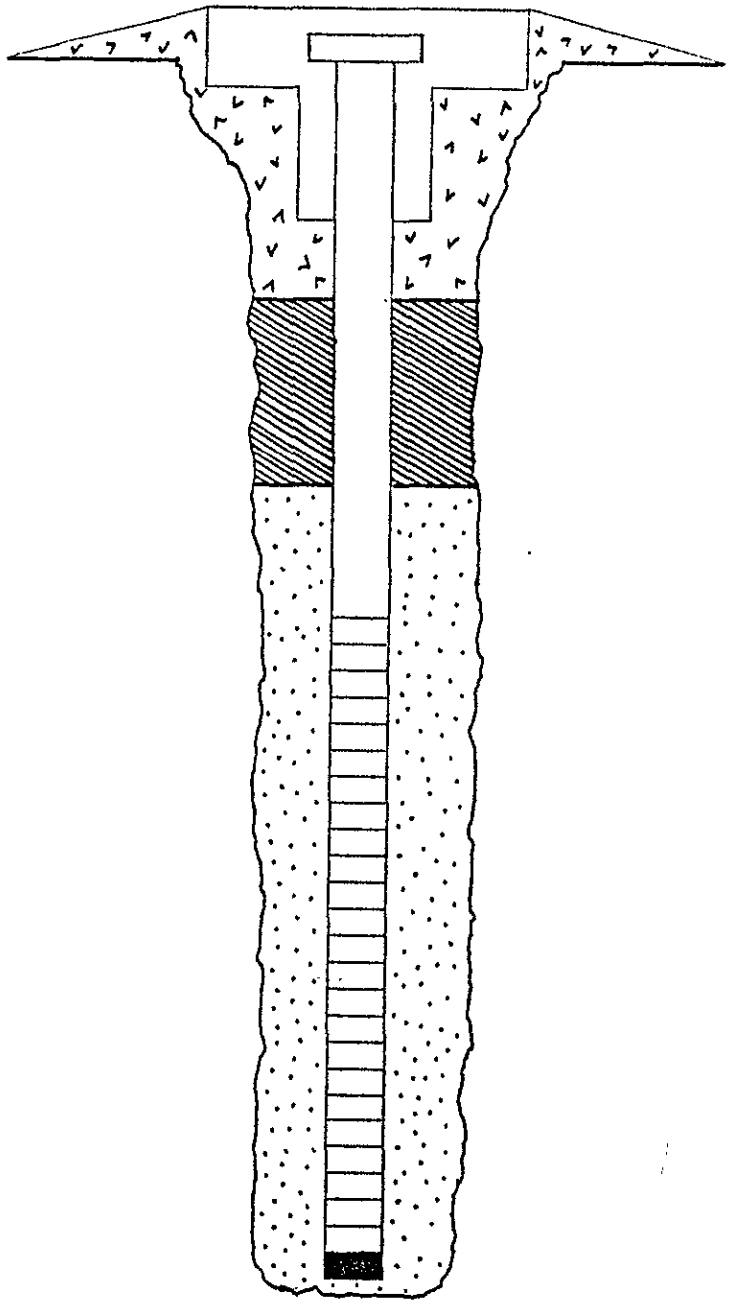


Figure 4: VAPOR WELL SCHEMATIC

FIGURE 5

FIGURE 6

APPENDIX A

WESTERN ENVIRONMENTAL SCIENCE & TECHNOLOGY

5 DEC 89 2:15

December 19, 1989
Sample Log 1224

Michael Schweickert-Stary
Scott Company
1919 Market Street
Oakland, CA 94607

Subject: Analytical Results for 3 Soil Sample(s)
Identified as: Cavanaugh Motors
Received: December 15, 1989

Dear Mr. Schweickert-Stary:

Analysis of the sample(s) referenced above has been completed. This report is written to confirm results communicated on December 19, 1989 and describes procedures used to analyze the samples.

Samples were received in brass sleeves that were sealed with aluminum foil and plastic endcaps. Each sample was transported and received under documented chain of custody, assigned a consecutive log number and stored at 4 degrees C until analysis was performed.

Sample(s) were analyzed for the following:

"BTEX" (EPA Method 8020/Purge-and-Trap)
"TPH as Gasoline" (Modified EPA Method 8015/Purge-and-Trap)

Please refer to the following table(s) for summarized analytical results and contact us if you have questions regarding procedures or results. The chain-of-custody document is enclosed.

Submitted by:

Joel Kiff
Project Chemist

Approved by:

Robert G. Smith, Ph.D.
Laboratory Director

Western Environmental Science & Technology
1046 Olive Drive, Suite 3
Davis, CA 95616
916 753-9500

December 19, 1989
Sample Log 1224

Table 1: 'BTEX' Results for 3 Soil Sample(s) Identified as Cavanaugh Motors
Received December 15, 1989

--all concentrations are units of mg/kg--

Sample	Benz.	Tol.	Eth.Benz.	Xyl.
# 1	65	350	140	650
# 2	56	350	160	870
# 3	17	130	75	430
Reporting Limit	.05	.05	.05	.05

Western Environmental Science & Technology
1046 Olive Drive, Suite 3
Davis, CA 95616
916 753-9500

December 19, 1989
Sample Log 1224

Table 2: TPH Results for 3 Soil Sample(s) Identified as Cavanaugh Motors
Received December 15, 1989

--all concentrations are units of mg/kg--

Sample	TPH as Gasoline
# 1	7900
# 2	7200
# 3	3700
Reporting Limit	.5

Western Environmental Science & Technology
1046 Olive Drive, Suite 3
Davis, CA 95616
916 753-9500

Weston Environmental Science & Technology

1046 Olive Drive, Suite 3
Davis, CA 95616

916-753-9500
FAX #: 916-753-6091

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: / Scott Company

Phone #: 415-894-2837

Address: 1919 Market Street, Oakland CA.

FAX #:

Project Number:

Project Name: Cavanaugh Motors

Project Location: 1720 Pack St Alameda CA

Sampler Signature:

Sample ID	Lab # (Lab use only)	# CONTAINERS	Volume/Amount	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO3	ICE	NONE	OTHER	Sampling: DATE	TIME
# 1		1			X						X				
# 2		1			X						X				
# 3		1			X						X				

ANALYSIS REQUEST

BTEX (602/8020)	BTEX/TPH as Gasoline (602/8020/8015)	TPH as Diesel (8015 or 8270)	TPH as Jetfuel (8015 or 8270)	Total Oil & Grease (413.1)	Total Oil & Grease (413.2)	Total Petroleum Hydrocarbons (418.1)	EPA 601/8010	EPA 602/8020	EPA 608/8080	EPA 608/8080-PCBs Only	EPA 624/8240	EPA 625/8270	CAM - 17 Metals	EPTOX - 8 Metals	EPA - Priority Pollutant Metals	LEAD(7420/7421/239.2)	ORGANIC LEAD
	X																
	X																
	X																

OTHER

SPECIAL HANDLING

- RUSH SERVICE (12 hr) or (24 hr)
- EXPEDITED SERVICE (48 hr) or (1 wk)
- VERBALS/FAX
- SPECIAL DETECTION LIMITS (SPECIFY)
- SPECIAL REPORTING REQUIREMENTS

Relinquished by:	Date	Time	Received by:
	12-15-89	19:13	Arthur H Muir
Relinquished by	Date	Time	Received by:
Relinquished by	Date	Time	Received by Laboratory:

