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# Woodward-Clyde Consultants

July 18, 1989  
8819266

Harsch Investments  
235 West MacArthur Boulevard  
Oakland, California 94616

Attention: Mr. Herman Engbers

Subject: Phase II Site Exploration,  
Park Street and Shoreline Drive  
Alameda, California

Gentlemen:

We are pleased to present the following report summarizing the results of Woodward-Clyde Consultants Phase II Site exploration of the subject site. The purpose of this exploration is to provide information to assist in the environmental assessment of the site prior to development. Several of the existing buildings will be removed, and a new tenant will occupy the former Goodyear Building. Consideration of the existing underground fuel tanks at the South Shore Carwash was not part of this scope of work.

The results of soil and groundwater sampling and testing at the site indicate that petroleum contamination is detected in soil and groundwater at the former Texaco station site. Volatile organic halocarbons are detected in groundwater near the former Launderette-Dry Cleaners. In addition asbestos is detected in some building materials from each of the five buildings on the site.

The details of the findings are outlined in our report. We would be pleased to meet with you to discuss these results and their possible impact on your planned development.

Sincerely,

WOODWARD-CLYDE CONSULTANTS



Albert P. Ridley, C.E.G.  
Senior Associate

8910116ALL/CON



# Woodward-Clyde Consultants

July 1989

PHASE II SITE EXPLORATION  
PARK STREET AND SHORELINE DRIVE  
ALAMEDA, CALIFORNIA

Prepared for

Harsch Investments  
235 West MacArthur Boulevard  
Oakland, California 94616

July, 1989

Prepared by

Woodward-Clyde Consultants  
500 12th Street, Suite 100  
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PHASE II SITE EXPLORATION  
PARK STREET AND SHORE LINE DRIVE  
ALAMEDA, CALIFORNIA

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## INTRODUCTION

### Background

Phase I studies (Woodward-Clyde Consultants 1989) of this site identified areas where sampling and laboratory analysis were recommended to explore for evidence of contamination or hazardous materials at the site. The former Goodyear building is planned to be remodeled as a Big-5 Sporting goods store. The remaining buildings will be removed, and a new Carwash will be constructed on the site. The former Texaco station site is intended for a possible future building. Possible contaminants include asbestos in the buildings, petroleum from former underground storage tanks at the former Texaco station, and solvents from the former Dry Cleaners. The site is located at the intersection of Shore Line Drive and Park Street in Alameda, as shown in Figures 1 and 2.

### Purpose

The purpose of the exploration is to investigate suspected sources of contamination on the site, and to evaluate possible impact on the planned site development. Since the possible presence of hazardous or toxic materials in buildings, or in soil and groundwater, exceeding allowable concentrations could affect the development, a study is needed to evaluate the presence of those materials. Mitigation can then be performed as part of the development.

### Scope of Work

As requested, the scope of this study did not include exploration or evaluation of possible petroleum contamination from underground tanks or

other sources at the South Shore Carwash. We understand that the carwash owner will perform the required tests during tank closure.

This study included drilling five exploratory borings inside the former Goodyear building, two borings and one groundwater monitoring well at the former Texaco station, one monitoring well near the Carwash, and one monitoring well south of the former Dry cleaners. Analytical tests on soil samples from the borings and wells included petroleum hydrocarbons, and volatile organic halocarbons. Analytical tests on the groundwater samples from the wells included petroleum hydrocarbons, volatile organic halocarbons, and ethylene glycol (antifreeze). Samples of building materials were collected from materials identified during Phase I and were tested in the laboratory for asbestos. The results of these tasks were reviewed and the findings were compared to regulatory standards. The results of the exploration were assessed to evaluate the potential impact on the planned development of the site. The results and conclusions, and supporting data, are contained in this report, along with recommendations and suggestions regarding the site development.

#### FIELD EXPLORATION

Two exploratory borings were drilled at the former Texaco station (Figure 2) to depths of about 15 feet through the backfill in the former underground fuel tank excavation. The borings were drilled with 8-inch diameter hollow-stem augers using a truck-mounted drill rig. Soil samples were collected with a 2-inch I.D., modified California, drive sampler at 5 foot depth intervals. The number of blows of a 140 pound hammer dropped 30 inches required to drive the sampler for each 6-inch interval of the 18-inch drive were recorded on the logs (see Appendix B). The soil samples were retained in four, four-inch long, two-inch diameter, brass liners in the sampler. The brass liners were identified as A to D from the bottom to the top. The liners retained for laboratory analysis ("A" samples) are identified on the logs (Appendix B). Those samples were covered on both

ends with teflon sheeting and sealed with plastic end caps. Samples were labeled, placed in a plastic "zip-lock" bag, and were transported on ice to the analytical laboratory using chain-of-custody procedures.

The second of the four soil samples ("B" samples) was used to perform head-space analyses in the field for volatile organic compounds. The test procedure involved emptying the contents of the brass liner into a "zip-lock" bag, sealing the bag, and placing the bag in a warm area for 20 to 30 minutes, then inserting the organic vapor analyzer instrument probe into the bag. This technique provides for approximate field measurements of relative volatile organic concentrations in soil. The results of the field tests are shown on the logs. The remaining liners were used to describe the soil type as shown on the logs.

The borings were backfilled with cement/bentonite slurry to reduce the potential for vertical migration of contaminants in the borehole. Soil cuttings from the borings were placed in 55 gallon drums for temporary on-site storage and later disposal.

The three groundwater monitoring wells were drilled at the locations shown on Figure 2. Well MW-1 was located south of the former tank locations at the former Texaco station. Well MW-2 was located southwest of the Carwash, and MW-3 was located south of the former Dry Cleaners, as shown in Figure 2. Since the edge of San Francisco Bay is located on the south side of Shore Line Drive, it was assumed that the groundwater flow direction would be towards the Bay. Therefore the wells were located to detect possible groundwater contaminants from locations generally north of the wells. *SEE DRAWING?*

Monitoring wells were constructed by placing two-inch diameter PVC well casing through the center of the augers. A 5-foot long, screened section, with an end cap, was placed at the bottom of the well. The slots in the screened section are 0.010 inches wide. Solid well casing, with threaded

connections, extends to the surface where a slip cap covers the top of the casing. A locking cover was placed over the top of the wells. No. 2/12 Monterey Sand was placed in the annulus around the screened section of casing, to about one foot above the screen. Bentonite pellets were placed over the sand, and a cement/bentonite slurry was placed as a seal from the top of the bentonite to the surface. Prior to placing the slurry, water was added to the annulus to hydrate the bentonite pellets.

The wells were developed on 6-15-89 by bailing water from the wells to remove sediment from the well and the sand filter material. The water was placed in metal drums for later disposal. Development and sampling records are shown in Appendix B. Before sampling, on 6-16-89, water was bailed from the wells until temperature, pH, and conductivity measurements stabilized, indicating a representative water sample could be taken. Groundwater was sampled using a clear plastic bailer, and water samples were placed in clean containers from the laboratory. The samples were labeled, and placed on ice, and transported to the laboratory under chain-of-custody procedures. The depth to groundwater was measured before and after development, and before sampling as shown in Appendix B.

Five exploratory borings were drilled through the concrete floor adjacent to the car lift cylinders in the former Goodyear building, as shown in Figure 3. The borings were drilled with a posthole auger. One bulk soil sample was collected from the bottom of each boring using the auger. The samples were placed in clean containers and were sealed, labeled, and transported to the laboratory as described above.

5 BORINGS  
NEXT TO  
CAR LIFTS

#### SUBSURFACE CONDITIONS

Sand backfill was encountered in both borings B-1 and B-2 at the former Texaco station (see logs in Appendix B). No organic vapors were detected during drilling at depths of 5 and 15 feet, but hydrocarbon odors and 520 parts per million (ppm) organic vapors were detected at 10 feet in B-1.



Water was encountered at a depth of about 13 feet in boring B-1. Silty clay (Bay Mud) was encountered at a depth of about 14 feet immediately below the fill. No hydrocarbon odor or vapors were detected in B-2 in the sand fill that extended to the depth of the boring, at 15 feet. Water was found in the boring at a depth of about 10 feet.

Well MW-1 was located south of B-1, and south of the former underground fuel tanks. Brown, medium grained sand fill material, with some clay and abundant oyster shells was found in MW-1 to the bottom of the boring at 15 feet. This sand fill is interpreted as the fill placed during development of the entire area about 30 years ago. Hydrocarbon odors and OVA measurements of 1.2 ppm at 5 feet, 7.0 ppm at 10 feet indicate possible petroleum contamination in soil at this location. The stabilized water level in MW-1 was 4.75 feet below the surface in MW-1 after well development. Well MW-1 was completed at a depth of 10 feet because of caving sand below that depth.

Well MW-2 was drilled southwest of the Carwash in an undeveloped area. Fine to medium sand fill was encountered from the surface to a depth of 15 feet in MW-2. No hydrocarbon odors were detected from soil samples from MW-2. The stabilized water level was 5.2 feet below the surface in MW-2 after well development. Well MW-2 was also completed at a depth of 10 feet.

Well MW-3 was drilled south of the former Dry Cleaners in an undeveloped area. Fine to medium grained brown sand was encountered to the total depth of the boring at 15 feet. No hydrocarbon odors were detected from soil samples from MW-3. The stabilized water level was 5.0 feet below the surface after well development. Well MW-3 was completed at a depth of 10 feet.

The five soil borings drilled through the floor of the former Goodyear building (Figure 3) encountered about one foot of hard select fill beneath

the concrete floor slab, which was underlain by fine to medium grained sand to the depth of the borings at 5 feet. No water or petroleum odors were detected in the soil from these borings. The borings were backfilled with soil from the borings and patched with concrete.

#### ASBESTOS SAMPLING AND ANALYSES

Samples of building materials were sampled from the five buildings on the site and submitted to the laboratory for analysis for asbestos. The results are shown in Table 3. The Environmental Protection Agency and the California Department of Health Services defines a material as a hazardous waste if it contains greater than 1 percent, by weight, asbestos. The mineral chrysotile, on Table 3, is one of the asbestos minerals. The glass weld panels at the Carwash contain 10 to 15 percent chrysotile asbestos. Two samples of floor tile from the former Texaco station contain 1 to 5 percent, and 5 to 15 percent chrysotile asbestos. Floor tile at the Dry Cleaners contained 1 to 5 percent chrysotile asbestos. Corrugated material behind the dry cleaners contains 90 to 95 percent chrysotile asbestos. The hallway floor tile at the Pet Hospital contains 65 to 70 percent chrysotile asbestos. Floor tile at the former Goodyear building contains 1 to 5 percent chrysotile asbestos. None of the ceiling tile or other insulation and materials sampled contained asbestos.

dry  
cleaner  
DECONTAMINATED  
11/15/87

#### LABORATORY ANALYSES

##### Soil Analyses

Soil samples from borings B-1, B-2, MW-1, and MW-3 were tested in the laboratory for total petroleum hydrocarbons (TPH) as gasoline and for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Methods 5030, 8015 and 8020. One soil sample from B-1 and one soil sample from B-2 was tested for TPH as diesel. Two soil samples from MW-2 were tested for volatile organic halocarbons using EPA Method 8240. One soil sample from each of the five borings in the former Goodyear building were tested for

total oil and grease, to test for hydraulic fluid near the hydraulic automobile lifts.

The laboratory soil analyses detected 130 ppm TPH as gasoline and 4.1 ppm benzene and 4.5 ppm xylenes at 10 feet in boring B-1 (see Table 1). No TPH as diesel was detected in the sample from 5 feet in B-1 and B-2. No TPH as gasoline or BTEX were detected from soil samples from B-2. Both B-1 and B-2 were drilled through the sand backfill in the former underground fuel tank excavations at the former Texaco station. Soil from a depth of 10 feet in MW-1 contained 0.43 ppm benzene and 0.10 ppm ethylbenzene. No volatile organic halocarbons were detected in soil from 5 and 10 feet in MW-2 using EPA Method 8240.

Oil and grease was detected in three of the five soil samples from borings inside the former Goodyear building (see Table 1). Oil and grease was detected at 52 ppm in soil from Boring 2, 340 ppm in soil from Boring 4, and 30 ppm in soil from Boring 5 (boring locations on Figure 3). The oil and grease is interpreted as possible hydraulic fluid from the automobile lifts.

#### Groundwater Analysis

Groundwater samples from MW-1, MW-2 and MW-3 were tested for TPH as gasoline and diesel and BTEX using EPA Methods 5030, 8015 and 8020. Water from MW-1 was also tested for ethylene glycol (antifreeze). As shown in Table 2 2,500 ppb (parts per billion) TPH as gasoline and 3,800 ppb as diesel were detected in water from MW-1. Benzene was detected at 400 ppb, toluene at 3.4 ppb, ethylbenzene at 7.9 ppm, and xylenes at 78 ppb. No ethylene glycol was detected from the water sample from MW-1. Using EPA Method 8240, higher concentrations of BTEX were detected from water from MW-1 (Table 2). Benzene was detected at 10,000 ppb, toluene at 260 ppb, ethylbenzene at 2,600 ppb, and xylenes at 1,600 ppb. No other volatile organics were detected in water from MW-1.

Using EPA Methods 5030, 8015 and 8020, 43 ppb TPH as gasoline and 2 ppb benzene were detected in water from MW-2 southwest of the Car Wash. EPA Method 8240 detected 2 ppb benzene; 26 ppb 1,2-DCE; 48 ppb PCE and 160 ppb TCE in water from MW-2. PCE (tetrachloroethene) is a solvent used in dry cleaning, TCE(trichloroethene) is a solvent often used to clean auto parts, and is a breakdown product of PCE. 1,2-DCE is a breakdown product of PCE and TCE. No TPH or volatile organics were detected in water from MW-3.

#### DISCUSSION OF RESULTS

The asbestos test results indicate that each of the buildings has some materials that contain asbestos greater than 1 percent by weight. For buildings to be removed the presence of asbestos will require removal of the asbestos by a licensed asbestos contractor, and proper disposal under state and federal regulations. This will apply to the materials at the Carwash, Texaco station, Dry Cleaners, and Pet Hospital. Unless the asbestos material is friable and emitting particles in the air greater than allowed by Federal OSHA standards, it may remain in existing buildings. However, under California Proposition 65, a notice will need to be posted that asbestos is present in the building. Removal of the floor tile during remodeling for the new tenant, by an asbestos contractor, would eliminate the need for that notice.

Oil and grease, interpreted as evidence of hydraulic fluid, detected in soil from beneath the former Goodyear building was detected up to 340 ppm. The state guidance for petroleum leaks requires remediation of soil containing greater than 1,000 ppm oil and grease. No remediation is required for the detected oil and grease beneath the building. However, the detection indicates possible leakage of hydraulic fluid from the auto lifts. Because of the potential of impacting the underlying groundwater, if the lift cylinders have not been removed, they should be flushed of fluid and be removed.

The results of soil and groundwater tests indicate that petroleum contamination is detected in soil and groundwater at the former Texaco station site. The possible source of contamination is likely from leakage of the former underground storage tanks or piping at the site. The concentration of benzene in groundwater at MW-1 (10,000 ppb) exceeds the allowable state drinking water limit of 1.0 ppb, and the state action level of 0.7 ppb. The detected groundwater concentrations at MW-1 of toluene (260 ppb), ethylbenzene (2,600 ppb), and xylenes (1,600 ppb) all exceed the state action levels and allowable drinking water concentrations (Table 2). However, the water under the site is most likely saline and not considered drinking water. Therefore, concentration criteria related to the the potential impact on the nearby Bay waters will more likely apply to this site. The EPA Saltwater Acute toxicity levels are shown on Table 2 for reference. The California Regional Water Quality Control Board may consider these and other Bay Protection Criteria in evaluating this site. — b. r. w. s. d.

No petroleum hydrocarbons or volatile organics were detected in soil samples from MW-2 and MW-3, and no volatile organics were detected in groundwater from MW-3. However, 1,2-DCE, PCE, TCE, benzene, and gasoline were detected in water from MW-2. The concentrations of 1,2-DCE (26 ppb) PCE (48 ppb) and benzene (2 ppb) exceed the state action levels and drinking water concentrations (Table 2). TCE (160 ppb) also exceeds the state drinking water concentrations. None of the detected volatile organic concentrations for MW-2 exceeds the Saltwater Acute Toxicity levels. Since the groundwater flow direction is not known, it is difficult to evaluate the source of these compounds in the water from MW-2. However, because of the nearby former Dry Cleaners, there is a high potential that the Dry Cleaners was the source of these contaminants. The potential impact of these contaminants on Bay waters (Table 2) will likely be the criteria used by regulatory agencies to evaluate the need for mitigation, rather than drinking water criteria.

## RECOMMENDATIONS

1. Under state of California requirements a Fuel Leak Report must be submitted to the Alameda County Department of Health Services, Hazardous Materials Branch, and to the Regional Water Control Board for the detected petroleum contaminants at the former Texaco station. The presence of organic contaminants in water from well MW-2 must also be reported to these agencies. Prior to construction of new buildings, in the area of contamination, the regulatory agencies will likely require additional borings and wells to evaluate the extent of contamination of soil and water, and possibly the implementation of remedial measures. These measures might include removal of petroleum contaminated soil, and pumping and treatment of contaminated water.
2. Asbestos materials should be removed by a licensed asbestos removal contractor from buildings to be demolished. As discussed above, we suggest that the floor tile containing asbestos in the former Goodyear building be removed by a licensed asbestos contractor as part of the remodeling of that building.
3. The auto lift cylinders should be removed from the former Goodyear building, if they have not been previously removed. Care should be taken to remove the hydraulic fluid that may remain in the cylinders and piping, and dispose of it at a licensed waste facility. Stored petroleum in barrels and fuel in containers at the site should also be removed by a licensed waste hauler to a licensed waste disposal site.
4. These findings should not impact planned improvements inside and outside of the former Goodyear building. In addition, removal of the former Texaco station building and the Dry Cleaners and Pet Hospital, and Carwash buildings may proceed as part of the development. Consideration should be given to possible excavation

of contaminated soil at the former Texaco station prior to development of that site. If groundwater remediation is required in the area of well MW-1 and 2, it would likely involve installation of extraction wells which would need to be compatible with the planned paved parking in that area.

5. While consideration of the existing underground fuel tanks at the Carwash is beyond the scope of this study, Harsch should consider the possible impact of the excavation of contaminated soil around those tanks if leakage is found during their removal. If contamination is found around those tanks, sufficient time and funds will need to be budgeted for remediation.

1) CAR WASH TANKS

- SCHEDULED TANK REMOVAL?

2) GROUND WATER IMPACTED.

- REVIEW EPA SALT WATER TOX. CONT. VENTILITY W/ SEVERAL USES OF CORRECT USE SALINITY OF GROUND WATER EST?

3) LIFTS INSIDE TEXACO?

4) TEXACO HAS 5 VENT LINES OFF BACK OF BLDG.  
- WASTE OIL UBT?

5) SUMP TANK CAR WASH?

REFERENCES

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Marshade, Jon B. 1987. The designated level methodology for waste classification and cleanup level determination; HAZMACON 87 Proceedings. April.

Woodward-Clyde Consultants. 1989. Consultant's report entitled "Phase I Site Environmental Assessment Report, Park Avenue and Shore Line Drive, Alameda, California", dated May 17, 1989. Prepared for Harsch Investments, 235 West MacArthur Boulevard, Oakland, California 94616.



Table 1. LABORATORY ANALYSIS OF SOIL SAMPLES, PARK AVENUE AND SHORE LINE DRIVE, ALAMEDA, CALIFORNIA

Total Petroleum Hydrocarbons and BTEX in mg/kg (ppm) (EPA 5030/8015/8020)								
Boring Number	Depth (feet)	LBH <sup>1</sup>	Benzene	Toluene	Ethyl Benzene	Xylenes	HBH <sup>2</sup>	Volatile Organics EPA 8240
B-1	3.5-5	--	--	--	--	--	ND	--
	8.5-10	130	ND <sup>3</sup>	ND	4.1	4.5	--	--
	13.5-15	ND	ND	ND	ND	ND	--	--
B-2	3.5-5	--	--	--	--	--	ND	--
	8.5-10	ND	ND	ND	ND	ND	--	--
	13.5-15	ND	ND	ND	ND	ND	--	--
MW-2	3.5-5	--	--	--	--	--	--	ND
	8.5-10	--	--	--	--	--	--	ND
MW-3	3.5-5	ND	ND	ND	ND	ND	--	--
	8.5-10	ND	ND	ND	ND	--	--	--
Detection Limit		1.0	0.05	0.1	0.1	0.1	1.0	see App.A

Goodyear Building

Boring Number	Depth (feet)	Oil and Grease (EPA 413.1) (ppm)
1	5.2	ND
2	5.1	52
3	5.2	ND
4	5.5	340
5	5.1	30
Detection Limit		30

<sup>1</sup>LBH = Low/Medium Boiling Point Hydrocarbons = TPH (as gasoline)

<sup>2</sup>LBH = High Boiling Point Hydrocarbons = TPH (as diesel)

<sup>3</sup>ND = Not detected

<sup>4</sup>-- = Not tested

Table 2. LABORATORY ANALYSIS OF WATER SAMPLES, PARK AVENUE AND SHORE LINE DRIVE, ALAMEDA, CALIFORNIA

Well Number	LBH <sup>1</sup>	Total Petroleum Hydrocarbons and BTEX in micrograms (ppb) (EPA 5030/8015/8020)					
		Benzene	Toluene	Ethyl Benzene	Xylenes	HBH <sup>2</sup>	(Other) Ethylene Glycol
MW-1	2,500	400	3.4	7.9	78	3,800	ND <sup>3</sup>
MW-2	43	2	ND	ND	ND	ND	-- <sup>3</sup>
MW-3	ND	ND	ND	ND	ND	ND	--
Detection Limit:	30	0.3	0.3	0.3	0.3	50.0	10.0

<sup>1</sup>LBH = Low/Medium Boiling Point Hydrocarbons = TPH (as gasoline)

<sup>2</sup>HBH = High Boiling Point Hydrocarbons = TPH (as diesel) - some other part

<sup>3</sup> = Not tested

Volatile Organics in micrograms/L (ppb)  
(EPA 8240)