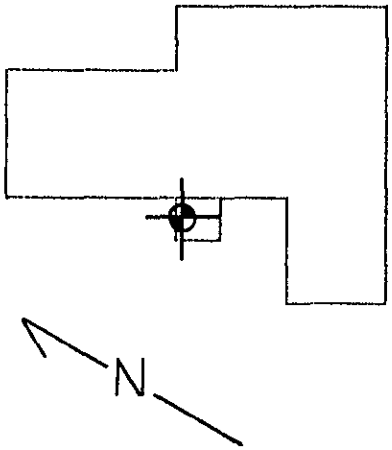
Remarks:

APPENDIX B

TOM EDWARDS & ASSOCIATES

BORING LOG

LOCATION OF BORING



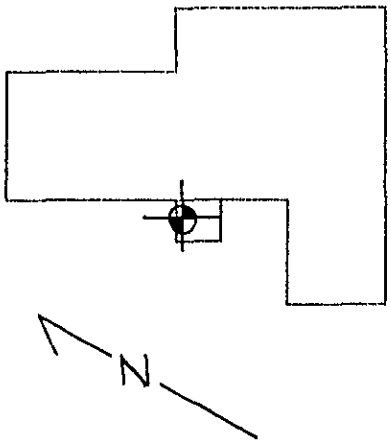
SITE/LOCATION CAVANAUGH MOTORS, 1700 PARK STREET, ALAMEDA				BORING NO. MW-1	
PROJECT NO. 109001				SHEET 1 OF 2	
WATER LEVEL				DRILLER	
TIME				START	FINISH
DATE				TIME	TIME
CAS. DEPTH				0900	1045
DRILLING CONTRACTOR EXELTECH ENVIRONMENTAL SERVICES				DATE	DATE
DRILLER TIM COLLETT				5-17-90	5-17-90
DRILLING METHOD HOLLOW STEM AUGER (12 INCH)					
SAMPLING METHOD CALIFORNIA SPLIT-SPOON SAMPLER (18 INCH)					
LOGGER CHRIS NIELSON-CERQUONE					
N/S		E/W		ELEV.	
BORING DIAMETER 12 INCHES			CASING DIAMETER 4 INCHES		
REVIEWED BY:			DATE 5-21-90		

DIST FROM SUR.	WELL CONST. CASING	WELL CONST. ANNULUS	LEGEND	TLV READ	SAMPLE #	% REC.	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
									ASPHALT/BASEROCK
1		GROUT							BACK FILL -- GRAVEL/SAND MIXTURE
2									(SM) SILTY SAND, FINE GRAINED SAND, DARK BROWN, DRY, RAPID DILATENCY,
3		BENT. SEAL							DIFFICULT TO RIBBON, NO DRY STRTENGTH, NO TOUGHNESS, NON-PLASTIC, ANGULAR TO SUBANGULAR CALSTICS (1-5 MM).
4									(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, LIGHT BROWN, SLIGHTLY MOIST,
5		2/16 SAND FILTER PACK				80	4		NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC, NO CLASTICS. GASOLINE CONTANINATED SOIL -- STRONG ODOR.
6				6000	MW-1	100	7		(SC) CLAYEY SAND, MEDIUM GRAINED, GREENISH GRAY, SLIGHTLY MOIST,
						100	7		MODERATE DILATENCY, DRY STRENGTH AND TOUGHNESS, SLIGHTY PLASTIC.
7									(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, LIGHT BROWN, SLIGHTLY MOIST,
8									NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC, NO CLASTICS.
9									
10									

TOM EDWARDS & ASSOCIATES

BORING LOG

LOCATION OF BORING



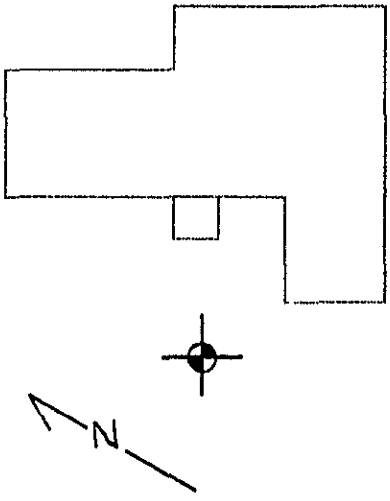
SITE/LOCATION CAVANAUGH MOTORS, 1700 PARK STREET, ALAMEDA				BORING NO. MW-1	
PROJECT NO. 109001				SHEET 2 OF 2	
WATER LEVEL				DRILLER	
TIME				START	FINISH
DATE				TIME	TIME
CAS. DEPTH				0900	1045
DRILLING CONTRACTOR EXELTECH ENVIRONMENTAL SERVICES				DATE	DATE
DRILLER TIM COLLETT				5-17-90	5-17-90
DRILLING METHOD HOLLOW STEM AUGER (12 INCH)					
SAMPLING METHOD CALIFORNIA SPLIT-SPOON SAMPLER (18 INCH)					
LOGGER CHRIS NIELSON-CERQUONE					
N/S		E/W		ELEV.	
BORING DIAMETER 12 INCHES			CASING DIAMETER 4 INCHES		
REVIEWED BY:			DATE 5-21-90		

DIST FROM SUR.	WELL CONST. CASING	WELL CONST. ANNULUS	LEGEND	TLV READ	SAMPLE #	% REC.	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
		2/16 SAND							
12									(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, LIGHT BROWN, SLIGHTLY MOIST,
									NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC, NO
13									CLASTICS.
14									
	PLUG								END OF BORING
15									

TOM EDWARDS & ASSOCIATES

BORING LOG

LOCATION OF BORING



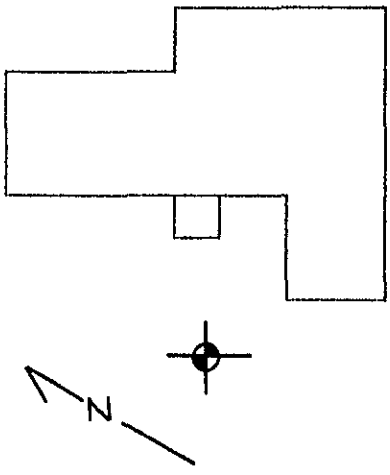
SITE/LOCATION CAVANAUGH MOTORS, 1700 PARK STREET, ALAMEDA				BORING NO. MW-2	
PROJECT NO. 109001				SHEET 1 OF 2	
WATER LEVEL				DRILLER	
TIME				START	FINISH
DATE				TIME	TIME
CAS. DEPTH				1110	1225
DRILLING CONTRACTOR EXELTECH ENVIRONMENTAL SERVICES				DATE	DATE
DRILLER TIM COLLETT				5-17-90	5-17-90
DRILLING METHOD HOLLOW STEM AUGER (12 INCH)					
SAMPLING METHOD CALIFORNIA SPLIT-SPOON SAMPLER (18 INCH)					
LOGGER CHRIS NIELSON-CERQUONE					
N/S		E/W		ELEV.	
BORING DIAMETER 12 INCHES			CASING DIAMETER 4 INCHES		
REVIEWED BY:			DATE 5-21-90		

DIST FROM SUR.	WELL CONST. CASING	WELL CONST. ANNULUS	LEGEND	TLV READ	SAMPLE #	% REC.	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
		GROUT							ASPHALT (2 INCHES)
1									BACK FILL / BASEROCK MIXTURE
2									(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, WELL SORTED, LIGHT BROWN, MOIST, NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC,
3		BENT. SEAL							NO CLASTICS.
4									
5		2/16 SAND FILTER PACK				100	4		
6				0	MW-2	100	8		(SC) CLAYEY SAND, MEDIUM GRAINED, BROWN, MODELED RED, SLIGHTLY MOIST,
						100	7		MODERATE DILATENCY, DRY STRENGTH AND TOUGHNESS, SLIGHTY PLASTIC.
7									(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, WELL SORTED, LIGHT BROWN,
8									MOIST, NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC, NO CLASTICS.
9									
10									

TOM EDWARDS & ASSOCIATES

BORING LOG

LOCATION OF BORING



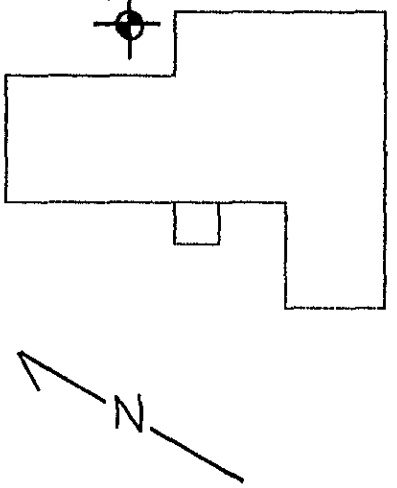
SITE/LOCATION CAVANAUGH MOTORS, 1700 PARK STREET, ALAMEDA				BORING NO. MW-2	
PROJECT NO. 109001				SHEET 2 OF 2	
WATER LEVEL				DRILLER	
TIME				START	FINISH
DATE				TIME	TIME
CAS. DEPTH				1110	1225
DRILLING CONTRACTOR EXELTECH ENVIRONMENTAL SERVICES				DATE	DATE
DRILLER TIM COLLETT				5-17-90	5-17-90
DRILLING METHOD HOLLOW STEM AUGER (12 INCH)					
SAMPLING METHOD CALIFORNIA SPLIT-SPOON SAMPLER (18 INCH)					
LOGGER CHRIS NIELSON-CERQUONE					
N/S		E/W		ELEV.	
BORING DIAMETER 12 INCHES			CASING DIAMETER 4 INCHES		
REVIEWED BY:			DATE 5-21-90		

DIST FROM SUR.	WELL CONST. CASING	WELL CONST. ANNULUS	LEGEND	TLV READ	SAMPLE #	% REC.	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
12		2/16 SAND							(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, LIGHT BROWN, SLIGHTLY MOIST, NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC, NO CLASTICS.
13									
14									
15	PLUG								END OF BORING

TOM EDWARDS & ASSOCIATES

BORING LOG

LOCATION OF BORING



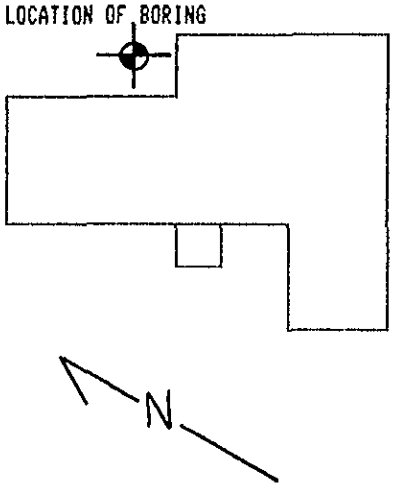
SITE/LOCATION CAVANAUGH MOTORS, 1700 PARK STREET, ALAMEDA				BORING NO. MW-3	
PROJECT NO. 109001				SHEET 1 OF 2	
WATER LEVEL				DRILLER	
TIME				START	FINISH
DATE				TIME	TIME
CAS. DEPTH				1345	1500
DRILLING CONTRACTOR EXELTECH ENVIRONMENTAL SERVICES				DATE	DATE
DRILLER TIM COLLETT				5-17-90	5-17-90
DRILLING METHOD HOLLOW STEM AUGER (12 INCH)					
SAMPLING METHOD CALIFORNIA SPLIT-SPOON SAMPLER (18 INCH)					
LOGGER CHRIS NIELSON-CERQUONE					
N/S		E/W		ELEV.	
BORING DIAMETER 12 INCHES			CASING DIAMETER 4 INCHES		
REVIEWED BY:			DATE 5-21-90		

DIST FROM SUR.	WELL CONST. CASING	WELL CONST. ANNULUS	LEGEND	TLV READ	SAMPLE #	% REC.	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
		GROUT							ASPHALT (2 INCHES) / BASEROCK
1									(SM) SILTY SAND, FINE TO MEDIUM GRAINED SAND, WELL SORTED, DARK
									BROWN, MODERATELY DRY, SLIGHT DRY STRENGTH AND TOUGHNESS, NON-
2									PLASTIC, ANGULAR CLASTICS (1-8 MM).
		BENT. SEAL							(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, WELL SORTED, LIGHT BROWN,
3									MOIST, NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC,
4									NO CLASTICS.
5						100	4		
				0	MW-3	100	4		
6		2/16 SAND FILTER PACK				100	6		(SC) CLAYEY SAND, MEDIUM GRAINED, BROWN, MODELED RED, SLIGHTLY MOIST,
									MODERATE DILATENCY, DRY STRENGTH AND TOUGHNESS, SLIGHTY PLASTIC.
7									
									(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, WELL SORTED, LIGHT BROWN,
8									MOIST, NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC,
									NO CLASTICS.
9									
10									

TOM EDWARDS & ASSOCIATES

BORING LOG

LOCATION OF BORING



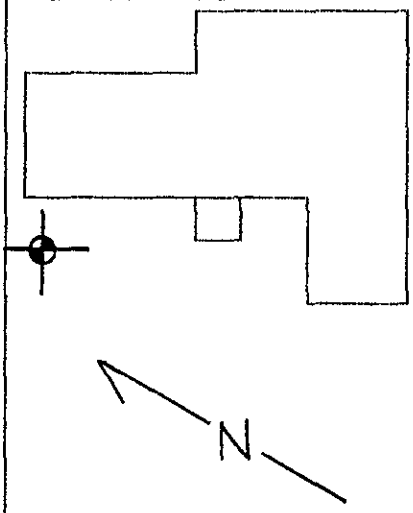
SITE/LOCATION CAVANAUGH MOTORS, 1700 PARK STREET, ALAMEDA				BORING NO. MW-3	
PROJECT NO. 109001				SHEET 2 OF 2	
WATER LEVEL				DRILLER	
TIME				START	FINISH
DATE				TIME	TIME
CAS. DEPTH				1345	1500
DRILLING CONTRACTOR EXELTECH ENVIRONMENTAL SERVICES				DATE	DATE
DRILLER TIM COLLETT				5-17-90	5-17-90
DRILLING METHOD HOLLOW STEM AUGER (12 INCH)					
SAMPLING METHOD CALIFORNIA SPLIT-SPOON SAMPLER (18 INCH)					
LOGGER CHRIS NIELSON-CERQUONE					
N/S		E/W		ELEV.	
BORING DIAMETER 12 INCHES			CASING DIAMETER 4 INCHES		
REVIEWED BY:			DATE 5-21-90		

DIST FROM SUR.	WELL CONST. CASING	WELL CONST. ANNULUS	LEGEND	TLV READ	SAMPLE #	% REC.	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
		2/16 SAND							
12									(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, LIGHT BROWN, SLIGHTLY MOIST,
									NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC, NO
13									CLASTICS.
14									
	PLUG								END OF BORING
15									