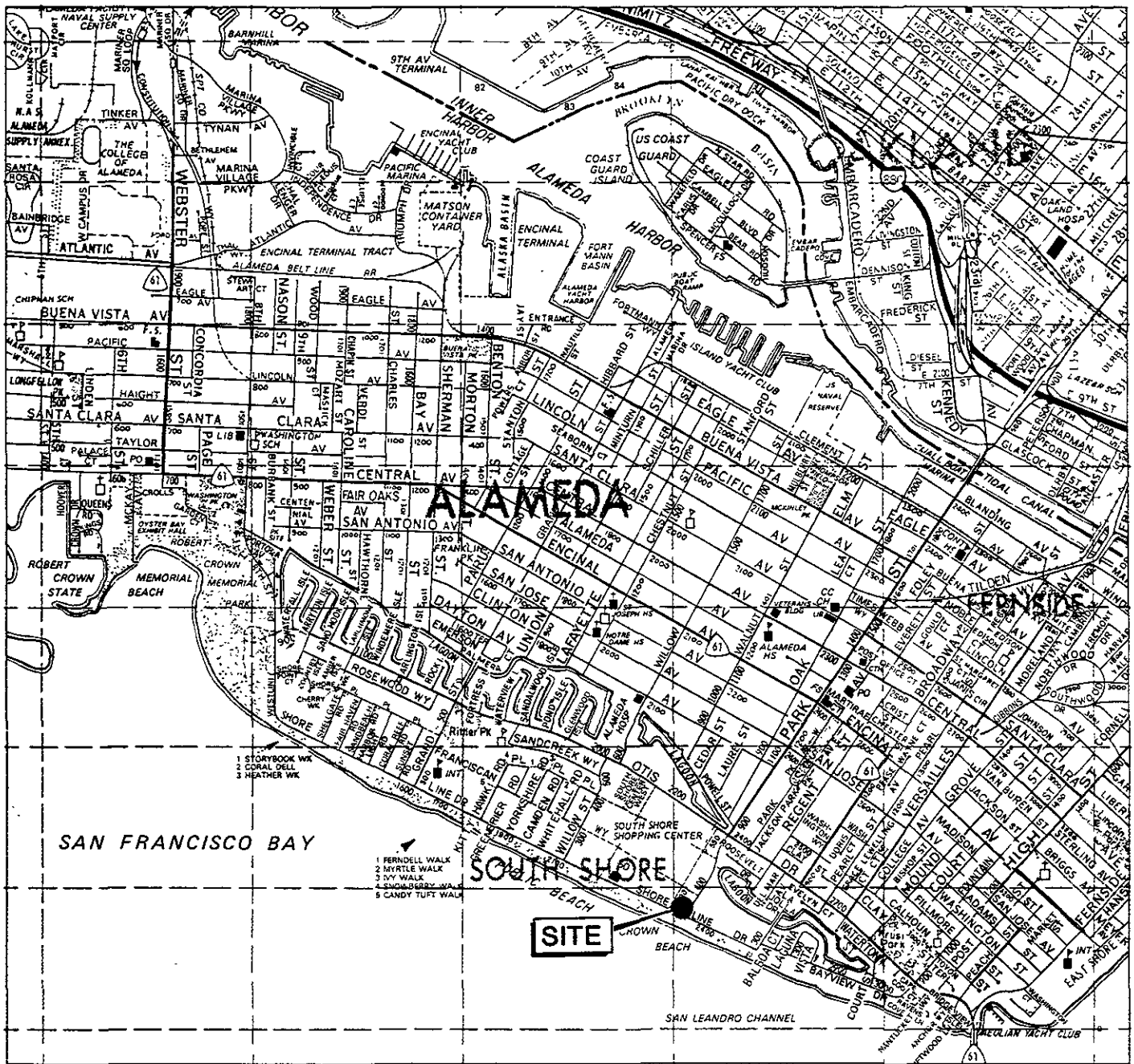
	Benzene	Toluene	Ethyl Benzene	Xylenes	1,2-DCE	PCE	TCE
MW-1	10,000	260	2,600	1,600	ND	ND	ND
MW-2	2.0	ND	ND	ND	26	48	160
MW-3	ND	ND	ND	ND	ND	ND	ND
Detection Limits:	2.0	100	100	100	2.0	2.0	2.0
State Action Level	0.7	100	680	620	16.0	4.0	5.0
State or Federal DWL	1.0	2,000	680	1,750	0.5	5.0	5.0
EPA Saltwater Acute Toxicity	5,000	6,300	430	--	224,000	10,200	2,000

Table 3. LABORATORY ANALYSIS FOR ASBESTOS, PARK AVENUE AND SHORE LINE DRIVE, ALAMEDA, CALIFORNIA

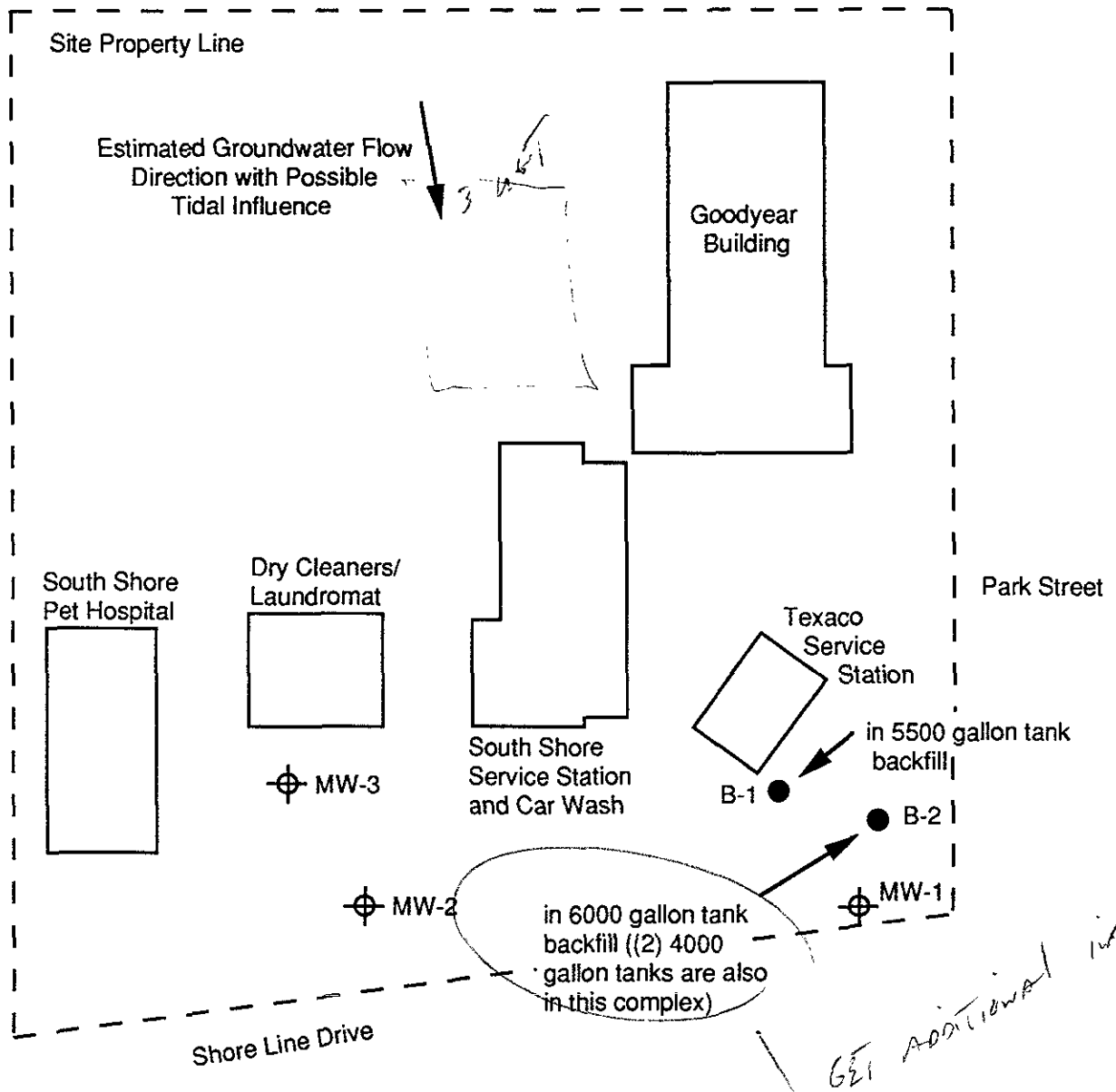
Building Sample #	Material Type	Analytical Result
Car Wash		
CW-1FT	floor tile	ND
CW-2CT	ceiling tile	ND
CW-3RD	roof duct insulation	ND
CW-4BI	boiler insulation	ND
CW-5GW	glass weld panels	10-15% chrysotile
Texaco		
TX-1FT	floor tile	5-10% chrysotile
TX-2FT	floor tile	1-5% chrysotile
Dry Cleaners		
DC-1FT	floor tile	1-5% chrysotile
DC-2CT	ceiling tile	ND
DC-3WH	water heater insulation	ND
DC-4CA	corrugated Al behind dry cleaners	90-95% chrysotile
Pet Hospital		
PH-1FT	x-ray room floor tile	ND
PH-2FT	hallway floor tile	65-70% chrysotile
PH-3PB	pegboard	ND
PH-4CT	ceiling tile	ND
PH-5	thermal insulation on pipe in crawl space next to x-ray room	ND
Goodyear		
GY-1FT	floor tile	1-5% chrysotile
GY-2CT	ceiling tile	ND
GY-3TI	thermal insulation	ND

Note: ND = Not Detected

EPA and State regulations define material with greater than 1% by weight asbestos as a hazardous waste.



Project No 8910116A	Harsch Investments	LOCATION MAP, PARK STREET AND SHORELINE DRIVE, ALAMEDA, CA	Figure 1
<b>Woodward-Clyde Consultants</b>			

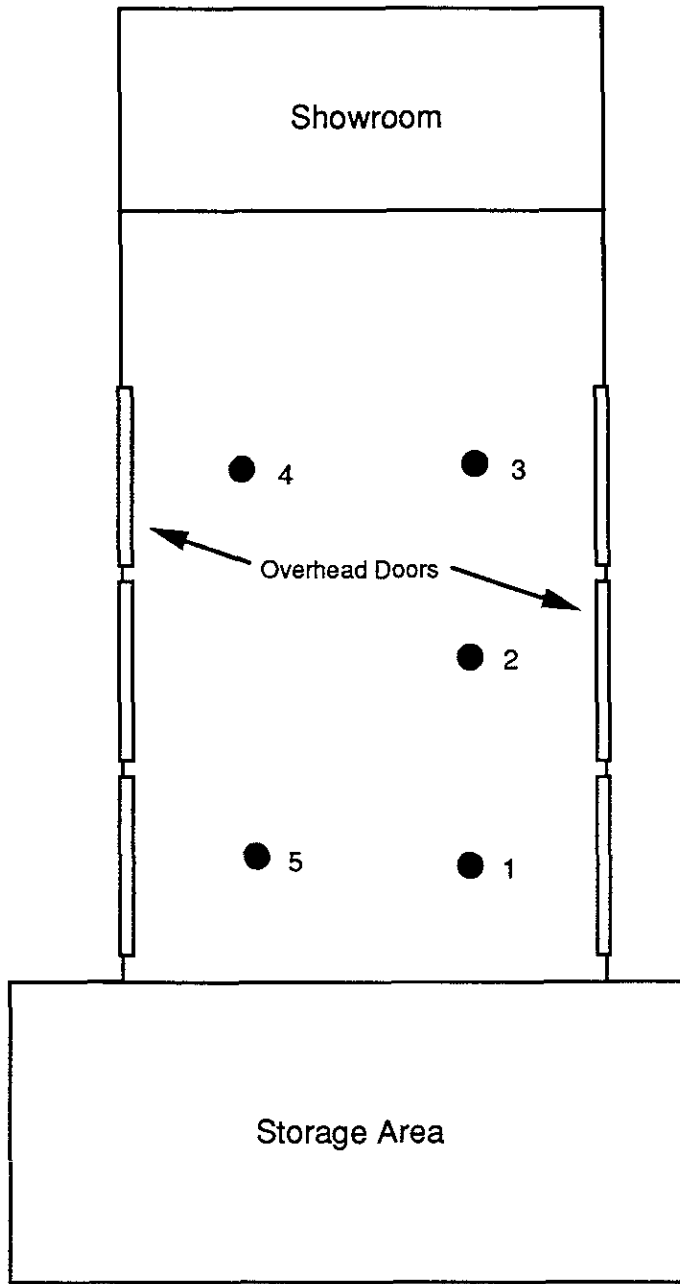


Note Building Locations Approximate  
Drawing Not to Scale

Legend

- Soil Boring
- ⊕ Monitoring Well

Project No. 8910116A	Harsch Investments	Site Map, Park Avenue and Shore Line Drive, Alameda, California	Figure 2
Woodward-Clyde Consultants			



**Goodyear Building**



Legend

● Hand Auger Boring

Note drawing not to scale

Project No. 8910116A	Harsch Investments	Boring Locations, Goodyear Building, Park Avenue and Shore Line Drive, Alameda, California	Figure 3
Woodward-Clyde Consultants			

APPENDIX A  
LABORATORY ANALYSIS RESULTS

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APPENDIX A  
LABORATORY ANALYSIS RESULTS

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# SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants  
500 12th St., Suite 100  
Oakland, CA 94607-4041  
Attention: Al Ridley

Client Project ID: 8910116A-4000  
Matrix Descript: Soil  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 906-1220 A

Sampled: See Below  
Received: Jun 9, 1989  
Analyzed: Jun 22, 1989  
Reported: Jul 10, 1989

## TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
9061220 A	B-1 @ 8.5 - 10.0A 6/8/89	130	N.D.	N.D.	4.1	4.5
9061221 A	B-1 @ 13.5 - 15.0A 6/8/89	N.D.	N.D.	N.D.	N.D.	N.D.
9061223 A	B-2 @8.5 - 10.0A 6/8/89	N.D.	N.D.	N.D.	N.D.	N.D.
9061224 A	B-2 @13.5 - 15.0 A 6/8/89	N.D.	N.D.	N.D.	N.D.	N.D.
9061225 A	MW - 1 @3.5-5.0 A 6/8/89	N.D.	N.D.	N.D.	N.D.	N.D.
9061226 A	MW-1 @8.5 - 10.00A 6/8/89	N.D.	0.43	N.D.	0.10	N.D.
9061229 A	MW - 3 @3.5 - 5.0A 6/9/89	N.D.	N.D.	N.D.	N.D.	N.D.
9061230 A	MW - 3 @8.5-10.0 A 6/9/89	N.D.	N.D.	N.D.	N.D.	N.D.

Detection Limits:	1.0	0.05	0.1	0.1	0.1
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Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard  
Analytes reported as N.D. were not present above the stated limit of detection

SEQUOIA ANALYTICAL

Arthur G. Burton  
Laboratory Director

Please Note.  
The chromatographic pattern for sample #9061220 is not typical of gasoline contamination.



# SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants	Client Project ID: 8910116A-4000	Sampled: Jun 8, 1989
500 12th St., Suite 100	Matrix Descript: Soil	Received: Jun 9, 1989
Oakland, CA 94607-4041	Analysis Method: EPA 3550/8015	Analyzed: Jun 29, 1989
Attention: Al Ridley	First Sample #: 906-1219 A	Reported: Jul 10, 1989

## TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

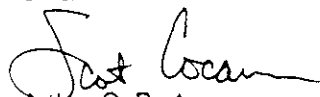
Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
9061219 A	B-1 @3.5 - 5.0 A	N.D.
9061222 A	<sup>2</sup> B- <del>1</del> @3.5 - 5.0 A	N.D.

Detection Limits:

1.0

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard  
Analytes reported as N D were not present above the stated limit of detection

SEQUOIA ANALYTICAL

  
Arthur G. Burton  
Laboratory Director



# SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants  
500 12th St., Suite 100  
Oakland, CA 94607-4041  
Attention: Al Ridley

Client Project ID: 8910116A-4000  
Sample Descript: Soil, MW - 2 @3.5-5.0A  
Analysis Method: EPA 8240  
Lab Number: 9061227 A

Sampled: Jun 8, 1989  
Received: Jun 9, 1989  
Analyzed: Jun 16, 1989  
Reported: Jul 10, 1989

## VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone.....	500.0	N.D.
Benzene.....	100.0	N.D.
Bromodichloromethane.....	100.0	N.D.
Bromoform.....	100.0	N.D.
Bromomethane.....	100.0	N.D.
2-Butanone.....	500.0	N.D.
Carbon disulfide.....	100.0	N.D.
Carbon tetrachloride.....	100.0	N.D.
Chlorobenzene.....	100.0	N.D.
Chlorodibromomethane.....	100.0	N.D.
Chloroethane.....	100.0	N.D.
2-Chloroethyl vinyl ether.....	500.0	N.D.
Chloroform.....	100.0	N.D.
Chloromethane.....	100.0	N.D.
1,1-Dichloroethane.....	100.0	N.D.
1,2-Dichloroethane.....	100.0	N.D.
1,1-Dichloroethene.....	100.0	N.D.
Total 1,2-Dichloroethene.....	100.0	N.D.
1,2-Dichloropropane.....	100.0	N.D.
cis 1,3-Dichloropropene.....	100.0	N.D.
trans 1,3-Dichloropropene.....	100.0	N.D.
Ethylbenzene.....	100.0	N.D.
2-Hexanone.....	500.0	N.D.
Methylene chloride.....	100.0	N.D.
4-Methyl-2-pentanone.....	500.0	N.D.
Styrene.....	100.0	N.D.
1,1,2,2-Tetrachloroethane.....	100.0	N.D.
Tetrachloroethene.....	100.0	N.D.
Toluene.....	100.0	N.D.
1,1,1-Trichloroethane.....	100.0	N.D.
1,1,2-Trichloroethane.....	100.0	N.D.
Trichloroethene.....	100.0	N.D.
Trichlorofluoromethane.....	100.0	N.D.
Vinyl acetate.....	100.0	N.D.
Vinyl chloride.....	100.0	N.D.
Total Xylenes.....	100.0	N.D.

Analytes reported as N D were not present above the stated limit of detection

SEQUOIA ANALYTICAL

  
Arthur G. Burton  
Laboratory Director



# SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants  
500 12th St., Suite 100  
Oakland, CA 94607-4041  
Attention: Al Ridley

Client Project ID: 8910116A-4000  
Sample Descript: Soil, MW - 2 @8.5 - 10.0A  
Analysis Method: EPA 8240  
Lab Number: 906-1228 A

Sampled: Jun 8, 1989  
Received: Jun 9, 1989  
Analyzed: Jun 19, 1989  
Reported: Jul 10, 1989

## VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone.....	500.0	N.D.
Benzene.....	100.0	N.D.
Bromodichloromethane.....	100.0	N.D.
Bromoform.....	100.0	N.D.
Bromomethane.....	100.0	N.D.
2-Butanone.....	500.0	N.D.
Carbon disulfide.....	100.0	N.D.
Carbon tetrachloride.....	100.0	N.D.
Chlorobenzene.....	100.0	N.D.
Chlorodibromomethane.....	100.0	N.D.
Chloroethane.....	100.0	N.D.
2-Chloroethyl vinyl ether.....	500.0	N.D.
Chloroform.....	100.0	N.D.
Chloromethane.....	100.0	N.D.
1,1-Dichloroethane.....	100.0	N.D.
1,2-Dichloroethane.....	100.0	N.D.
1,1-Dichloroethene.....	100.0	N.D.
Total 1,2-Dichloroethene.....	100.0	N.D.
1,2-Dichloropropane.....	100.0	N.D.
cis 1,3-Dichloropropene.....	100.0	N.D.
trans 1,3-Dichloropropene.....	100.0	N.D.
Ethylbenzene.....	100.0	N.D.
2-Hexanone.....	500.0	N.D.
Methylene chloride.....	100.0	N.D.
4-Methyl-2-pentanone.....	500.0	N.D.
Styrene.....	100.0	N.D.
1,1,2,2-Tetrachloroethane.....	100.0	N.D.
Tetrachloroethene.....	100.0	N.D.
Toluene.....	100.0	N.D.
1,1,1-Trichloroethane.....	100.0	N.D.
1,1,2-Trichloroethane.....	100.0	N.D.
Trichloroethene.....	100.0	N.D.
Trichlorofluoromethane.....	100.0	N.D.
Vinyl acetate.....	100.0	N.D.
Vinyl chloride.....	100.0	N.D.
Total Xylenes.....	100.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton  
Laboratory Director



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Woodward-Clyde Consultants  
500 12th St., Suite 100  
Oakland, CA 94607-4041  
Attention: Al Ridley

Client Project ID: Alameda-Harsh Investment. #881926  
Matrix Descript: Water  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 906-2365 B

Sampled: Jun 16, 1989  
Received: Jun 19, 1989  
Analyzed: Jul 6, 1989  
Reported: Jul 14, 1989

## TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P.	Benzene	Toluene	Ethyl Benzene	Xylenes
		Hydrocarbons	µg/L	µg/L	µg/L	µg/L
		µg/L	µg/L	µg/L	µg/L	µg/L
		(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
9062365 - B	MW-1	2,500	400	3.4	7.9	78
9062366 - A	MW-2	43	N.D.	N.D.	N.D.	N.D.
9062367 - A	MW-3	N.D.	N.D.	N.D.	N.D.	N.D.

Detection Limits:	30.0	0.3	0.3	0.3	0.3
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Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard  
Analytes reported as N.D. were not present above the stated limit of detection

SEQUOIA ANALYTICAL

Arthur G. Burton  
Laboratory Director



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants 500 12th St., Suite 100 Oakland, CA 94607-4041 Attention: Al Ridley	Client Project ID: Alameda-Harsh Investment. #881926 Matrix Descript: Water Analysis Method: EPA 3510/8015 First Sample #: 906-2365 C	Sampled: Jun 16, 1989 Received: Jun 19, 1989 Analyzed: Jul 12, 1989 Reported: Jul 14, 1989
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## TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons $\mu\text{g/L}$ (ppb)
9062365 - C	MW-1	3,800
9062366 - B	MW-2	N.D.
9062367 - B	NW-3	N.D.

**Detection Limits:**

**50.0**

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard  
Analytes reported as N.D. were not present above the stated limit of detection

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Arthur G. Burton  
Laboratory Director



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants	Client Project ID: Alameda-Harsh Investment. #881926	Sampled: Jun 16, 1989
500 12th St., Suite 100	Sample Descript: Water	Received: Jun 19, 1989
Oakland, CA 94607-4041		Analyzed: Jun 29, 1989
Attention: Al Ridley	Lab Number: 906-2365 A	Reported: Jul 14, 1989

## LABORATORY ANALYSIS

Analyte	Detection Limit mg/L	Sample Results mg/L
Ethylene Glycol.....	10.0	N.D.

Analytes reported as N D were not present above the stated limit of detection

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Arthur G. Burton  
Laboratory Director



# SEQUOIA ANALYTICAL

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Woodward-Clyde Consultants  
500 12th St., Suite 100  
Oakland, CA 94607-4041  
Attention: Al Ridley

Client Project ID: Alameda-Harsh Investment. #881926  
Sample Descript: Water, MW-1  
Analysis Method: EPA 8240  
Lab Number: 906-2365 D


Sampled: Jun 16, 1989  
Received: Jun 19, 1989  
Analyzed: Jun 27, 1989  
Reported: Jul 14, 1989

## VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acetone.....	500.0	N.D.
<b>Benzene.....</b>	<b>100.0</b>	<b>10,000</b>
Bromodichloromethane.....	100.0	N.D.
Bromoform.....	100.0	N.D.
Bromomethane.....	100.0	N.D.
2-Butanone.....	500.0	N.D.
Carbon disulfide.....	100.0	N.D.
Carbon tetrachloride.....	100.0	N.D.
Chlorobenzene.....	100.0	N.D.
Chlorodibromomethane.....	100.0	N.D.
Chloroethane.....	100.0	N.D.
2-Chloroethyl vinyl ether.....	500.0	N.D.
Chloroform.....	100.0	N.D.
Chloromethane.....	100.0	N.D.
1,1-Dichloroethane.....	100.0	N.D.
1,2-Dichloroethane.....	100.0	N.D.
1,1-Dichloroethene.....	100.0	N.D.
Total 1,2-Dichloroethene.....	100.0	N.D.
1,2-Dichloropropane.....	100.0	N.D.
cis 1,3-Dichloropropene.....	100.0	N.D.
trans 1,3-Dichloropropene.....	100.0	N.D.
<b>Ethylbenzene.....</b>	<b>100.0</b>	<b>2,600</b>
2-Hexanone.....	500.0	N.D.
Methylene chloride.....	100.0	N.D.
4-Methyl-2-pentanone.....	500.0	N.D.
Styrene.....	100.0	N.D.
1,1,2,2-Tetrachloroethane.....	100.0	N.D.
Tetrachloroethene.....	100.0	N.D.
<b>Toluene.....</b>	<b>100.0</b>	<b>250</b>
1,1,1-Trichloroethane.....	100.0	N.D.
1,1,2-Trichloroethane.....	100.0	N.D.
Trichloroethene.....	100.0	N.D.
Trichlorofluoromethane.....	100.0	N.D.
Vinyl acetate.....	100.0	N.D.
Vinyl chloride.....	100.0	N.D.
<b>Total Xylenes.....</b>	<b>100.0</b>	<b>1,600</b>