TOM EDWARDS & ASSOCIATES

BORING LOG

LOCATION OF BORING



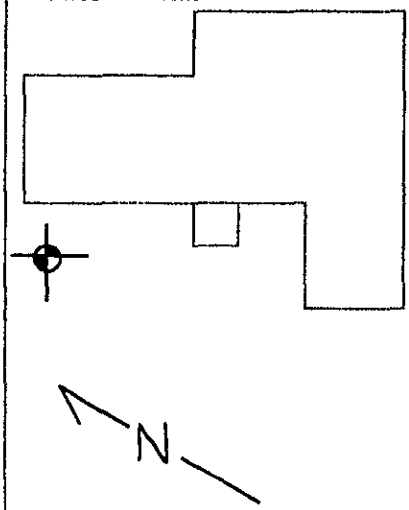
SITE/LOCATION CAVANAUGH MOTORS, 1700 PARK STREET, ALAMEDA				BORING NO. MW-4	
PROJECT NO. 109001				SHEET 1 OF 2	
WATER LEVEL				DRILLER	
TIME				START	FINISH
DATE				TIME	TIME
CAS. DEPTH				1520	1630
DRILLING CONTRACTOR EXELTECH ENVIRONMENTAL SERVICES				DATE	DATE
DRILLER TIM COLLETT				5-17-90	5-17-90
DRILLING METHOD HOLLOW STEM AUGER (12 INCH)					
SAMPLING METHOD CALIFORNIA SPLIT-SPOON SAMPLER (18 INCH)					
LOGGER CHRIS NIELSON-CERQUONE					
N/S		E/W		ELEV.	
BORING DIAMETER 12 INCHES			CASING DIAMETER 4 INCHES		
REVIEWED BY:			DATE 5-21-90		

DIST FROM SUR.	WELL CONST. CASING	WELL CONST. ANNULUS	LEGEND	TLV READ	SAMPLE #	% REC.	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
									ASPHALT (2 INCHES) / BASEROCK
1		GROUT							(SM) SILTY SAND, FINE TO MEDIUM GRAINED SAND, WELL SORTED, DARK BROWN, MODERATELY DRY, SLIGHT DRY STRENGTH AND TOUGHNESS, NON-PLASTIC, ANGULAR CLASTICS (1-8 MM).
2									
3		BENT. SEAL							
4									(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, WELL SORTED, LIGHT BROWN, MOIST, NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC, NO CLASTICS.
5		2/16 SAND FILTER PACK				100	6		
6				40	MW-4	100	12		(SC) CLAYEY SAND, MEDIUM GRAINED, BROWN, MODELED RED, SLIGHTLY MOIST, MODERATE DILATENCY, DRY STRENGTH AND TOUGHNESS, SLIGHTY PLASTIC.
						100	12		
7									
8									(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, WELL SORTED, LIGHT BROWN, MOIST, NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC, NO CLASTICS.
9									
10									

TOM EDWARDS & ASSOCIATES

BORING LOG

LOCATION OF BORING



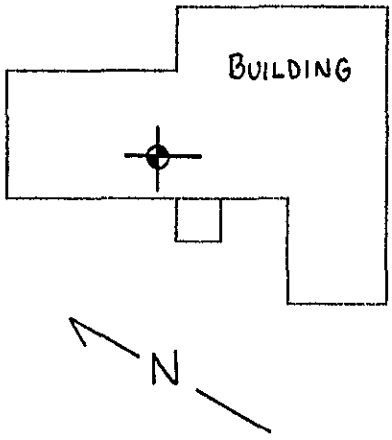
SITE/LOCATION CAVANAUGH MOTORS, 1700 PARK STREET, ALAMEDA				BORING NO. MW-4	
PROJECT NO. 109001				SHEET 2 OF 2	
WATER LEVEL				DRILLER	
TIME				START	FINISH
DATE				TIME	TIME
CAS. DEPTH				1520	1630
DRILLING CONTRACTOR EXELTECH ENVIRONMENTAL SERVICES				DATE	DATE
DRILLER TIM COLLETT				5-17-90	5-17-90
DRILLING METHOD HOLLOW STEM AUGER (12 INCH)					
SAMPLING METHOD CALIFORNIA SPLIT-SPOON SAMPLER (18 INCH)					
LOGGER CHRIS NIELSON-CERQUONE					
N/S		E/W		ELEV.	
BORING DIAMETER 12 INCHES			CASING DIAMETER 4 INCHES		
REVIEWED BY:			DATE 5-21-90		

DIST FROM SUR.	WELL CONST. CASING	WELL CONST. ANNULUS	LEGEND	TLV READ	SAMPLE #	% REC.	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
		2/16 SAND							
12									(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, LIGHT BROWN, SLIGHTLY MOIST,
13									NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC, NO
14									CLASTICS.
15	PLUG								END OF BORING

TOM EDWARDS & ASSOCIATES

BORING LOG

LOCATION OF BORING



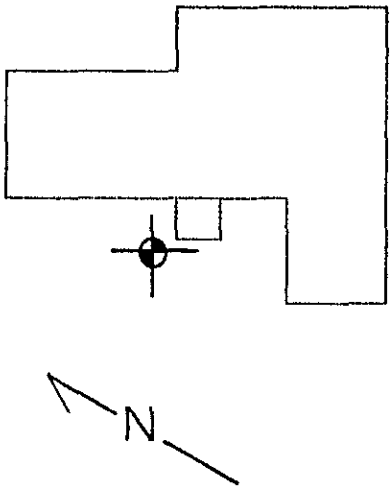
SITE/LOCATION CAVANAUGH MOTORS, 1700 PARK STREET, ALAMEDA				BORING NO. VW-1	
PROJECT NO. 109001				SHEET 1 OF 1	
WATER LEVEL				DRILLER	
TIME				START	FINISH
DATE				TIME	TIME
CAS. DEPTH				0945	1015
DRILLING CONTRACTOR EXELTECH ENVIRONMENTAL SERVICES				DATE	DATE
DRILLER DON JENKINS				5-19-90	5-19-90
DRILLING METHOD HOLLOW STEM AUGER (8 INCH)					
SAMPLING METHOD CALIFORNIA SPLIT-SPOON SAMPLER (18 INCH)					
LOGGER CHRIS NIELSON-CERQUONE					
N/S		E/W		ELEV.	
BORING DIAMETER 8 INCHES			CASING DIAMETER 2 INCHES		
REVIEWED BY:			DATE 5-21-90		

DIST FROM SUR.	WELL CONST. CASING	WELL CONST. ANNULUS	LEGEND	TLV READ	SAMPLE #	% REC.	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
		GROUT							CONCRETE
1									(SM) SILTY SAND, FINE GRAINED SAND, DARK BROWN, DRY, RAPID DILATENCY,
									DIFFICULT TO RIBBON, NO DRY STRTENGTH, NO TOUGHNESS, NON-PLASTIC
2		BENT. SEAL							ANGULAR TO SUBANGULAR CALSTICS (1-5 MM).
									(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, LIGHT BROWN, MOIST,
3									NO DRY STRENGTH, WOULD NOT THREAD, NO TOUGHNESS, NON-PLASTIC, NO
									CLASTICS.
4		2/16 SAND							
5						100	7		
				0	EB-1	100	6		(SC) CLAYEY SAND, MEDIUM GRAINED, LIGHT BROWN, VERY MOIST,
6						100	6		MODERATE DILATENCY, DRY STRENGTH AND TOUGHNESS, SLIGHTY PLASTIC.
	PLUG								NO CLASTICS. END OF BORING.
7									
8									
9									
10									

TOM EDWARDS & ASSOCIATES

BORING LOG

LOCATION OF BORING



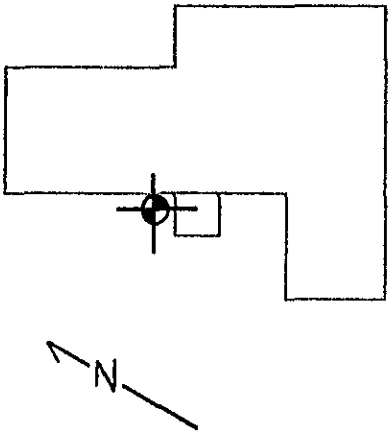
SITE/LOCATION CAVANAUGH MOTORS, 1700 PARK STREET, ALAMEDA				BORING NO. VW-2	
PROJECT NO. 109001				SHEET 1 OF 1	
WATER LEVEL				DRILLER	
TIME				START	FINISH
DATE				TIME	TIME
CAS. DEPTH				1020	1045
DRILLING CONTRACTOR EXELTECH ENVIRONMENTAL SERVICES				DATE	DATE
DRILLER DON JENKINS				5-19-90	5-19-90
DRILLING METHOD HOLLOW STEM AUGER (8 INCH)					
SAMPLING METHOD CALIFORNIA SPLIT-SPOON SAMPLER (18 INCH)					
LOGGER CHRIS NIELSON-CERQUONE					
N/S		E/W		ELEV.	
BORING DIAMETER 8 INCHES			CASING DIAMETER 2 INCHES		
REVIEWED BY:			DATE 5-21-90		