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Laboratory Director





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Woodward-Clyde Consultants  
500 12th St., Suite 100  
Oakland, CA 94607-4041  
Attention: Al Ridley

Client Project ID: Alameda-Harsh Investment. #881926  
Sample Descript: Water, MW-2  
Analysis Method: EPA 8240  
Lab Number: 906-2366 C

Sampled: Jun 16, 1989  
Received: Jun 19, 1989  
Analyzed: Jun 27, 1989  
Reported: Jul 14, 1989

## VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acetone.....	10.0	N.D.
<b>Benzene.....</b>	<b>2.0</b>	<b>2.0</b>
Bromodichloromethane.....	2.0	N.D.
Bromoform.....	2.0	N.D.
Bromomethane.....	2.0	N.D.
2-Butanone.....	10.0	N.D.
Carbon disulfide.....	2.0	N.D.
Carbon tetrachloride.....	2.0	N.D.
Chlorobenzene.....	2.0	N.D.
Chlorodibromomethane.....	2.0	N.D.
Chloroethane.....	2.0	N.D.
2-Chloroethyl vinyl ether.....	10.0	N.D.
Chloroform.....	2.0	N.D.
Chloromethane.....	2.0	N.D.
1,1-Dichloroethane.....	2.0	N.D.
1,2-Dichloroethane.....	2.0	N.D.
1,1-Dichloroethene.....	2.0	N.D.
<b>Total 1,2-Dichloroethene.....</b>	<b>2.0</b>	<b>26</b>
1,2-Dichloropropane.....	2.0	N.D.
cis 1,3-Dichloropropene.....	2.0	N.D.
trans 1,3-Dichloropropene.....	2.0	N.D.
Ethylbenzene.....	2.0	N.D.
2-Hexanone.....	10.0	N.D.
Methylene chloride.....	2.0	N.D.
4-Methyl-2-pentanone.....	10.0	N.D.
Styrene.....	2.0	N.D.
1,1,2,2-Tetrachloroethane.....	2.0	N.D.
<b>Tetrachloroethene.....</b>	<b>2.0</b>	<b>46</b>
Toluene.....	2.0	N.D.
1,1,1-Trichloroethane.....	2.0	N.D.
1,1,2-Trichloroethane.....	2.0	N.D.
<b>Trichloroethene.....</b>	<b>2.0</b>	<b>160</b>
Trichlorofluoromethane.....	2.0	N.D.
Vinyl acetate.....	2.0	N.D.
Vinyl chloride.....	2.0	N.D.
Total Xylenes.....	2.0	N.D.

Analytes reported as N D were not present above the stated limit of detection

SEQUOIA ANALYTICAL

Arthur G. Burton  
Laboratory Director



# SEQUOIA ANALYTICAL

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Woodward-Clyde Consultants 500 12th St., Suite 100 Oakland, CA 94607-4041 Attention: Al Ridley	Client Project ID: Alameda-Harsh Investment. #881926 Sample Descript: Water, MW-3 Analysis Method: EPA 8240 Lab Number: 906-2367 C	Sampled: Jun 16, 1989 Received: Jun 19, 1989 Analyzed: Jun 27, 1989 Reported: Jul 14, 1989
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## VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acetone.....	10.0	N.D.
Benzene.....	2.0	N.D.
Bromodichloromethane.....	2.0	N.D.
Bromoform.....	2.0	N.D.
Bromomethane.....	2.0	N.D.
2-Butanone.....	10.0	N.D.
Carbon disulfide.....	2.0	N.D.
Carbon tetrachloride.....	2.0	N.D.
Chlorobenzene.....	2.0	N.D.
Chlorodibromomethane.....	2.0	N.D.
Chloroethane.....	2.0	N.D.
2-Chloroethyl vinyl ether.....	10.0	N.D.
Chloroform.....	2.0	N.D.
Chloromethane.....	2.0	N.D.
1,1-Dichloroethane.....	2.0	N.D.
1,2-Dichloroethane.....	2.0	N.D.
1,1-Dichloroethene.....	2.0	N.D.
Total 1,2-Dichloroethene.....	2.0	N.D.
1,2-Dichloropropane.....	2.0	N.D.
cis 1,3-Dichloropropene.....	2.0	N.D.
trans 1,3-Dichloropropene.....	2.0	N.D.
Ethylbenzene.....	2.0	N.D.
2-Hexanone.....	10.0	N.D.
Methylene chloride.....	2.0	N.D.
4-Methyl-2-pentanone.....	10.0	N.D.
Styrene.....	2.0	N.D.
1,1,2,2-Tetrachloroethane.....	2.0	N.D.
Tetrachloroethene.....	2.0	N.D.
Toluene.....	2.0	N.D.
1,1,1-Trichloroethane.....	2.0	N.D.
1,1,2-Trichloroethane.....	2.0	N.D.
Trichloroethene.....	2.0	N.D.
Trichlorofluoromethane.....	2.0	N.D.
Vinyl acetate.....	2.0	N.D.
Vinyl chloride.....	2.0	N.D.
Total Xylenes.....	2.0	N.D.

Analytes reported as N D were not present above the stated limit of detection

SEQUOIA ANALYTICAL

Arthur G. Burton  
Laboratory Director

# **F**orensic Analytical Specialties, Inc.

## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
  
500 12th Street, Suite 100  
Oakland, CA 94607-4014

Client Number: 171  
Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929054  
Sample Number: CW-1FT  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Grey tile-like material associated with an asphaltic adhesive.

Comments: Asbestos in tile only at a trace amount. Composite reported.

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		Trace	%
Chrysotile	Trace	%	
Amosite	Non-Det.	%	
Crocidolite	Non-Det.	%	
		%	
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		1-5	%
Cellulose	1-5	%	
Fibrous Glass	Non-Det.	%	
Polyethylene	Non-Det.	%	
		%	
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		95-99	%
Unspecified Particulates	95-99	%	
		%	
		%	
		%	

Director: \_\_\_\_\_

*Janis Teichman*

Janis Teichman

SEE REVERSE FOR EXPLANATION OF TERMS AND REPORTING PRACTICES

Analytical method: 40 CFR 763, Subpart F, Appendix A (ASHERA)

**NVLAQ**

Accredited by the National Bureau of Standards, National Voluntary Laboratory Accreditation Program to methods for asbestos.

Consulting and Laboratory Services in the Forensic and Environmental Health Sciences

3777 Depot Road, Suite 406 - 408, Hayward, CA 94545 415/887-8828 FAX 415/887-4218



# **F**orensic Analytical Specialties, Inc.

## Bulk Material Analysis Report

**Client:**

Woodward-Clyde Consultants  
Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929055  
Sample Number: CW-2CT  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Tannish colored fibrous mat associated with a white powdery paint.

Comments:

### Microscopic Description

**TOTAL ASBESTOS PRESENT:**

Chrysotile	Non-Det. ‡
Amosite	Non-Det. ‡
Crocidolite	Non-Det. ‡
	‡

Non-Det. ‡

**TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:**

Cellulose	Trace ‡
Fibrous Glass	95-99 ‡
Polyethylene	Non-Det. ‡
	‡

95-99 ‡

**TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:**

Unspecified Particulates	1-5 ‡
	‡
	‡
	‡

1-5 ‡

Director: \_\_\_\_\_

*Janis Teichman*

Janis Teichman

SEE REVERSE FOR EXPLANATION OF TERMS AND REPORTING PRACTICES

Analytical method: 40 CFR 763, Subpart F, Appendix A (AHERA)

**NVLAP**

ACCREDITED BY THE NATIONAL BUREAU  
OF STANDARDS, NATIONAL VOLUNTARY  
LABORATORY ACCREDITATION PROGRAM FOR  
SELECTED TEST METHODS FOR ASBESTOS

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# **F**orensic Analytical Specialties, Inc.

## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929056  
Sample Number: CW-3RD  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Grey fibrous wrap associated with a tannish colored fibrous material.

Comments:

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		<b>Non-Det. ‡</b>
Chrysotile	Non-Det. ‡	
Amosite	Non-Det. ‡	
Crocidolite	Non-Det. ‡	
	‡	
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		<b>90-95 ‡</b>
Cellulose	10-15 ‡	
Fibrous Glass	65-70 ‡	
Polyethylene	Non-Det. ‡	
	‡	
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		<b>5-10 ‡</b>
Unspecified Particulates	5-10 ‡	
	‡	
	‡	
	‡	

Director: \_\_\_\_\_

*Janis Teichman*

Janis Teichman

SEE REVERSE FOR EXPLANATION OF TERMS AND REPORTING PRACTICES

Analytical method: 40 CFR 763, Subpart F, Appendix A (ANERL)



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Consulting and Laboratory Services in the Forensic and Environmental Health Sciences

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# **F**orensic Analytical Specialties, Inc.

## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/22/89

Lab Number: 8929057  
Sample Number: CW-4BI  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Yellow fibrous insulation associated with a  
multi-layered wrap of silver foil and brown fibrous  
material.

Comments:

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		<b>Non-Det. ‡</b>
Chrysotile		Non-Det. ‡
Amosite		Non-Det. ‡
Crocidolite		Non-Det. ‡
		‡
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		<b>90-95 ‡</b>
Cellulose	5-10	‡
Fibrous Glass	80-85	‡
Polyethylene	Non-Det. ‡	‡
		‡
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		<b>1-5 ‡</b>
Unspecified Particulates	1-5	‡
		‡
		‡
		‡

Director: \_\_\_\_\_

*Janis Teichman*

Janis Teichman

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Analytical method: 40 CFR 763, Subpart F, Appendix A (AHERA)

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# Forensic Analytical Specialties, Inc.

## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
Attn: Helen Nuckolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929058  
Sample Number: CW-5GW  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Off-White tile-like material with fibers and associated with debris.

Comments: 10-15% Chrysotile asbestos present in tile, none detected in debris. Composite reported.

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		10-15	%
Chrysotile	10-15	%	
Amosite	Non-Det.	%	
Crocidolite	Non-Det.	%	
		%	

<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		Trace	%
Cellulose	Trace	%	
Fibrous Glass	Non-Det.	%	
Polyethylene	Non-Det.	%	
Hair/Synthetic	Trace	%	

<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		85-90	%
Unspecified Particulates	85-90	%	
		%	
		%	
		%	

Director: \_\_\_\_\_

*Janis Teichman*

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Analytical method: 40 CFR 763, Subpart F, Appendix A (ANHA)

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## Bulk Material Analysis Report

**Client:**

Woodward-Clyde Consultants  
Attn: Helen Nuckolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929059  
Sample Number: TX-1FT  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Black tile-like material associated with an asphaltic adhesive.

Comments: 5-10% Chrysotile asbestos present in tile, none detected in asphalt. Composite reported.

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		5-10	%
Chrysotile	5-10	%	
Amosite	Non-Det.	%	
Crocidolite	Non-Det.	%	
		%	
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		Trace	%
Cellulose	Trace	%	
Fibrous Glass	Non-Det.	%	
Polyethylene	Non-Det.	%	
		%	
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		90-95	%
Unspecified Particulates	90-95	%	
		%	
		%	
		%	

Director: \_\_\_\_\_

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Analytical method: 40 CFR 763, Subpart F, Appendix A (AHERA)

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## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
Attn: Helen Nuckolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929060  
Sample Number: TX-2PT  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Malachite green tile-like material associated with an asphaltic adhesive.

Comments: 1-5% Chrysotile asbestos present in tile, none detected in adhesive. Composite reported.

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		1-5	%
Chrysotile	1-5		%
Amosite	Non-Det.		%
Crocidolite	Non-Det.		%
			%
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		Trace	%
Cellulose	Trace		%
Fibrous Glass	Non-Det.		%
Polyethylene	Non-Det.		%
			%
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		95-99	%
Unspecified Particulates	95-99		%
			%
			%
			%

Director: \_\_\_\_\_

*Janis Teichman*

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Analytical method: 40 CFR 763, Subpart F, Appendix A (ASBERA)

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## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929061  
Sample Number: DC-1FT  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Dull greenish tile-like material associated with an asphaltic adhesive.