DIST FROM SUR.	WELL CONST. CASING	WELL CONST. ANNULUS	LEGEND	TLV READ	SAMPLE #	% REC.	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
		GROUT							CONCRETE
1									(SM) SILTY SAND, FINE GRAINED SAND, DARK BROWN, DRY, RAPID DILATENCY,
									DIFFICULT TO RIBBON, NO DRY STRTENGTH, NO TOUGHNESS, NON-PLASTIC
2		BENT. SEAL							ANGULAR TO SUBANGULAR CLASTICS (1-5 MM).
3									(SM) SILTY SAND, FINE TO MEDIUM GRAINED, LIGHT BROWN, MOIST,
									NO DRY STRENGTH, DIFFICULT TO RIBBON, NO TOUGHNESS, NON-PLASTIC, NO
4		2/16 SAND							CLASTICS.
5						90	4		
				0	EB-2	100	4		
6						100	6		(SC) CLAYEY SAND, MEDIUM GRAINED, LIGHT BROWN, VERY MOIST,
	PLUG								MODERATE DILATENCY, DRY STRENGTH AND TOUGHNESS, SLIGHTY PLASTIC.
7									NO CLASTICS. END OF BORING.
8									
9									
10									

TOM EDWARDS & ASSOCIATES

BORING LOG

LOCATION OF BORING



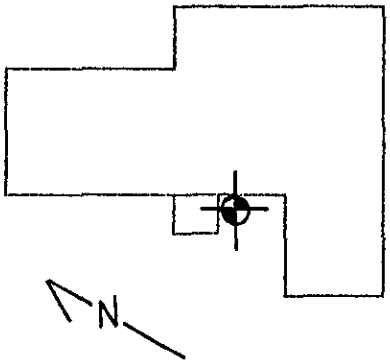
SITE/LOCATION CAVANAUGH MOTORS, 1700 PARK STREET, ALAMEDA				BORING NO. VW-3	
PROJECT NO. 109001				SHEET 1 OF 1	
WATER LEVEL				DRILLER	
TIME				START	FINISH
DATE				TIME	TIME
CAS. DEPTH				1100	1135
DRILLING CONTRACTOR EXELTECH ENVIRONMENTAL SERVICES				DATE	DATE
DRILLER DON JENKINS				5-19-90	5-19-90
DRILLING METHOD HOLLOW STEM AUGER (8 INCH)					
SAMPLING METHOD CALIFORNIA SPLIT-SPOON SAMPLER (18 INCH)					
LOGGER CHRIS NIELSON-CERQUONE					
N/S		E/W		ELEV.	
BORING DIAMETER 8 INCHES			CASING DIAMETER 2 INCHES		
REVIEWED BY:			DATE 5-21-90		

DIST FROM SUR.	WELL CONST. CASING	WELL CONST. ANNULUS	LEGEND	TLV READ	SAMPLE #	% REC.	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
0		GROUT							CONCRETE
1									(SM) SILTY SAND, FINE GRAINED SAND, DARK BROWN, DRY, RAPID DILATENCY,
									DIFFICULT TO RIBBON, NO DRY STRTENGTH, NO TOUGHNESS, NON-PLASTIC
2		BENT. SEAL							ANGULAR TO SUBANGULAR CLASTICS (1-5 MM).
3									(SW) CLEAN SAND, FINE TO MEDIUM GRAINED, LIGHT BROWN, MOIST,
									NO DRY STRENGTH, WOULD NOT RIBBON, NO TOUGHNESS, NON-PLASTIC, NO
4		2/16 SAND							CLASTICS.
5						100	4		
6				0	EB-3	100	7		(SC) CLAYEY SAND, MEDIUM GRAINED, LIGHT BROWN TO RED BROWN, VERY
						100	13		MOIST MODERATE DILATENCY, DRY STRENGTH AND TOUGHNESS, SLIGHTLY
7	PLUG								PLASTIC, NO CLASTICS. END OF BORING.
8									
9									
10									

TOM EDWARDS & ASSOCIATES

BORING LOG

LOCATION OF BORING



SITE/LOCATION CAVANAUGH MOTORS, 1700 PARK STREET, ALAMEDA				BORING NO. VW-4	
PROJECT NO. 109001				SHEET 1 OF 1	
WATER LEVEL				DRILLER	
TIME				START	FINISH
DATE				TIME	TIME
CAS. DEPTH				1140	1210
DRILLING CONTRACTOR EXELTECH ENVIRONMENTAL SERVICES				DATE	DATE
DRILLER DON JENKINS				5-19-90	5-19-90
DRILLING METHOD HOLLOW STEM AUGER (8 INCH)					
SAMPLING METHOD CALIFORNIA SPLIT-SPOON SAMPLER (18 INCH)					
LOGGER CHRIS NIELSON-CERQUONE					
N/S		E/W		ELEV.	
BORING DIAMETER 8 INCHES			CASING DIAMETER 2 INCHES		
REVIEWED BY:			DATE 5-21-90		

DIST FROM SUR.	WELL CONST. CASING	WELL CONST. ANNULUS	LEGEND	TLV READ	SAMPLE #	% REC.	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
		GROUT							CONCRETE
1									(SM) SILTY SAND, FINE GRAINED SAND, DARK BROWN, DRY, RAPID DILATENCY,
									DIFFICULT TO RIBBON, NO DRY STRTENGTH, NO TOUGHNESS, NON-PLASTIC
2		BENT. SEAL							ANGULAR TO SUBANGULAR CLASTICS (1-5 MM).
3									
		2/16 SAND							(SM) SILTY SAND, FINE TO MEDIUM GRAINED, LIGHT BROWN, MOIST,
4									NO DRY STRENGTH, DIFFICULT TO RIBBON, NO TOUGHNESS, NON-PLASTIC, NO
									CLASTICS.
5						30	4		
				80	EB-4	100	4		
6						100	4		
	PLUG								SOIL CONTAINATED WITH GASOLINE. END OF BORING.
7									
8									
9									
10									

APPENDIX C

TESTING AND TECHNOLOGY
25-L COMMERCIAL BLVD
NOVATO, CA 94949
(415)883-5070

MONITORING WELL SERVICES

DATE: 5/30 & 5/31 1990

POLY TUBING: 200'