Comments: 1-5% Chrysotile asbestos present in tile and adhesive. Composite reported.

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		1-5	%
Chrysotile	1-5		%
Amosite	Non-Det.		%
Crocidolite	Non-Det.		%
			%
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		1-5	%
Cellulose	1-5		%
Fibrous Glass	Non-Det.		%
Polyethylene	Non-Det.		%
			%
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		90-95	%
Unspecified Particulates	90-95		%
			%
			%
			%

Director: \_\_\_\_\_

*Janis Teichman*

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Analytical method: 40 CFR 763, Subpart F, Appendix A (AHERA)

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# **F**orensic Analytical Specialties, Inc.

## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
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Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929062  
Sample Number: DC-2CT  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Yellowish fibrous mat associated with a white paint.

Comments:

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		<b>Non-Det. ‡</b>
Chrysotile	Non-Det. ‡	
Amosite	Non-Det. ‡	
Crocidolite	Non-Det. ‡	
	‡	
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		<b>95-99 ‡</b>
Cellulose	Trace ‡	
Fibrous Glass	95-99 ‡	
Polyethylene	Non-Det. ‡	
	‡	
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		<b>1-5 ‡</b>
Unspecified Particulates	1-5 ‡	
	‡	
	‡	
	‡	

Director: \_\_\_\_\_

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Analytical method: 40 CFR 763, Subpart F, Appendix A (AHERA)

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Client:  
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Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929063  
Sample Number: DC-3WH  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Dirty pinkish-grey fibrous material associated with  
plaster-like material.

Comments:

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		<b>Non-Det. ‡</b>
Chrysotile	Non-Det. ‡	
Amosite	Non-Det. ‡	
Crocidolite	Non-Det. ‡	
	‡	
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		<b>95-99 ‡</b>
Cellulose	Trace ‡	
Fibrous Glass	95-99 ‡	
Polyethylene	Non-Det. ‡	
	‡	
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		<b>1-5 ‡</b>
Unspecified Particulates	1-5 ‡	
	‡	
	‡	
	‡	

Director: \_\_\_\_\_

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Analytical method: 40 CFR 763, Subpart F, Appendix A (AHERA)

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Client:  
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Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929064  
Sample Number: DC-4CA  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Corrugated fibrous wrap associated with a silver metallic layer.

Comments:

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		90-95	‡
Chrysotile	90-95	‡	
Amosite	Non-Det.	‡	
Crocidolite	Non-Det.	‡	
		‡	
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		Trace	‡
Cellulose	Trace	‡	
Fibrous Glass	Non-Det.	‡	
Polyethylene	Non-Det.	‡	
Synthetic/Hair	Trace	‡	
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		5-10	‡
Unspecified Particulates	5-10	‡	
		‡	
		‡	
		‡	

Director: \_\_\_\_\_

*Janis Teichman*

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Analytical method: 40 CFR 763, Subpart F, Appendix A (ANSA)

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# **F**orensic Analytical Specialties, Inc.

## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929065  
Sample Number: PH-1FT  
Site: Not indicated.

Analyst: MF

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Off-White tile associated with black mastic.

Comments: It has been suggested that picrolite be treated as an  
asbestiform mineral.

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		<b>Non-Det. ‡</b>
Chrysotile	Non-Det. ‡	
Amosite	Non-Det. ‡	
Crocidolite	Non-Det. ‡	
	‡	
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		<b>1-5 ‡</b>
Cellulose	Trace ‡	
Fibrous Glass	Non-Det. ‡	
Polyethylene	Non-Det. ‡	
Picrolite	1-5 ‡	
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		<b>95-99 ‡</b>
Unspecified Particulates	95-99 ‡	
	‡	
	‡	
	‡	

Director: \_\_\_\_\_

*Janis Teichman*

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Analytical method: 40 CFR 763, Subpart F, Appendix A (ANRA)

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# Forensic Analytical Specialties, Inc.

## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929066  
Sample Number: PH-2FT  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Greenish tile-like material associated with a fibrous backing and yellow adhesive.

Comments: Asbestos is concentrated in backing.

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		65-70	±
Chrysotile	65-70	±	
Amosite	Non-Det.	±	
Crocidolite	Non-Det.	±	
		±	
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		1-5	±
Cellulose	1-5	±	
Fibrous Glass	Non-Det.	±	
Polyethylene	Non-Det.	±	
		±	
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		20-25	±
Unspecified Particulates	20-25	±	
		±	
		±	
		±	

Director: \_\_\_\_\_

*Janis Teichman*

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Analytical method: 40 CFR 763, Subpart F, Appendix A (ANERA)

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# Forensic Analytical Specialties, Inc.

## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929067  
Sample Number: PH-3PB  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Tannish fibrous material associated with a white paint.

Comments:

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		<b>Non-Det. ‡</b>
Chrysotile	Non-Det. ‡	
Amosite	Non-Det. ‡	
Crocidolite	Non-Det. ‡	
	‡	
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		<b>85-90 ‡</b>
Cellulose	85-90 ‡	
Fibrous Glass	Non-Det. ‡	
Polyethylene	Non-Det. ‡	
	‡	
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		<b>10-15 ‡</b>
Unspecified Particulates	10-15 ‡	
	‡	
	‡	
	‡	

Director: \_\_\_\_\_

*Janis Teichman*

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Analytical method: 40 CFR 763, Subpart F, Appendix A (AHERA)

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Client:  
Woodward-Clyde Consultants  
Attn: Helen Nuckolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929068  
Sample Number: PH-4CT  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Fiberboard-like material with a white front and black surfaces.

Comments:

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		<b>Non-Det. ‡</b>
Chrysotile	Non-Det. ‡	
Amosite	Non-Det. ‡	
Crocidolite	Non-Det. ‡	
	‡	
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		<b>90-95 ‡</b>
Cellulose	45-50 ‡	
Fibrous Glass	40-45 ‡	
Polyethylene	Non-Det. ‡	
	‡	
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		<b>1-5 ‡</b>
Unspecified Particulates	1-5 ‡	
	‡	
	‡	
	‡	

Director: \_\_\_\_\_

*Janis Teichman*

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Analytical method: 40 CFR 763, Subpart F, Appendix A (AHERA)

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## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929069  
Sample Number: PH-5  
Site: Not indicated.

Analyst: RW

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Yellow fibrous material.

Comments:

### Microscopic Description

#### TOTAL ASBESTOS PRESENT:

Chrysotile	Non-Det. %
Amosite	Non-Det. %
Crocidolite	Non-Det. %
	%

Non-Det. %

#### TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:

Cellulose	Trace %
Fibrous Glass	95-99 %
Polyethylene	Non-Det. %
	%

95-99 %

#### TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:

Unspecified Particulates	1-5 %
	%
	%
	%

1-5 %

Director: \_\_\_\_\_

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Analytical method: 40 CFR 763, Subpart F, Appendix A (AHERA)

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# **F**orensic Analytical Specialties, Inc.

## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929070  
Sample Number: GY-1FT  
Site: Not indicated.

Analyst: MF

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Beige tile associated with black mastic.

Comments: 10-15% Asbestos present in mastic, none detected in tile.  
Composite reported.

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		1-5	‡
Chrysotile	1-5	‡	
Amosite	Non-Det.	‡	
Crocidolite	Non-Det.	‡	
		‡	
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		1-5	‡
Cellulose	1-5	‡	
Fibrous Glass	Non-Det.	‡	
Polyethylene	Non-Det.	‡	
		‡	
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		90-95	‡
Unspecified Particulates	90-95	‡	
		‡	
		‡	
		‡	

Director: \_\_\_\_\_

*Janis Teichman*  
Janis Teichman

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Analytical method: 40 CFR 763, Subpart F, Appendix A (ASBESTA)

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Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929071  
Sample Number: GY-2CT  
Site: Not indicated.

Analyst: MF

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Off-White fibrous tile associated with off-white paint layer.

Comments:

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		<b>Non-Det. ‡</b>
Chrysotile		Non-Det. ‡
Amosite		Non-Det. ‡
Crocidolite		Non-Det. ‡
		‡
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		<b>90-95 ‡</b>
Cellulose	15-20 ‡	
Fibrous Glass	70-75 ‡	
Polyethylene	Non-Det. ‡	
	‡	
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		<b>5-10 ‡</b>
Unspecified Particulates	5-10 ‡	
	‡	
	‡	
	‡	

Director: \_\_\_\_\_

*Janis Teichman*

Janis Teichman

SEE REVERSE FOR EXPLANATION OF TERMS AND REPORTING PRACTICES

Analytical method: 40 CFR 763, Subpart F, Appendix A (AHERA)

NVLAQ

Accredited by the National Bureau of Standards, National Voluntary Laboratory Accreditation Program to selected test methods for asbestos.

Consulting and Laboratory Services in the Forensic and Environmental Health Sciences

3777 Depot Road, Suite 406 - 408, Hayward, CA 94545 415/887-8828 FAX 415/887-4218



# **F**orensic Analytical Specialties, Inc.

## Bulk Material Analysis Report

Client:  
Woodward-Clyde Consultants  
Attn: Helen Nickolls

Client Number: 171

500 12th Street, Suite 100  
Oakland, CA 94607-4014

Report Number: 26287  
Date Received: 06/22/89  
Date Examined: 06/23/89

Lab Number: 8929072  
Sample Number: GY-3TI  
Site: Not indicated.

Analyst: MF

Location: Not indicated.

P.O./Job ID: 8910116A

Gross Description: Yellow fibrous insulation.

Comments:

### Microscopic Description

<b>TOTAL ASBESTOS PRESENT:</b>		<b>Non-Det. ‡</b>
Chrysotile		Non-Det. ‡
Amosite		Non-Det. ‡
Crocidolite		Non-Det. ‡
		‡
<b>TOTAL NON-ASBESTOS FIBROUS MATERIAL PRESENT:</b>		<b>90-95 ‡</b>
Cellulose	Trace	‡
Fibrous Glass	90-95	‡
Polyethylene	Non-Det.	‡
		‡
<b>TOTAL NON-ASBESTOS NON-FIBROUS MATERIAL PRESENT:</b>		<b>5-10 ‡</b>
Unspecified Particulates	5-10	‡
		‡
		‡
		‡

Director: \_\_\_\_\_

*Janis Teichman*  
Janis Teichman

SEE REVERSE FOR EXPLANATION OF TERMS AND REPORTING PRACTICES

Analytical method: 40 CFR 763, Subpart F, Appendix A (AHERA)

**NVLAP**

Accredited by the National Bureau  
of Standards, National Voluntary  
Laboratory Accreditation Program for  
selected test methods for asbestos.

Consulting and Laboratory Services in the Forensic and Environmental Health Sciences

3777 Depot Road, Suite 406 - 408, Hayward, CA 94545 415/887-8828 FAX 415/887-4218



# SEQUOIA ANALYTICAL

## Chain of Custody Report

Company: <u>WCC</u>	Project Name: <u>Alameda</u>
Address: <u>500 12th St. Suite 100</u> <u>Oakland CA</u>	Project Location: _____
Attention to: <u>Helen Nuckolls</u>	Special Instructions: <u>Hold til FAX</u> <u>Arrives</u>
Telephone: <u>874-3258</u>	

### I. Sample Tracking

Sample Collection:  
Date 6/20/89 Time 2 a.m./(p.m)  
Collected by: Helen Nuckolls

Laboratory Delivery:  
Date 6/21/89 Time 9:30 a.m./(p.m)  
Delivered by: Helen Nuckolls  
Received in Laboratory by: [Signature]

### II. Turnaround Status

8 hr    1 Work Day    2 Work Days    3 Work Days    5 Work Days    10 Work Days    15 Work Days

Sample Description	Number/Type of Containers	Analyses Requested
<u>1/WCC/Alam/SWC/5'3"</u>	<u>1</u>	<u>Total oil + grease gravimetric</u>
<u>2/WCC/Alam/SM/5'1"</u>	<u>1</u>	<u>413.1</u>
<u>3/WCC/Alam/SEC/5'3"</u>	<u>1</u>	
<u>4/WCC/Alam/NEC/5'6"</u>	<u>1</u>	
<u>5/WCC/Alam/NWC/5'2"</u>	<u>1</u>	
	<u>5</u>	

CONSIGNEE COPY

**Air Courier**

P.O. BOX 280043, INT'L AIRPORT  
 SAN FRANCISCO, CA 94128  
 415-692-5576

DATE

6-21-89

BILL OF LADING NO.