INVOICE: W005301

DRUMS DLV: SEVEN

CLIENT: TOM EDWARDS & ASSOCIATES

FIELD TECH: JOHN GIDDINGS

MILEAGE: 141 ROUND TRIP TWO DAYS

FACILITY: CAVANAUGH MOTORS
1700 PARK STREET
ALAMEDA CA

WELL NO.	MW1	MW2	MW3	MW4	
TIME:	11:17	11:29	11:32	11:36	
WATER DEPTH: FT	7.18	7.25	7.11	7.52	
WELL DEPTH: FT	14.75	15.05	15.05	14.95	
WELL DIAMETER: IN	4"	4"	4"	4"	
WELL VOLUME: GAL	5.15	5.30	5.40	5.05	
SHEEN PRESENCE:	YES	NO	NO	NO	
PROD THICKNESS: FT	NONE	NONE	NONE	NONE	
FIELD SAMPLE COLOR:	CLEAR	CLEAR	CLEAR	CLEAR	
PURGE:	NO	NO	NO	NO	
DEVELOP:	YES	YES	YES	YES	
SAMPLE:	NO	NO	NO	NO	
METHOD:	SURG/SUCT	SURG/SUCT	SURG/SUCT	SURG/SUCT	
PURGE RATE:(gpm)	.44	.37	.46	.66	
WATER VOLUME: GAL	105	75	95	82	
TURBIDITY: NTU	77	160	108	121	
PURGED COLOR:	CLEAR	CLEAR	CLEAR	CLEAR	
PURGED PRODUCT: GAL	NONE	NONE	NONE	NONE	
PURGE SEQUENCE:	1	2	4	3	
INTERFACE PROBE: YN	N	N	N	N	

NOTES:

MW1- Slight amount of sheen was present in field sample. Started surging at bottom of the well for 15 minutes. Surged at the middle of the water column for 10 minutes, and at water depth for another 10 minutes. Water ran extremely silty at first, beginning to clear after 55 gallons purged. Recovery fair. Well dewatered throughout pumping.

MW2- Field sample clear. Surged throughout well casing before purging. Water ran very silty at first, beginning to clear after 45 gallons purged. Recovery fair. Well dewatered constantly.

MW3- Field sample clear. Surged throughout well casing before purging. Well dewatered after 15 gallons evacuated. Well dewatered throughout purging. Water began to clear after 50 gallons pumped. Fair recovery.

MW4- Water in well box. Field sample clear. Started surging at bottom of the well, moving upwards in 24"/15 min. increments, until reading water depth before purging. Well dewatered after 10 gallons evacuated. Water began to clear after 55 gallons purged. Fair recovery.

TESTING AND TECHNOLOGY
27-B COMMERCIAL BLVD
NOVATO, CA 94949
(415)883-5070

MONITORING WELL SERVICES

DATE: 6/08/90

INVOICE: W006080

CLIENT:

FACILITY: CAVANAUGH MOTORS
1700 PARK STREET
ALAMEDA CA

POLY TUBING:

DRUMS DLVRD:

FIELD TECH: DON SEMESKI / DARIA DOUGLAS

MILEAGE: 141

WELL NO.	MW1	MW2	MW3	MW4	
TIME:	11:03	11:05	11:14	11:10	
WATER DEPTH: FT	7.13	7.20	7.34	7.50	
WELL DEPTH: FT	14.85	15.15	15.11	14.97	
WELL DIAMETER: IN	4"	4"	4"	4"	
WELL VOLUME: GAL	5.25	5.40	5.28	5.08	
SHEEN PRESENCE:	NO	NO	NO	NO	
PROD THICKNESS: FT	NONE	NONE	NONE	NONE	
FIELD SAMPLE COLOR:	CLEAR	CLEAR	CLEAR	CLEAR	
PURGE:	YES	YES	YES	YES	
DEVELOP:	NO	NO	NO	NO	
SAMPLE:	by TAT	by TAT	by TAT	by TAT	
METHOD:	SUCTION	SUCTION	SUCTION	SUCTION	
PURGE RATE:(gpm)	.5	.5	2	.5	
WATER VOLUME: GAL	55	55	55	55	
TURBIDITY: NTU	N/A	N/A	N/A	N/A	
PURGED COLOR:	CLEAR	CLEAR	CLEAR	CLEAR	
PURGED PRODUCT: GAL	NONE	NONE	NONE	NONE	
PURGE SEQUENCE:	1	2	3	4	
INTERFACE PROBE: YN	N	N	N	N	

NOTES:

APPENDIX D

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive Suite E San Jose CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

Tom Edwards
Tom Edwards & Associates
13908 San Pablo Avenue
San Pablo, CA 94806

May 10, 1990
Anametrix W.O.#: 9004241
Date Received : 04/27/90
Project Number : 109001

Dear Mr. Edwards:

Your samples have been received for analysis. The REPORT SUMMARY lists your sample identifications and the analytical methods you requested. The following sections are included in this report: RESULTS.

NOTE: Amounts reported are net values, i.e. corrected for method blank contamination.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

ANAMETRIX, INC.

Terry Cooke
TPH Supervisor

TC/dmt

REPORT SUMMARY
ANAMETRIX, INC. (408) 432-8192

Client : Tom Edwards & Associates
Address : 13908 San Pablo Avenue
City : San Pablo, CA 94806
Attn. : Tom Edwards

Anametrix W.O.#: 9004241
Date Received : 04/27/90
Purchase Order#: N/A
Project No. : 109001
Date Released : 05/10/90

Anametrix I.D.	Sample I.D.	Matrix	Date Sampled	Method	Date Extract	Date Analyzed	Inst I.D.
RESULTS							
9004241-01	SOUTH-1	SOIL	04/26/90	TPHg		05/03/90	N/A
9004241-02	WEST-1	SOIL	04/26/90	TPHg		05/02/90	N/A

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 109001 SOUTH-1
Matrix : SOIL
Date sampled : 04/26/90
Date anl.TPHg: 05/03/90

Anametrix I.D. : 9004241-01
Analyst : GV
Supervisor : TC
Date released : 05/10/90

CAS #	Compound Name	Detection Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	ND
108-88-3	Toluene	5	ND
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 109001 WEST-1
Matrix : SOIL
Date sampled : 04/26/90
Date anl.TPHg: 05/02/90

Anametrix I.D. : 9004241-02
Analyst : GV
Supervisor : TC
Date released : 05/10/90

CAS #	Compound Name	Detection Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	ND
108-88-3	Toluene	5	ND
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

1118 16:00

TOM EDWARDS & ASSOCIATES 1708 San Pablo Ave, San Pablo ~~P.O. BOX 418 PINOLE~~ CALIFORNIA 94806 ~~94564~~ (415) 724-7751

(2)

900424/

CHAIN OF CUSTODY

PROJECT NO. 109001

SAMPLERS (Signature) Chris Nielsen-Cerqueira

PROJECT NAME AND ADDRESS: Cavanaugh Motors
1700 Park St. Alameda, California

CROSS REFERENCE NUMBER	DATE	TIME	SOIL	WATER	STATION LOCATION	ANALYSIS REQUESTED: TPH-GASOLINE/DIESEL	ETX - (8020)	HALOGENATED (8010)	TOTAL OIL & GREASE	PCB's (8080)	METALS (CAM-17)	REMARKS
SOUTH-1	4/26/90	0935	X		Depth 7.5'	X	X					Standard
WEST-1	4/26/90	1105	X		Depth 7.5'	X	X					Turnaround

RELINQUISHED BY: (Signature) Chris Nielsen-Cerqueira	DATE 4-27-90 TIME 0935	RECEIVED BY: (Signature) [signature]	DATE 4-27-90 TIME 0935
RELINQUISHED BY: (Signature)	DATE TIME	RECEIVED BY: (Signature)	DATE TIME
RELINQUISHED BY: (Signature)	DATE TIME	RECEIVED BY: (Signature)	DATE TIME
RELINQUISHED BY: (Signature)	DATE TIME	RECEIVED BY: (Signature)	DATE TIME

TOM EDWARDS & ASSOCIATES ~~P.O. BOX 418 PINOLE~~ 15708 San Pablo Ave, San Pablo CALIFORNIA ~~94564~~ 94806 (415) 724-7751

CHAIN OF CUSTODY

PROJECT NO. 109001

SAMPLERS (Signature) Chris Nielsen-Ceriguon

PROJECT NAME AND ADDRESS: Cavanaugh Motors
1700 Park St. Alameda, California

CROSS REFERENCE NUMBER	DATE	TIME	SOIL	WATER	STATION LOCATION	TPH-GASOLINE/DIESEL	BTX - (8020)	HALOGENATED (8010)	TOTAL OIL & GREASE	PCB's (8080)	METALS (CAM-17)	REMARKS
South-1	4/26/90	0935	X		Depth 7.5'	X	X					Standard
West-1	4/26/90	1105	X		Depth 7.5'	X	X					Turnaround

RELINQUISHED BY: (Signature) Chris Nielsen-Ceriguon	DATE 4-27-90 TIME 0935	RECEIVED BY: (Signature)	DATE 4-27-90 TIME 0935
RELINQUISHED BY: (Signature)	DATE TIME	RECEIVED BY: (Signature)	DATE TIME
RELINQUISHED BY: (Signature)	DATE TIME	RECEIVED BY: (Signature)	DATE TIME
RELINQUISHED BY: (Signature)	DATE TIME	RECEIVED BY: (Signature)	DATE TIME

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

Chris Nielson-Cerquone
Tom Edwards & Associates
13908 San Pablo Avenue
San Pablo, CA 94806

June 01, 1990
Anametrix W.O.#: 9005254
Date Received : 05/21/90
Project Number : 109001

Dear Mr. Nielson-Cerquone:

Your samples have been received for analysis. The REPORT SUMMARY lists your sample identifications and the analytical methods you requested. The following sections are included in this report: RESULTS.

NOTE: Amounts reported are net values, i.e. corrected for method blank contamination.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

Sarah Schoen, Ph.D.
Laboratory Manager

SRS/dm

REPORT SUMMARY
ANAMETRIX, INC. (408) 432-8192

Client : Tom Edwards & Associates
Address : 13908 San Pablo Avenue
City : San Pablo, CA 94806
Attn. : Chris Nielson-Cerquone

Anametrix W.O.#: 9005254
Date Received : 05/21/90
Purchase Order#: N/A
Project No. : 109001
Date Released : 06/01/90

Anametrix I.D.	Sample I.D.	Matrix	Date Sampled	Method	Date Extract	Date Analyzed	Inst I.D.
RESULTS							
9005254-01	MW-1,5'	SOIL	05/17/90	TPHg		05/30/90	N/A
9005254-02	MW-2,5'	SOIL	05/17/90	TPHg		05/29/90	N/A
9005254-03	MW-3,5'	SOIL	05/17/90	TPHg		05/29/90	N/A
9005254-04	MW-4,5'	SOIL	05/17/90	TPHg		05/30/90	N/A
9005254-05	EB-1,5'	SOIL	05/19/90	TPHg		05/30/90	N/A
9005254-06	EB-2,5'	SOIL	05/19/90	TPHg		05/30/90	N/A
9005254-07	EB-3,5'	SOIL	05/19/90	TPHg		05/30/90	N/A
9005254-08	EB-4,5'	SOIL	05/19/90	TPHg		05/31/90	N/A

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 109001 MW-1,5'	Anametrix I.D.	: 9005254-01
Matrix	: SOIL	Analyst	: GV
Date sampled	: 05/17/90	Supervisor	: [illegible]
Date anl.TPHg	: 05/30/90	Date released	: 06/01/90
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (mg/kg)	Amount Found (mg/kg)
71-43-2	Benzene	10	ND
108-88-3	Toluene	10	190
100-41-4	Ethylbenzene	10	76
1330-20-7	Total Xylenes	10	510
	TPH as Gasoline	200	3500

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 109001 MW-2,5'	Anametrix I.D.	: 9005254-02
Matrix	: SOIL	Analyst	: CS
Date sampled	: 05/17/90	Supervisor	: DOG
Date anl.TPHg	: 05/29/90	Date released	: 06/01/90
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (mg/kg)	Amount Found (mg/kg)
71-43-2	Benzene	0.005	ND
108-88-3	Toluene	0.005	ND
100-41-4	Ethylbenzene	0.005	ND
1330-20-7	Total Xylenes	0.005	ND
	TPH as Gasoline	1	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 109001 MW-3,5'	Anametrix I.D.	: 9005254-03
Matrix	: SOIL	Analyst	: CS
Date sampled	: 05/17/90	Supervisor	: DDG
Date anl.TPHg	: 05/29/90	Date released	: 06/01/90
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (mg/kg)	Amount Found (mg/kg)
71-43-2	Benzene	0.005	ND
108-88-3	Toluene	0.005	ND
100-41-4	Ethylbenzene	0.005	ND
1330-20-7	Total Xylenes	0.005	ND
	TPH as Gasoline	1	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 109001 MW-4,5'	Anametrix I.D.	: 9005254-04
Matrix	: SOIL	Analyst	: CY
Date sampled	: 05/17/90	Supervisor	: DCG
Date anl.TPHg	: 05/30/90	Date released	: 06/01/90
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (mg/kg)	Amount Found (mg/kg)
71-43-2	Benzene	0.005	ND
108-88-3	Toluene	0.005	ND
100-41-4	Ethylbenzene	0.005	ND
1330-20-7	Total Xylenes	0.005	ND
	TPH as Gasoline	1	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 109001 EB-1,5'	Anametrix I.D.	: 9005254-05
Matrix	: SOIL	Analyst	: CS
Date sampled	: 05/19/90	Supervisor	: DDG
Date anl.TPHg	: 05/30/90	Date released	: 06/01/90
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (mg/kg)	Amount Found (mg/kg)
71-43-2	Benzene	0.005	ND
108-88-3	Toluene	0.005	ND
100-41-4	Ethylbenzene	0.005	ND
1330-20-7	Total Xylenes	0.005	ND
	TPH as Gasoline	1	ND

ND - Not detected at or above the practical quantitation limit for the method.

TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.

BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 109001 EB-2,5'	Anametrix I.D.	: 9005254-06
Matrix	: SOIL	Analyst	: CB
Date sampled	: 05/19/90	Supervisor	: DDG
Date anl.TPHg	: 05/30/90	Date released	: 06/01/90
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (mg/kg)	Amount Found (mg/kg)
71-43-2	Benzene	0.005	ND
108-88-3	Toluene	0.005	ND
100-41-4	Ethylbenzene	0.005	ND
1330-20-7	Total Xylenes	0.005	ND
	TPH as Gasoline	1	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 109001 EB-3,5'	Anametrix I.D.	: 9005254-07
Matrix	: SOIL	Analyst	: CA
Date sampled	: 05/19/90	Supervisor	: DOG
Date anl.TPHg	: 05/30/90	Date released	: 06/01/90
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (mg/kg)	Amount Found (mg/kg)
71-43-2	Benzene	0.005	ND
108-88-3	Toluene	0.005	ND
100-41-4	Ethylbenzene	0.005	ND
1330-20-7	Total Xylenes	0.005	ND
	TPH as Gasoline	1	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 109001 EB-4,5'	Anametrix I.D.	: 9005254-08
Matrix	: SOIL	Analyst	: GV
Date sampled	: 05/19/90	Supervisor	: DDG
Date anl.TPHg	: 05/31/90	Date released	: 06/01/90
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (mg/kg)	Amount Found (mg/kg)
71-43-2	Benzene	0.005	ND
108-88-3	Toluene	0.005	ND
100-41-4	Ethylbenzene	0.005	ND
1330-20-7	Total Xylenes	0.005	0.034
	TPH as Gasoline	1	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