11571

CHECK SERVICE REQUESTED

SAME DAY

SATURDAY

OVERNIGHT

SUNDAY

SHIPPER

WOODWARD CLYDE

CONSIGNEE

FORENSIC

ADDRESS

500 12TH ST

SUITE NO.

#100

ADDRESS

SUITE NO.

CITY

Oak

ZIP CODE

CITY

Hayward

ZIP CODE

PHONE

CONTACT

HELEN KNUCKLES

PHONE

CONTACT

LOTICIA

BILLING INFORMATION (CHECK ONE)

BILL SHIPPER

BILL CONSIGNEE

PREPAID

3RD PARTY:

DECLARED VALUE

YOUR DECLARED VALUE. We are liable for no more than \$100.00 per bill of lading in the event of physical loss or damage unless you fill in a higher declared value to the left and document higher actual loss in the event of a claim. We charge 25¢ for each additional \$100.00 of declared value up to the maximum we allow. Declared value restrictions are shown on the back of all copies of this bill of lading. DELAY. There is always a risk of late delivery or non-delivery. In the event of a late delivery Air Courier will at your request refund all transportation charges paid. COMPLETE TERMS AND CONDITIONS REGARDING YOUR SHIPMENT ARE SHOWN ON THE BACK OF ALL COPIES OF THIS BILL OF LADING. WE MAKE NO EXPRESS OR IMPLIED WARRANTIES.

SPECIAL INSTRUCTIONS

COD FREIGHT

COLLECT DELIVERY CHARGES

SHIPPER

READY 0900

CLOSES: 1100

CONSIGNEE

OPENS:

CLOSES:

ZONE \_\_\_\_\_ TO

TOTAL PIECES

TOTAL WEIGHT

DESCRIPTION

DECLARED VALUE CHARGE

BY DRIVER

RECEIVED IN GOOD ORDER (EXCEPT AS NOTED)

TIME/DATE

COD FEE

MISC. CHARGES

TOTAL CHARGES

# Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607-4041  
(415) 893-3600

# Chain of Custody Record

PROJECT NO. *89TC116A*

SAMPLERS: (Signature) *Helene Nicholls*

## ANALYSES

Number of Containers

REMARKS  
(Sample preservation, handling procedures, etc.)

DATE	TIME	SAMPLE NUMBER
------	------	---------------

General Mineral	Priority Pollutant Metals	EPA Method 824	EPA Method 825	EPA Method 808
-----------------	---------------------------	----------------	----------------	----------------

		CW-1FT
		CW-2CT
		CW-3RD
		CW-4B ↓
		CW-5GW
		TX-1FT
		TX-2FT
		DC-1FT
		DC-2CT
		DC-3WH
		DC-4CA
		PH-1FT
		PH-2FT
		PH-3PB ✓
		PH-4CT
		PH-5
		GY-1FT
		GY-2CT
		GY-3TI

*For asbestos sampling*

*Contact: Helene Nicholls  
574-3255*

TOTAL NUMBER OF CONTAINERS *19*

RELINQUISHED BY (Signature)

DATE/TIME

RECEIVED BY: (Signature)

RELINQUISHED BY (Signature)

DATE/TIME

RECEIVED BY: (Signature)

METHOD OF SHIPMENT

SHIPPED BY (Signature)

COURIER: (Signature)

RECEIVED FOR LAB BY (Signature) *[Signature]*

DATE/TIME

*Handwritten notes and signatures at bottom right.*



# Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607-4041  
(415) 893-3600

# Chain of Custody Record

PROJECT NO. <b>2910116A - 4000</b>			ANALYSES							Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)		
SAMPLERS: (Signature) <i>Kelly T. ...</i>			General Mineral	Priority Pollutant Metals	EPA Method 624	EPA Method 625	EPA Method 606	504	TPH - Gas/Exd			TPH - Diesel	EPA 8240 - Pesticides
DATE	TIME	SAMPLE NUMBER											
6/8/89		B-1 3.5-5.0 A							X	X		1	<p>NORMAL RESULTS TURNAROUND TIME (15 day). CONTACT: HELEN NUCKOLLS 415-874-3258 WOODWARD-CLYDE C.</p> <p>← please hold this sample</p> <p>← please hold this sample</p> <p>← please hold this sample</p> <p>note: 'X' is an erasure mark - analyze for things marked with an 'X'</p>
6/8/89		B-1 8.5-10.0 A							X	X		1	
6/8/89		B-1 13.5-15.0 A							X	X		1	
6/8/89		B-2 3.5-5.0 A							X	X		1	
"		B-2 8.5-10.0 A							X	X		1	
"		B-2 13.5-15.0 A							X	X		1	
"													
"		MW-1 3.5-5.0 A							X	X		1	
"		MW-1 8.5-10.0 A							X	X		1	
"		MW-1 13.5-15.0 A							X	X		1	
"													
"		MW-2 3.5-5.0 A							X	X		1	
"		MW-2 8.5-10.0 A							X	X		1	
"		MW-2 13.5-15.0 A							X	X		1	
6/9/89		MW-3 3.5-5.0 A							X	X		1	
6/9/89		MW-3 8.5-10.0 A							X	X		1	
6/9/89		MW-3 13.5-15.0 A							X	X		1	
										TOTAL NUMBER OF CONTAINERS	15		
RELINQUISHED BY: (Signature)			DATE/TIME	RECEIVED BY: (Signature)			RELINQUISHED BY: (Signature)			DATE/TIME	RECEIVED BY: (Signature)		
METHOD OF SHIPMENT			SHIPPED BY: (Signature)			COURIER: (Signature)			RECEIVED FOR LAB BY: (Signature)		DATE/TIME		

# Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607-4041  
(415) 893-3600

# Chain of Custody Record

PROJECT NO. 8819266			ANALYSES					Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)		
SAMPLERS: (Signature) Helen Nucholls			General Mineral	Priority Pollutant Metals	EPA Method 824	EPA Method 825	EPA Method 808				
DATE	TIME	SAMPLE NUMBER				gasoline	leach	EPA 624 Vol. 1	ethylene glycol		
6/16		MW-1				✓	✓	✓	✓	5	Project Alameda, Harach Invest.
6/16		MW-2				✓	✓	✓	✓	4	
6/16		MW-3				✓	✓	✓	✓	4	
											please preserve
											normal TAT
											contact: Helen Nucholls 874-3258
								TOTAL NUMBER OF CONTAINERS	3		
RELINQUISHED BY: (Signature)		DATE/TIME	RECEIVED BY: (Signature)		RELINQUISHED BY: (Signature)		DATE/TIME	RECEIVED BY: (Signature)			
METHOD OF SHIPMENT:			SHIPPED BY: (Signature)		COURIER: (Signature)		RECEIVED FOR LAB BY (Signature)		DATE/TIME		

# WATER SAMPLE LOG

Sample No. \_\_\_\_\_

Project No. : \_\_\_\_\_ Date: 6-15/16-89

Project Name: Alameda

Sample Location: MW-3

Well Description: 2" PVC

Weather Conditions: sunny, 75°

Observations / Comments: Removed 5 buckets (approx 10 gal)

<b>Quality Assurance</b>	Sampling Method: <u>clear plastic Bailer</u>
	Method to Measure Water Level: <u>electric indicator</u>
Pump Lines: <u>New / Cleaned</u>	Bailer Lines: <u>New / Cleaned</u>
Method of cleaning Pump / Bailer: _____	
pH Meter No.: _____	Calibrated _____
Specific Conductance Meter No.: _____	Calibrated _____
Comments: <u>6/16/89 DTW = 7.31' (TOC)</u>	

<b>Sampling Measurements</b>	TD = <u>10.0'</u>
	Water Level (below MP) at Start: <u>7.11</u> End: _____
	Measuring Point (MP): <u>TOC (stickup = 2.3')</u>

Time	Discharge (gallons)	pH	Temp. (°C)	Specific Conductance (µmhos / cm)	Turbidity	Color	Odor	Comments
6-16-89	6				slight	grey	N	sampled 1 x 2 amber + 3 VOAs

Total Discharge: \_\_\_\_\_ Casing Volumes Removed: \_\_\_\_\_

Method of disposal of discharged water: in drums on site

Number and size of sample containers filled: \_\_\_\_\_

Collected by: A. Gorczyca

**Woodward-Clyde Consultants**  
 500 12th Street, Suite 100, Oakland, CA 94607-4014  
 (415) 883-3600

# WATER SAMPLE LOG

Sample No. \_\_\_\_\_

Project No.: \_\_\_\_\_ Date: 6-15/16-89  
 Project Name: Alameda  
 Sample Location: MW-1  
 Well Description: 2" PVC (schod. 40)  
 Weather Conditions: sunny, breezy 75°  
 Observations / Comments: Development: removed 5.5 buckets (approx. 111 gals)

### Quality Assurance

Sampling Method: clear plastic Bailer  
 Method to Measure Water Level: electric water indic-  
 ator

Pump Lines:        New /        Cleaned      Bailer Lines:        New /        Cleaned

Method of cleaning Pump / Bailer: \_\_\_\_\_

pH Meter No.: \_\_\_\_\_ Calibrated \_\_\_\_\_

Specific Conductance Meter No.: \_\_\_\_\_ Calibrated \_\_\_\_\_

Comments: 6/16/89 DTW = 7.50 (TOC)

### Sampling Measurements

9.15 TD = 9.8'  
 Water Level (below MP) at Start: 7.47' End: 7.21'  
 Measuring Point (MP): TOC (stickup = 2.75')  
After development

Time	Discharge (gallons)	pH	Temp. (°C)	Specific Conductance (µmhos / cm)	Turbidity	Color	Odor	Comments
<u>6-16-89</u>								
<u>16:20</u>	<u>2</u>	<u>7.55</u>	<u>19</u>	<u>2450</u>	<u>slight</u>	<u>lt. grey</u>	<u>gas.</u>	<u>2°/60</u>
<u>16:30</u>	<u>4</u>	<u>7.47</u>	<u>19</u>	<u>2400</u>	<u>slight</u>	<u>lt. grey</u>	<u>gas</u>	<u>2°/60</u>
<u>16:35</u>	<u>6</u>	<u>7.44</u>	<u>19</u>	<u>2400</u>	<u>↓</u>	<u>lt. grey</u>	<u>gas</u>	<u>2°/60</u>
<u>16:40</u>	<u>8</u>	<u>7.47</u>	<u>18.5</u>	<u>2450</u>	<u>—</u>	<u>clear</u>	<u>slight</u>	<u>2°/60</u>

Total Discharge: \_\_\_\_\_ Casing Volumes Removed: \_\_\_\_\_

Method of disposal of discharged water: in drums on site

Number and size of sample containers filled \_\_\_\_\_

Collected by \_\_\_\_\_

**Woodward-Clyde Consultants**

500 12th Street, Suite 100, Oakland, CA 94607-4014  
 (415) 893-3800

WATER SAMPLE LOG					Sample No.												
Project No. : _____					Date: <u>6-15/16-89</u>												
Project Name: <u>Alameda</u>																	
Sample Location: <u>MW-2</u>																	
Well Description: <u>2" sched. 40 PVC</u>																	
Weather Conditions: <u>sunny, breezy 75°</u>																	
Observations / Comments: <u>Development: removed 6 buckets (approx. 12 gals)</u>																	
<b>Quality Assurance</b>			Sampling Method: _____														
			Method to Measure Water Level : _____														
Pump Lines: _____			New / Cleaned			Bailer Lines: _____			New / Cleaned								
Method of cleaning Pump / Bailer: _____																	
pH Meter No.: _____									Calibrated _____								
Specific Conductance Meter No.: _____									Calibrated _____								
Comments: _____									<u>6/16/89: DTW = 6.76' (TOC)</u>								
									<u>6/15</u>								
<b>Sampling Measurements</b>			TD = <u>10.0'</u>						Water Level (below MP) at Start: <u>6.72</u> End: <u>7.40</u>								
			Measuring Point (MP): <u>TOC (stickup = 1.6')</u>														
Time	Discharge (gallons)	pH	Temp. (°C)	Specific Conductance (µmhos / cm)	Turbidity	Color	Odor	Comments									
<u>6-16-89</u>																	
<u>3:55</u>	<u>4</u>	<u>8.46</u>	<u>20</u>	<u>1200</u>	<u>hi</u>	<u>bwn</u>	<u>no</u>	<u>salinity 1‰</u>									
<u>4:00</u>	<u>6</u>	<u>8.47</u>	<u>20</u>	<u>1200</u>	<u>hi</u>	<u>bwn</u>	<u>no</u>	<u>1‰</u>									
<u>4:06</u>	<u>8</u>	<u>8.49</u>	<u>20.5</u>	<u>1200</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>1‰</u>									
								<u>3 VOA's + 1 bottle sampled</u>									
Total Discharge: _____									Casing Volumes Removed: _____								
Method of disposal of discharged water: <u>in drums on site</u>																	
Number and size of sample containers filled: _____																	
Collected by _____									<b>Woodward-Clyde Consultants</b> 500 12th Street, Suite 100, Oakland, CA 94607-4014 (415) 893-3600								

APPENDIX B  
EXPLORATORY BORING LOGS

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APPENDIX B  
EXPLORATORY BORING LOGS

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BORING LOCATION <u>Alameda - Harsch Investments B-1</u>			ELEVATION AND DATUM		
DRILLING AGENCY <u>Datum Drilling</u>		DRILLER <u>K. Teague</u>	DATE STARTED <u>June 8, 1989</u> DATE FINISHED		
DRILLING EQUIPMENT <u>CME 75</u>			COMPLETION DEPTH <u>15.0'</u>	SAMPLER <u>2" Modified California Type</u>	
DRILLING METHOD <u>8" Hollowstem Augers</u>		DRILL BIT	NO. OF SAMPLES	DIST. <u>NA</u>	UNDIST. <u>3</u>
SIZE AND TYPE OF CASING <u>NA</u>			WATER LEVEL	FIRST <u>12.60 ft</u>	COMPL. <u>NA</u> 24 HRS. <u>NA</u>
TYPE OF PERFORATION <u>NA</u>		FROM	TO	FL.	LOGGED BY: <u>K. Teague</u>
SIZE AND TYPE OF PACK <u>NA</u>		FROM	TO	FL.	
TYPE OF SEAL	NO. 1 <u>NA</u>	FROM	TO	FL.	
	NO. 2 <u>NA</u>	FROM	TO	FL.	CHECKED BY: <u>N. Gorczyca</u>


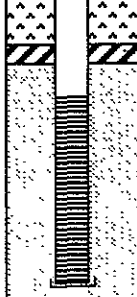
DEPTH (feet)	DESCRIPTION	Water Content	DEPTH (feet)	SAMPLES					REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
				Drive Number	Sample Number	Recov. (Feet)	Blow Counts		
	ASPHALT, CONCRETE, and crushed rock								
5	SAND (SP) - light brown, fine to medium; loose fill (?)  - becomes grey  - becomes medium grey; clay blebs with crustacean shells		5	1	1-A	3 4 2			- OVA = 0 ppm
10			10	2	2-A	2 3 5			- OVA = 520 ppm strong hydrocarbon odor
15	SILTY CLAY (ML-CL) - olive grey, sticky, with some sand; natural bay muds  Bottom of Boring at 15.0'		15	3	3-A	3			- OVA = 0 ppm no hydrocarbon odor
20			20						
25			25						
30			30						
35			35						



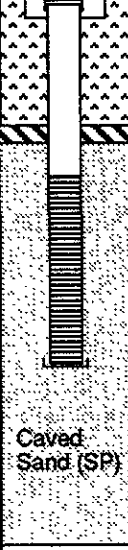
BORING LOCATION <u>Alameda - Harsch Investments B-2</u>			ELEVATION AND DATUM		
DRILLING AGENCY <u>Datum Drilling</u>		DRILLER <u>K. Teague</u>	DATE STARTED <u>June 8, 1989</u>		DATE FINISHED
DRILLING EQUIPMENT <u>CME 75</u>			COMPLETION DEPTH <u>15.0'</u>		SAMPLER <u>2" Modified California Type</u>
DRILLING METHOD <u>8" Hollowstem Augers</u>		DRILL BIT	NO. OF SAMPLES	DIST. <u>NA</u>	UNDIST. <u>3</u>
SIZE AND TYPE OF CASING <u>NA</u>			WATER LEVEL	FIRST <u>9.5'</u>	COMPL. <u>NA</u> 24 HRS. <u>NA</u>
TYPE OF PERFORATION <u>NA</u>		FROM	TO	FL.	LOGGED BY: <u>K. Teague</u>
SIZE AND TYPE OF PACK <u>NA</u>		FROM	TO	FL.	
TYPE OF SEAL	NO. 1 <u>NA</u>	FROM	TO	FL.	
	NO. 2 <u>NA</u>	FROM	TO	FL.	CHECKED BY: <u>N. Gorczyca</u>

DEPTH (feet)	DESCRIPTION	Water Content	DEPTH (feet)	SAMPLES			REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
				Drive Number	Sample Number	Recov. (Feet.)	
	ASPHALT and crushed rock						
5	SAND (SP) - brown, medium, clean		5	1	1-A	1 1 2	no hydrocarbon odor
10	- grey-brown with oyster shells	$\nabla$ ATD	10	2	2-A	12 15 32	
15	- same as above; cohesive		15	3	3-A	4 2 2	
	Bottom of Boring at 15.0'						
20			20				
25			25				
30			30				
35			35				

BORING LOCATION Alameda - Harsch Investments MW-1		ELEVATION AND DATUM		
DRILLING AGENCY Datum Drilling	DRILLER K. Teague	DATE STARTED DATE FINISHED June 8, 1989		
DRILLING EQUIPMENT CME 75		COMPLETION DEPTH 10.0'	SAMPLER 2" Modified California Type	
DRILLING METHOD 8" Hollowstem Augers	DRILL BIT	NO. OF SAMPLES	DIST. NA UNDIST. 3	
SIZE AND TYPE OF CASING 2" PVC		WATER LEVEL	FIRST NA COMPL. NA 6-16-89 4.75'	
TYPE OF PERFORATION 0.010" Slotted PVC	FROM 4.0 TO 9.0 FL.	LOGGED BY: K. Teague		
SIZE AND TYPE OF PACK #2/12 Monterey Type Sand	FROM 3.0 TO 9.0 FL.			CHECKED BY: N. Gorczyca
TYPE OF SEAL	NO. 1 Bentonite FROM 2.5 TO 3.0 FL. NO. 2 Volclay Grout FROM 0 TO 2.5			

DEPTH (feet)	DESCRIPTION	GRAPHIC LOG Piezometer Installation	Water Content	DEPTH (feet)	SAMPLES					REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
					Drive Number	Sample Number	Recov. (Feet)	Blow Counts		
	ASPHALT, coarse rock									
5	SAND (SP) - brown, medium, moderately sorted - trace silt, with clayey blebs approximately 1" diameter; abundant oyster shells, red oxidized concretions			5	1	1-A		4 6 10		- OVA = 1.2 ppm
10	- grey, cohesive			10	2	2-A		6 10 16		- OVA = 7.0 ppm hydrocarbon odor
15	Bottom of Boring at 15.0'	Caved Sand (SP)		15	3	3-A		7 12 12		- OVA = 0 ppm decreased hydrocarbon odor
20				20						
25				25						
30				30						
35				35						

BORING LOCATION		Alameda - Harsch Investments MW-2		ELEVATION AND DATUM	
DRILLING AGENCY		Datum Drilling		DRILLER K. Teague	
DRILLING EQUIPMENT		CME 75		DATE STARTED DATE FINISHED June 8, 1989	
DRILLING METHOD		8" Hollowstem Augers		DRILL BIT	
SIZE AND TYPE OF CASING		2" PVC		COMPLETION DEPTH 10.0'	
TYPE OF PERFORATION		0.010" Slotted PVC		SAMPLER 2" Modified California Type	
SIZE AND TYPE OF PACK		#2/12 Monterey Type Sand		NO. OF SAMPLES DIST. NA UNDIST. 3	
TYPE OF SEAL		NO. 1 1/4" Bentonite Pellets		WATER LEVEL FIRST 6.0	
		NO. 2 Volclay Grout		COMPL. NA 24 HRS. NA	
FROM 5 TO 10.0 FL.		FROM 4 TO 11.0 FL.		LOGGED BY: K. Teague	
FROM 3.5 TO 4.0 FL.		FROM 0 TO 3.5 FL.		CHECKED BY: N. Gorczyca	

DEPTH (feet)	DESCRIPTION	GRAPHIC LOG Piezometer Installation	Water Content	DEPTH (feet)	SAMPLES			REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
					Drive Number	Sample Number	Recover (Feet)	
5	SAND (SP) - light brown, fine to medium, contains some oyster shells - trace silt, homogeneous, semi-cohesive  - brown to grey, with abundant oyster shells; 0.5" thick, firm, blue-green clay blebs with reddish FeO stains in interior portion - no oyster shells		ATD	5	1	1-A	12 19 30	- no hydrocarbon odor
10				2	2-A	9 14 28	- no hydrocarbon odor	
15				3	3-A	1 1 1	- no hydrocarbon odor	
15	Bottom of Boring at 15.0'							
20								
25								
30								
35								

BORING LOCATION		Alameda - Harsch Investments MW-3		ELEVATION AND DATUM		
DRILLING AGENCY	Datum Drilling	DRILLER	K. Teague	DATE STARTED	June 9, 1989	
DRILLING EQUIPMENT	CME 75		COMPLETION DEPTH	10.0'	SAMPLER	2" Modified California Type
DRILLING METHOD	8" Hollowstem Augers	DRILL BIT	NO. OF SAMPLES	DIST. NA	UNDIST.	3
SIZE AND TYPE OF CASING	2" PVC		WATER LEVEL	FIRST NA	COMPL. NA	6-16-89 5.01'
TYPE OF PERFORATION	0.010" Slotted PVC	FROM	5.0 TO 10.0 FL.	LOGGED BY:		CHECKED BY: N. Gorczyca
SIZE AND TYPE OF PACK	#2/12 Monterey Type Sand	FROM	4.0 TO 11.0 FL.	K. Teague		
TYPE OF SEAL	NO. 1 Bentonite	FROM	3.5 TO 4.0 FL.			
	NO. 2 Volclay Grout	FROM	0 TO 3.5			

DEPTH (feet)	DESCRIPTION	GRAPHIC LOG Piezometer Installation	Water Content	DEPTH (feet)	SAMPLES				REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
					Drive Number	Sample Number	Recov. (Feet)	Blow Counts	
5	<p>SAND (SP)</p> <ul style="list-style-type: none"> <li>- light brown, fine to medium, contains some oyster shells, plant roots</li> <li>- little silt; clay-rich blebs to 1" diameter with FeO staining within blebs</li> <li>- brown, with abundant oyster shells</li> <li>- brown, cohesive olive-green clay-silt rich blebs without FeO staining</li> </ul>			5	1	1-A	8 11 13	- OVA = 0 ppm	
10				2	2-A	5 14 17	- OVA = 0 ppm		
15				3	3-A	1 2 1	- OVA = 0 ppm		
15	Bottom of Boring at 15.0'			15					
20				20					
25				25					
30				30					
35				35					