TOM EDWARDS & ASSOCIATES P.O. BOX 418 PINOLE, CALIFORNIA 94564

CHAIN OF CUSTODY

PROJECT NO. 109001

SAMPLERS (SIGNATURE) Chris Nielson-Cerqueira

PROJECT NAME AND ADDRESS: Cavanaugh Motors
1700 Park Street
Alameda

SAMPLE ID NUMBER	DATE	TIME	SOIL	WATER	SAMPLE LOCATION	ANALYSES: TPH as gas	ANALYSES: BTEX
MW-1, 5'	5-17-90	0915	X			X	X
MW-2, 5'	5-17-90	1120	X			X	X
MW-3, 5'	5-17-90	1400	X			X	X
MW-4, 5'	5-17-90	1540	X			X	X
EB-1, 5'	5-19-90	1000	X			X	X
EB-2, 5'	"	1035	X			X	X
EB-3, 5'	"	1055	X			X	X
EB-4, 5'	"	1120	X			X	X

RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	DATE/TIME	REMARKS
Chris Nielson-Cerqueira	Lynn Neimuth	5/21/90 11:40	Standard Turnaround
RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	DATE/TIME	
RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	DATE/TIME	

APPENDIX E

pace®
INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

June 25, 1990

Mr. Don Semeski
Testing and Technology
27 B Commercial Blvd.
Novato, CA 94949

RE: PACE Project No. 400608.503
Cavanaugh Mtrs.

Dear Mr. Semeski:

Enclosed is the report of laboratory analyses for samples received June 08, 1990.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Stephen Nackord

Stephen F. Nackord
Director, Sampling and Analytical Services

Enclosures

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2873

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Testing and Technology
27 B Commercial Blvd.
Novato, CA 94949

June 25, 1990
PACE Project
Number: 400608503

Attn: Mr. Don Semeski

Cavanaugh Mtrs.

PACE Sample Number:			764910	764920	764930
Date Collected:			06/08/90	06/08/90	06/08/90
Date Received:			06/08/90	06/08/90	06/08/90
Parameter	Units	MDL	MW1	MW2	MW3
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Lead (EPA Method 7421, Graphite Furnace)	mg/L	0.003	ND	-	-
ORGANIC ANALYSIS					
PURGEABLE FUELS AND AROMATICS					
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	28000	ND	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	ug/L	0.5	6200	ND	ND
Ethylbenzene	ug/L	0.5	630	ND	ND
Toluene	ug/L	0.5	7000	1.0	ND
Xylenes, Total	ug/L	0.5	6100	1.7	0.9

MDL Method Detection Limit
ND Not detected at or above the MDL.

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. Don Semeski
Page 2

June 25, 1990
PACE Project Number: 400608503

Cavanaugh Mtrs.

PACE Sample Number:			764940
Date Collected:			06/08/90
Date Received:			06/08/90
Parameter	Units	MDL	MW4
ORGANIC ANALYSIS			
PURGEABLE FUELS AND AROMATICS			
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-
Benzene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Toluene	ug/L	0.5	1.1
Xylenes, Total	ug/L	0.5	2.2

MDL Method Detection Limit
ND Not detected at or above the MDL.

The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my supervision.

Robert P. Chrin
Inorganic Chemistry Manager

Ruth Siegmund

Ruth J. Siegmund
Organic Chemistry Manager

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

pace laboratories, inc.

NO. 3179

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client TESTING & TECHNOLOGY
Address 27-B COMMERCIAL BL
NOVATO CA.
Phone 883-5070

Report To: DON SERESKI
Bill To: TAT
P.O. # / Billing Reference CAVANAUGH
Project Name / No. CAVANAUGH MTRS

Pace Client No. 780661
Pace Project Manager SFN
Pace Project No. 400608.503
*Requested Due Date: STD.

Sampled By (PRINT): DARIA DOUGLAS / [redacted]
Sampler Signature
Date Sampled 6-8-90

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA HCL	ANALYSES REQUEST: BTEX / TPH-GAS / TOTAL LEAD	REMARKS
1	MW1		WATER	91491	6			2	4	X X X	
2	MW2			92	4				4	X X	
3	MW3			93	4			*	4	X X	
4	MW4			94	4			*	4	X X	
5									Ca		
6											
7											
8	E/B, S/B										

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT/DATE	SHIPMENT METHOD RETURNED/DATE

Additional Comments

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
1-4	Daria Douglas TAT	Courtesy PACE	6/8/90	16:30

ORIGINAL

SEE REVERSE SIDE FOR INSTRUCTIONS

APPENDIX F

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive Suite E San Jose CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

Chris Nielson - Cerquone
Tom Edwards & Associates
13908 San Pablo Avenue
San Pablo, CA 94806

May 10, 1990
Anametrix W.O.#: 9005035
Date Received : 05/04/90
Project Number : 109001

Dear Mr. Nielson:

Your samples have been received for analysis. The REPORT SUMMARY lists your sample identifications and the analytical methods you requested. The following sections are included in this report: RESULTS.

NOTE: Amounts reported are net values, i.e. corrected for method blank contamination.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

ANAMETRIX, INC.

Terry Cooke
TPH Supervisor

TC/dag

REPORT SUMMARY
ANAMETRIX, INC. (408) 432-8192

Client	: Tom Edwards & Associates	Anametrix W.O.#:	9005035
Address	: 13908 San Pablo Avenue	Date Received :	05/04/90
		Purchase Order#:	N/A
City	: San Pablo, CA 94806	Project No. :	109001
Attn.	: Chris Nielson - Cerquone	Date Released :	05/10/90

Anametrix I.D.	Sample I.D.	Matrix	Date Sampled	Method	Date Extract	Date Analyzed	Inst I.D.
RESULTS							
9005035-01	SOIL PILE WEST	SOIL	05/03/90	TPHg		05/08/90	N/A
9005035-02	SOIL PILE EAST	SOIL	05/03/90	TPHg		05/08/90	N/A

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 109001 SOIL PILE WEST	Anametrix I.D.	: 9005035-01
Matrix	: SOIL	Analyst	: GV
Date sampled	: 05/03/90	Supervisor	: TC
Date anl.TPHg	: 05/08/90	Date released	: 05/10/90
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	2000	ND
108-88-3	Toluene	2000	ND
100-41-4	Ethylbenzene	2000	ND
1330-20-7	Total Xylenes	2000	14000
	TPH as Gasoline	40000	350000

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 109001 SOIL PILE EAST	Anametrix I.D.	: 9005035-02
Matrix	: SOIL	Analyst	: GV
Date sampled	: 05/03/90	Supervisor	: TC
Date anl.TPHg	: 05/08/90	Date released	: 05/10/90
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5000	ND
108-88-3	Toluene	5000	11000
100-41-4	Ethylbenzene	5000	7900
1330-20-7	Total Xylenes	5000	110000
	TPH as Gasoline	100000	780000

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

TOM EDWARDS & ASSOCIATES ~~P.O. Box 418 PINOLE,~~ CALIFORNIA ~~94564~~ (415) 724-7751

13908 San Pablo Ave, San Pablo, CA 94806 CHAIN OF CUSTODY

9005035

PROJECT NO.	SAMPLERS (Signature)
109001	Chris Nielson-Cerqueira (send to)

PROJECT NAME AND ADDRESS: CAVANAUGH MOTORS
1700 PARK ST.

CROSS REFERENCE NUMBER	DATE	TIME	SOIL	WATER	STATION LOCATION	TPH as gas (GC FID)	BTEX					REMARKS
01	5-3-90	1630	X		Soil Pile - West	X	X					5-Day
02	5-3-90	1635	X		Soil Pile - East	X	X					Turnaround

RELINQUISHED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
Chris Nielson-Cerqueira	05-04-90 8:45	[illegible]	05-04-90 8:45
RELINQUISHED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELINQUISHED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELINQUISHED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME