

# PROTECTION CITY OF OAKLAND



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Office of Public Works
March 20, 1995

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Mr. Barney Chan Alameda County Health Care Services Agency Department of Environmental Health 1131 Harbor Way Parkway, Room 250 Alameda, CA 94502

3978

Dear Barney:

Enclosed please find the reports titled "Environmental Site Assessment, Oakland Building No. 7, 7101 Edgewater Drive, Oakland, California" detected December 1989, and "Preliminary Geotechnical Evaluation and Environmental Site Assessment, City of Oakland Consolidated Services Center, Alternative Sites A and B, Oakland, California" dated May 13, 1992.

Please excuse the tardiness of these reports as Andrew Clark-Clough was called out-of-town for a family emergency. Andrew expects to follow-up with these reports no later than the week of the March 27, 1995.

If you have any questions please feel free to call me at (510) 238-7371 or Andrew Clark-Clough at (510) 238-6361.

Sincerely, Jaluary I Saluar

Gary L. Galindo

**Environmental Program Specialist** 

enclosure

cc: Andrew Clark-Clough

## **Woodward-Clyde Consultants**

PROTECTION

ENVIRONMENTAL SITE ASSESSMENT
OAKLAND BUILDING NO. 7
7101 EDGEWATER DRIVE
OAKLAND. CALIFORNIA

Prepared for

The City of Oakland Oakland, California 94612

Prepared by

Woodward-Clyde Consultants 500 12th Street, Suite 100 Oakland, California 94607-4014

December, 1989



500 12th Street Suite 100 Oakland, CA 94607-4014 (415) 893-3600

## **Woodward-Clyde Consultants**

December 13, 1989 8910274A

City of Oakland Architectural Services City Hall Oakland, CA 94612

Attention: Mr. Clyde Grimes

City Architect

Subject: Environmental Site Assessment

Oakland Building No. 7 7101 Edgewater Drive

Ladies and Gentlemen:

We are pleased to present the following report describing the results of our environmental site assessment of the alternative sites for Building No. 7. This report contains the results of our review of available data and laboratory testing of groundwater and soil samples from monitoring wells and borings drilled at the alternative sites 1 and 2.

Please call if you have any questions, or if we can provide assistance with this project.

Sincerely,

WOODWARD-CLYDE CONSULTANTS

Lois Gruenberg

Staff Engineer

Patrick C. Lucia, Ph.D., P.E.

Principal

LG/PCL:tt 8910274a/COT

Enclosure



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1.0 INTRODUCTION

In accordance with Agreement Amendment No. 1 between the City of Oakland and Woodward Clyde Consultants (WCC), we are pleased to submit this Environmental Site Assessment of the two (2) alternative sites for the proposed Building No. 7 of the City of Oakland Corporation Yard at 7101 Edgewater Drive, as shown on Figure 1.

This report presents the following information:

- a review of the records of the potential environmental impacts on the alternative sites;
- a description of the soil and groundwater conditions encountered on the sites;
- analytical results of potential contaminants in soil and groundwater;
- evaluation of on-site contamination; and
- recommendations for additional investigations.

### 1.1 BACKGROUND/PROJECT DESCRIPTION

The existing Equipment Building (Building No. 5) at the City of Oakland's Consolidated Services Center has experienced extensive settlement

and distress. WCC previously evaluated the settlement problem and the findings and conclusions were presented in a report dated March 25, 1988, entitled "Geotechnical Engineering Study, Equipment Building, Consolidated Services Center, Oakland, California."

It is our understanding that the City of Oakland will demolish the existing building and replace it with a new structure referred to as Building No. 7. At present, the location of the replacement building has not been finalized, and may be located at one of two alternative sites. Alternative site 1 is an adjacent parcel of land located northeast of the present Consolidated Service Center; alternative site 2 is the parking area north of the Public Works Building at the northern end of the Consolidated Service Center, as shown on Figure 2.

The purpose of this Environmental Site Assessment is to evaluate the two alternative proposed building sites for the presence of hazardous materials in the soil and groundwater.

### 1.2 SCOPE OF WORK

This Environmental Assessment of the alternative sites for the proposed Building No. 7 history review:

- · site reconnaissance;
- review of regulatory records on potential environmental impacts;
- drilling of four borings and collection of soil samples;
- installation of four monitoring wells and collection of groundwater samples;
- laboratory analysis of soil and groundwater samples; and
- preparation of this report.

Soil and groundwater samples were collected from each boring and well and submitted to a commercial analytical laboratory for the following analysis:

- Low to medium boiling point hydrocarbon compounds (EPA 8015/8020),
   and
- Volatile and semi-volatile organic compounds (EPA 8240, 8270).

This report presents the results of the Environmental Assessment.

### 1.3 SITE LOCATION/DESCRIPTION

The alternative sites for the proposed Building No. 7 are located at the north end of Edgewater Drive in the City of Oakland (Figure 1). Alternative site 1 is an undeveloped parcel east of the Consolidated Service Center and is owned by the Port of Oakland. To the northeast is the Interstate 880 and the Damon Slough. Alternative site 2 is the northeast parking lot of the Consolidated Service Center and adjacent to alternative site 1 (Figure 2). The City of Oakland leases this property from the Port of Oakland. It is bound by the San Leandro Bay to the west and southwest. The land to the south and southeast of both alternative sites is zoned industrial and has been developed.

Topographic maps show a gentle southwesterly slope. (U.S. Geologic Survey, San Leandro Quadrangle and Oakland East Quadrangle, 7.5 minute series, Topographic) Groundwater in these areas is expected to flow with the gradient, i.e., toward the Bay to the southwest. However, due to the site's proximity to the Bay, it is possible that the groundwater is influenced by tidal activity, as well.

The Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), February 1989, Site/Event List and the Hazardous Waste Management System (HWDMS) July 26, 1989 database listing were also reviewed. These listings were reviewed to assess if surrounding properties contain hazardous waste, or if toxic substance activities in the area may impact the site.

Potential uncontrolled hazardous waste sites are contained in the EPA CERCLIS database. The CERCLIS system contains only those potential hazardous waste sites that have been brought to the attention of the EPA. The EPA CERCLIS database for February 1989 contains no sites within an approximate 2,000-foot radius of the site.

The facilities listed in the EPA Hazardous Waste Data Management System (HWDMS) database are regulated under the Resources Conservation and Recovery Act (RCRA) of 1976. The HWDMS database contains only those regulated facilities that have notified EPA as hazardous waste generators, transporters (Trans) or treatment/storage/disposal facilities (TSDF). The EPA HWDMS database for July 27, 1989 lists the following case sites within an approximate 2,000-foot radius of the site.

Type 3 CAD981379902 ACS Asbestos Hazard Management

7303 Edgewater Drive Oakland, CA 94621

Type 1 CAD980895205 PAC Bell

7300 Edgewater Drive Oakland, CA 94621

The RCRA data base contains those sites which generate toxic wastes by type. Type 1 indicates that at least 1000 kg/month of non-accutely hazardous waste is generated (or 1 kg/month acutely hazardous waste); and type 3 indicates less than 100 kg/month of non-accutely hazardous waste is generated.

### 2.2.2 State Agencies

The California Office of Planning and Research's "Hazardous Waste and Substances Site List", revised June 1989 lists the following site:

(Unknown)
7307-F Edgewater Drive
Oakland, CA
Problem: Tank Leak

This site is also listed on the fuel leak list of the Regional Water Quality Control Board (RWQCB) for September 1, 1989 and the City of Oakland Fire Department underground storage tank activity permit files. The owner is not known.

The California Department of Health Services (DHS) "Expenditure Plan for Hazardous Substances Cleanup Bond Act of 1984", Revision 4, January 1989 lists priority cleanup toxic waste sites. No sites are listed.

The Regional Water Quality Control Board "Fuel Leak Case List" was reviewed for Alameda County. Three fuel leak cases were listed by RWQCB within an approximate 2,000-foot radius of the site.

McGuire & Hester A2\*
796 - 66th Avenue
Oakland, CA

Port of Oakland B3
(UST permit list)
7101 Edgewater Drive
Oakland, CA 94621

Unknown C 7307-F Edgewater Drive Oakland, CA

- \* The codes indicate the following:
  - A the groundwater has been impacted;
  - B the soil has been impacted, but it is unknown whether the groundwater has been impacted;
  - C the soil has been impacted at less than 100 ppm (parts per million).

The number is used to rank the sites' priority, where 1 is higher than 3.

### 2.2.3 City Agencies

Records were received from the City of Oakland Department of Fire Prevention for the years of 1974-1989. The records of the years from 1920-1973 are no longer available. These records list the sites in which permits were issued for underground storage tank (UST) activity.

(See next page for list of activities).

The following sites, within an approximately 2,000 foot radius of the site, were identified:

Date	Permit #	Address	Description
07/26/74	7868	7101 Edgewater Drive	Vapor recovery system
01/24/75	8018	7101 Edgewater Drive	Extend fuel lines
04/22/75	8058	7101 Edgewater Drive	Extend gas, diesel lines
09/16/78	8093	513 Independent Road	Install 1-5,000-gal. tank
12/04/75	8114	7101 Edgewater Drive	Repair fuel tank
10/03/78	8302	7200 Edgewater Drive	Install 1-10,000-gal. tank
05/31/79	8364	7200 Edgewater Drive	Install 1-10,000-gal. tank and 1-1,000-gal. waste oil
06/27/79	8370	7303 Edgewater Drive	Install 1-3,000-gal. tank
07/24/80	8464	8001 Oakport Street	Install 1-10,000-gal. tank
09/23/80	8473	7101 Edgewater Drive	Remove 1-8,000-gal. tank. Install 1-12,000-gal. tanks
02/07/84	8634	7101 Edgewater Drive	Install 2-20,000-gal., 1-12,000-gal. tanks
05/03/84	8649	7101 Edgewater Drive	Install 2-20,000-gal., 1-12,000-gal. tanks
12/17/86	8845	796-66th Avenue	Remove 1-1,000-, 1-5,000-, and 1-8,000-gal. tanks
07/01/87	9005	7200 Edgewater Drive	Remove 1-500-, 1-1,000-gal. tanks
11/19/87	9039	7200 Edgewater Drive	Remove 1-1,000-gal. tank
07/08/88	9130	7307-F Edgewater Drive	Remove 1-3,000-gal. tank
08/10/88	9140	575 Independent Road	Remove 2-500-gal. tanks

### 2.2.4 Port of Oakland

According to Neil Werner of the Port of Oakland, Environmental Compliance Group, some activities have occurred on the undeveloped parcel of land owned by the Port of Oakland. The Damon Slough is dredged for maintenance purposes on a regular basis. The dredgings are placed on the shore line of the Slough and on the undeveloped parcel at the northeastern side of Edgewater Drive (alternative site 1) to dry, and then are removed. Permits are issued by the Port of Oakland Planning and Compliance Department, Port Permits and Graphics Division for this activity.

Mr. Neil Werner also reported the discovery of an approximately 4 x 6 foot area of waste oil, about 5 to 6 years ago. It was located in a ditch on the west side of the northern end and at Edgewater Drive in front of the Public Works Building (alternative site 2), approximately 200 feet from the shoreline. The soil containing the 4 x 6 foot area of waste oil was removed by the Port of Oakland.

3.0 FIELD EXPLORATION

### 3.1 SOIL BORINGS AND SAMPLING

Soil borings were drilled at four locations two on each alternative site, as shown in Figure 2, extending to a maximum depth of 18.5 feet. Each boring was converted into a groundwater monitoring well. A log of each boring was prepared by a WCC engineer and is included in Appendix A. The logs contain descriptions of the materials encountered in each boring, well construction details, field measurements and field observations of potential contaminants. In order to investigate the groundwater conditions at each alternative site, the monitoring wells were located at points that WCC anticipated would provide data representative of site conditions.

All of the borings were drilled with 8-inch diameter continuous flight hollow stem augers, powered by a truck mounted drill rig. Soil samples were obtained just above, at and just below the groundwater table. The soil samples were recovered with a 2-inch diameter modified California drive sampler, lined with 3-6 inches long, 2-inch diameter, brass tubes. Sample ends were sealed with plastic caps and transported to an analytical laboratory in a chilled ice chest containing ice on the day sampled. Selected soil samples were submitted to a commercial analytical laboratory for chemical testing. Samples not selected for chemical analyses were held by the laboratory pending analytical results and proper disposal.

To reduce the potential of cross-contamination between sampling intervals, the drive sampler was decontaminated in the following manner:

- (1) Alconox wash,
- (2) Tap water rinse,
- (3) Triple rinse with deionized water, and
- (4) Air-dried.

Brass liners and caps were decontaminated in the same manner, prior to use. To reduce the potential for contamination between drilling locations, the augers and the drive sampler were steam cleaned prior to commencing each monitoring well boring.

Soil cuttings of each boring were placed in 55-gallon drums and stored on site pending laboratory analytical results and proper disposal.

### 3.2 MONITORING WELL CONSTRUCTION, DEVELOPMENT AND SAMPLING

Monitoring well MW-1 and MW-2 are located in the southwest and mortheast parking lots of the Public Works building, respectively.

Monitoring well MW-3 and MW-4 are located in the centers of the west and east sections, respectively, of the parcel of land northeast of the present Consolidated Service Center (Figure 2). All PVC casing, screen and well end caps were steam cleaned before construction of each monitoring well.

Construction details are included in Appendix A.

The monitoring wells were developed at least 24 hours after the monitoring wells were installed. In developing the monitoring wells approximately 30 gallons of water was removed with a Teflon bailer, or the well was bailed dry. Measurements of the relative stability of pH, temperature, conductivity, and salinity were taken approximately every 5 gallons. Water levels were recorded at the beginning and at the end of well development. The wells were allowed to recharge for approximately 24 hours, before sampling occurred. Prior to sampling, approximately 3 casing volumes were removed from the wells with a Teflon bailer, or the wells were bailed dry. Once again, measurements of the relative stability of pH,

temperature, conductivity, and salinity were taken every 5 gallons (Appendix B). Groundwater samples were taken with a Teflon bailer and retained in containers prepared by the analytical laboratory. Then, the samples were transported to the State Certified laboratory in a chilled ice chest. Chain-of-Custody forms are included in Appendix C. Water removed from the monitoring wells was stored in 55-gallon drums pending analytical results and proper disposal.

4.0 CHEMICAL ANALYTICAL TESTING

### CHEMICAL ANALYTICAL TESTING

The soil and groundwater samples were submitted to a state certified amalytical laboratory, Sequoia Analytical Laboratory in Redwood City, for chemical testing. All of the groundwater and soil samples were analyzed for the following:

- Total petroleum hydrocarbons (TPH) (EPA Method 5030/8015/8020 modified) with benzene, toluene, ethylbenzene, and xylene (BTEX);
- Volatile organic or purgeable priority pollutants (EPA Method 8240); and
- Semi-volatile or extractible organics (EPA Method 8270).

Groundwater and soil samples were analyzed for potential contaminants based on field observations and site history. One water sample from each monitoring well was analyzed one one tube sample taken near the ground water table from each monitoring well boring was analyzed.

5.0 RESULTS AND DISCUSSION

#### 5.1 RECORDS REVIEW

The review of Federal, State and city records revealed a concentration of reported fuel leaks, toxic cases and underground storage tanks (UST) activities to the south of the alternative sites for Building No. 7 (Figure 3). Although the topography suggests that shallow groundwater flows to the southwest, the proximity of these reported cases to the alternative sites poses a potential for environmental impact. The seasonal changes in groundwater flow and tidal influence could allow contaminants to spread laterally in a radial pattern in the case of an uncontrolled hazardous waste release.

The Fuel Leak Case List and UST permit activity records show that the Consolidated Services Center is on the RWQCB "Fuel Leak Case List". This is most likely due to underground tank closure activities in the area of Building No. 5.

The three sites located to the north of the Damon Slough are crossgradient from the alternative sites due to their proximity to the slough and the southwesterly direction of groundwater flow. It is unlikely that contamination from these sites would impact the alternative sites as contamination would be intercepted by the slough. Also, the permitted dredging activities reported by Neil Werner of the Port of Oakland, Environmental Compliance Group are unlikely to impact the alternative sites.

### 5.2 FIELD EXPLORATION

Similar types of fill material were encountered in each of the four monitoring well borings just above, at and just below the water table. The fill encountered consists of mostly sandy silts and clays. On alternative site 2, borings MW-1 and MW-2 contain gravels and organic particles woodchips, pieces of brick, etc. in the fill material. These borings, located in the parking lots of the Public Works Building, are approximately to 4 feet higher in elevation than MW-3 and MW-4 located in alternative site 1, as shown on Figure 2.

During drilling, organic vapors in soil samples and cuttings from boring MW-1 were noted by the WCC engineer. This monitoring well is located within the area of the abandoned underground gas lines.

During drilling, groundwater was encountered at a depth of approximately 6 feet beneath the ground surface in monitoring wells MW-1 and MW-4. In MW-2 and MW-3, groundwater was encountered at a depth of approximately 7 to 7-1/2 feet beneath the ground surface.

### 5.3 SOIL ANALYSES

The results of the chemical analytical tests are summarized in Table  ${\bf 1}$  and included in Appendix C.

The following contaminants were detected in the soil at the location of MW-1 at a depth of 5 to 6-1/2 feet:

- Benzene
- Toluene
- Ethylbenzene
- Xylenes
- 2-Methylnapthalene
- Napthlene
- Phenol

Low to medium boiling point hydrocarbons were detected in soil at each monitoring well boring location. Methylene chloride was detected in soil at the location of MW-3, however this is a common laboratory contaminant and is not believed to be a soil contaminant. Low to medium boiling point hydrocarbons were detected at 6.4 parts per million (ppm) in soil at 6 to 7-1/2 feet in MW-3, and 2.5 ppm in soil at 6 to 7-1/2 feet in MW-4.

### 5.4 GROUNDWATER ANALYSES

The results of the analytical tests of groundwater samples are summarized in Table 2A, 2B, 2C and included in Appendix C.

The following contaminants were detected in groundwater sampled from MW-1:

- Benzene
- Toluene
- Ethylbenzene
- Xylenes
- 2-Methylnapthalene
- 4-Methylnapthalene
- Napthlene
- Phenol
- Low/Medium boiling point hydrocarbons

In addition benzene was detected in MW-2 and acetone and carbon disulfide in MW-3. It is believed that the acetone and carbon disulfide are laboratory contaminants.

### 5.5 DISCUSSION

Laboratory analysis of groundwater samples from monitoring wells MW-1 and MW-2 indicates that groundwater at alternative site 2 is contaminated with volatile organic compounds. Benzene is detected at 120 parts per

billion (ppb) which is above the Department of Health Services (DHS) drinking water standards of 1 ppb benzene. Analysis of soil samples from MW-1 show detection of volatile organic compounds usually associated with petroleum products. The probable source of this contamination is the fuel lines extending throughout the Consolidated Services Center.

Laboratory analysis of groundwater from monitoring well MW-3 and MW-4 shows no detection of volatile organics or purgeable organic contaminants or petroleum hydrocarbons. The low concentrations of petroleum hydrocarbons in soil from MW-3 and MW-4 are below concentrations which would require remediation by the California Regional Water Quality Control Board or the California Department of Health Services (DHS). In addition, the review of records indicates that alternative site 1 is unlikely to be impacted by the reported fuel leaks toxic release cases and underground storage tank activities in the area surrounding the Edgewater Drive sites.

6.0 RECOMMENDATIONS

The results of the groundwater analyses for alternative site 2 indicates substantial groundwater contamination and the potential for a substantial volume of contaminated soil at the groundwater – soil interface and above. The underground piping and possibly underground tanks are probable sources of contamination of the Consolidated Services Center (alternative site 2). Therefore, with the planned improvements, we recommend that a work plan for further investigation of soil and groundwater be developed and implemented. The plan should be submitted to Alameda County Department of Environmental Health (ACDEH) for review, along with a copy of this report and if directed, submitted to the California Regional Water Quality Control Board (CRWQCB).

The results of analytical tests on soil samples from monitoring well borings MW-3 and MW-4 do not indicate that the soils contain concentrations of petroleum hydrocarbons that would impact site use or require remediation. The results of analytical tests on groundwater samples from monitoring wells MW-3 and MW-4 showed no detection purgeable or extractable organics (EPA 8240 or 8270) or low to medium boiling point hydrocarbons (EPA 5030/8015/8020). Based on our review of the data evaluation of alternative site 1 use the risk of soil or groundwater contamination at the site is low.

7.0 LIMITATIONS

The scope of this investigation is limited by time constraints, expense, and practicality. A limited number of samples were taken at locations at the site and a limited number of laboratory chemical analyses were performed for those samples. Professional opinions concerning the presence of hazardous substances were developed based on the resulting data. It would be prohibitively expensive and time consuming to sample all locations at the site and analyze the samples for all substances which are now, or in the future might be, considered hazardous. Therefore, WCC cannot be held responsible should the investigation fail to detect the presence or quantity of all hazardous substances at all locations of the site.

Table 1. SOIL LABORATORY ANALYSES

PARAMETER (a)	UNITS	MW-1	MW-2	E-WM	MW-4	Detection
		(5.0-6.5)B	(8.5-10.0)A	(6.0-7.5)B	(6.0-7.5)B	Limit
<b>VOLATILE ORGANICS (EPA M</b>	lethod 824Ç	))				
Benzene	mg/kg	1.00	- •	- •	• •	0.1
Toluene	mg/kg	0.15				0.1
Ethylbenzene	mg/kg	6.40				0.1
Methylene Chloride	mg/kg			0.66		0.1
Total Xylenes	mg/kg	7.40		• •		0.1
SEMI-VOLATILE ORGANICS						
(EPA Method 8270)						
2-Methylnapthalene	mg/kg	0.74	(c)			. 0.1
Napthlene	mg/kg		(c)			0.1
Phenol	mg/kg	0.11	(c)	• •		0.1
PETROLEUM HYDROCARBON	 S with BTEX	   DISTINCTION	 			
(EPA Methods 8015/8020)	1 1		ļ			1
Low/Medium B.P. Hydrocarbo	วกร		•			1
Gasoline Standard	mg/kg	7.0	2.0	6.4	2.5	1.0
Benzene	mg/kg					0.05
Toluene	mg/kg					0.1
Ethylbenzene	mg/kg	i i				0.1
Xylenes	mg/kg					0.1

(a) Compounds listed are only those compounds detected in one or more of the monitoring well borings sampled. Data for other compounds [not detected] is available in Appendix C.

(b) -- indicates parameter not present above the stated detection limit.

(c) The detection limit is 5 mg/kg.

(d) An example of the soil sample descriptions, MW-1(5.0-6.5)B: MW-1 is monitoring well boring no. 1; (5.0-6.5) is the depth interval in feet that the sample was recovered; and the letter indicates the section of the interval (A is the top, B the middle, and C the bottom 6 in.)

Table 2A. MONITORING WELL NO. 1 GROUNDWATER LABORATORY ANALYSIS

PARAMETER (a)	UNITS	SAMPLING	EVENT	DRINKING WATE	R CRITERIA		MARINE CRITERIA	<b>\</b>
		October,	Detection	PRIMARY MCLs	ACTION	S.F. BAY	CALIFORNIA	EPA ACUTE
		1989	Limit	(c),(d),(i)	LEVELS (e)	<b>BASIN PLAN</b>	OCEAN PLAN (g)	TOXICITY (h)
VOLATILE ORGANICS (EPA	Method	8240)						
Acetone	ug/L		10.0	(j) 5				
Benzene	ug/L	120.0	2.0	5	1.0			5100
Carbon disulfide	ug/L	٠.	2.0					
Toluene	ug/L	46.0	2.0	2000	100			6300
Ethylbenzene	ug/L	43.0	2.0	680	680			430
Methylene Chloride	ug/L		2.0		40			12000
Total Xylenes	ug/L	78.0	2.0	1750	620			
SEMI-VOLATILE ORGANICS (EPA Method 8270)								
2-Methylnapthalene	ug/L	3.4	2.0					
4-Methylphenol	ug/L	4.8	2.0					
Napthlene	ug/L	5.6	2.0				2350	
Phenol	ug/L	2.8	2.0			500 (f)	120	5800
PETROLEUM HYDROCARBONS with BTEX DISTINCTION (EPA Methods 8015/8020) Low/Medium B.P. Hydro-		INCTION						
carbons Gasoline Standard	ug/L	540.0	30.0				+	
Benzene	ug/L	85.0	0.3	5	1.0			5100
Toluene	ug/L	26.0	0.3	2000	100			6300
Ethylbenzene	ug/L	14.0	0.3	680	680			430
Xylenes	ug/L	22.0	0.3	1750	620			

- (a) Compounds listed are only those compounds detected in one or more of the monitoring well borings sampled. Data for other compounds [not detected] is available in Appendix C.
- (b) -- Indicates parameter not present above the stated detection limit.
- (c) Drinking Water Standards Under the Safe Drinking Water Act, U.S. EPA, Criteria and Standards Division, Washington, D.C., February, 1989.
- (d) State of California Department of Health Services, Recently Adopted Maximum Contaminant Levels for contaminants in Drinking Water. April, 1989
- (e) Drinking Water Action Levels Recommended by the State of California Department of Health Services. April 19, 1989.
- (I) San Francisco Bay Basin Water Quality Control Plan, California RWQCB, San Francisco Bay Region. December, 1986, Table IV-1 (Shallow Water).
- (g) California State Water Resources Control Board. 1983 Water Quality Control Plan; Ocean Waters of California.
- (h) U.S. Environmental Protection Agency, Water Quality Advisories, March, 1986; U.S. Environmental Protection Agency, Quality Criteria for Water, May, 1986, and pertinent updates.
- (i) If state and federal guidelines both exist, the lower of the two concentration limits is given.
- (j) Blank Indicates no water quality criteria known.

Table 2B. MONITORING WELL NO. 2 GROUNDWATER LABORATORY ANALYSIS

PARAMETER (a)	UNITS	SAMPLING	EVENT	DRINKING WATE	R CRITERIA	MARINE CRITERIA			
		October,	Detection	PRIMARY MCLs	ACTION	S.F. BAY	CALIFORNIA	EPA ACUTE	
		1989	Limit	(c),(d),(i)	LEVELS (e)	<b>BASIN PLAN</b>	OCEAN PLAN (g)	TOXICITY (h)	
<b>VOLATILE ORGANICS (EPA</b>	Method	8240)							
Acetone	ug/L	• •	10.0	(j) 5					
Benzene	ug/L	2.0	2.0	5	1.0			5100	
Carbon disulfide	ug/L		2.0						
Toluene	ug/L	• •	2.0	2000	100			6300	
Ethylbenzene	ug/L		2.0	680	680			430	
Methylene Chloride	ug/L		2.0		40			12000	
Total Xylenes	ug/L		2.0	1750	620				
SEMI-VOLATILE ORGANICS			}						
(EPA Method 8270)			İ						
2-Methylnapthalene	ug/L	• •	2.0				•	•	
4-Mathylphenol	ug/L	• •	2.0						
Napthlene	ug/L	• •	2.0				2350		
Phenol	ug/L	• •	2.0			500 (1)	120	5800	
  PETROLEUM HYDROCARBOI	l NS with	I BTEX DIST	INCTION						
(EPA Methods 8015/8020)	l	1				!			
Low/Medium B.P. Hydro-	1		ł						
carbons Gasoline Standard	ug/L		30.0	]		<u> </u>			
Benzene	ug/L		0.3	5	1.0	·		5100	
Toluene	ug/L	• • •	0.3	2000	100			6300	
Ethylbenzene	ug/L		0.3	680	680			430	
Xylenes	ug/L		0.3	1750	620	<u> </u>		0-10-100	

(a) Compounds listed are only those compounds detected in one or more of the monitoring well borings sampled. Data for other compounds (not detected) is available in Appendix C.

(b) -- indicates parameter not present above the stated detection limit.

(c) Drinking Water Standards Under the Sale Drinking Water Act, U.S. EPA, Criteria and Standards Division, Washington, D.C., February, 1989.

(d) State of California Department of Health Services, Recently Adopted Maximum Contaminant Levels for contaminants in Drinking Water. April, 1989

(e) Drinking Water Action Levels Recommended by the State of California Department of Health Services. April 19, 1989.

(I) San Francisco Bay Basin Water Quality Control Plan, California RWQCB, San Francisco Bay Region. December, 1986, Table IV-1 (Shallow Water).

(g) California State Water Resources Control Board. 1983 Water Quality Control Plan; Ocean Waters of California.

(h) U.S. Environmental Protection Agency, Water Quality Advisories, March, 1986; U.S. Environmental Protection Agency, Quality Criteria for Water, May, 1986, and pertinent updates.

(i) If state and federal guidelines both exist, the lower of the two concentration limits is given.

(i) Blank Indicates no water quality criteria known.

Table 2C. MONITORING WELL NO. 3 GROUNDWATER LABORATORY ANALYSIS

PARAMETER (a)	UNITS	SAMPLING		DRINKING WATE			MARINE CRITERIA	\
ì		October,	Detection	PRIMARY MCLs	ACTION	S.F. BAY	CALIFORNIA	EPA ACUTE
		1989	Limit	(c),(d),(l)	LEVELS (e)	BASIN PLAN	OCEAN PLAN (g)	TOXICITY (h)
VOLATILE ORGANICS (EPA	Method	8240)						
Acetone	ug/L	15	10.0	(1)				
Benzene	ug/L	• •	2.0	5 ·	1.0			5100
Carbon disulfide	ug/L	2.8	2.0					Ì
Toluene	ug/L		2.0	2000	100			6300
Ethylbenzene	ug/L		2.0	680	680			430
Methylene Chloride	ug/L	• •	2.0		40			12000
Total Xylenes	ug/L		2.0	1750	620			
SEMI-VOLATILE ORGANICS		l						
(EPA Method 8270)	l							j
2-Methylnapthalene	ug/L		2.0				ł	1
4-Methylphenol	ug/L		2.0				ľ	ł
Napthlene	ug/L		2.0				2350	•
Phenol	ug/L		2.0			500 (f)	120	5800
PETROLEUM HYDROCARBOI	l YS with	I BTEX DIST	I INCTION	!				
(EPA Methods 8015/8020)	Ì	ĺ						
Low/Medium B.P. Hydro-			1					
carbons Gasoline Standard	ug/L		30.0			ŀ		
Benzene	ug/L		0.3	5	1.0	ł		5100
Toluene	ug/L		0.3	2000	100	İ		6300
Ethylbenzene	ug/L		0.3	680	680	i		430
Xylenes	ug/L		0.3	1750	620			<u> </u>

(a) Compounds listed are only those compounds detected in one or more of the monitoring well borings sampled. Data for other compounds [not detected] is available in Appendix C.

(b) -- indicates parameter not present above the stated detection limit.

(c) Drinking Water Standards Under the Safe Drinking Water Act, U.S. EPA, Criteria and Standards Division, Washington, D.C., February, 1989.

(d) State of California Department of Health Services, Recently Adopted Maximum Contaminant Levels for contaminants in Orinking Water. April, 1989

(e) Drinking Water Action Levels Recommended by the State of California Department of Health Services. April 19, 1989.

(I) San Francisco Bay Basin Water Quality Control Plan, California RWQCB, San Francisco Bay Region. December, 1986, Table IV-1 (Shallow Water).

(g) California State Water Resources Control Board. 1983 Water Quality Control Plan; Ocean Waters of California.

(h) U.S. Environmental Protection Agency, Water Quality Advisorles, March, 1986; U.S. Environmental Protection Agency, Quality Criteria for Water, May, 1986, and pertinent updates.

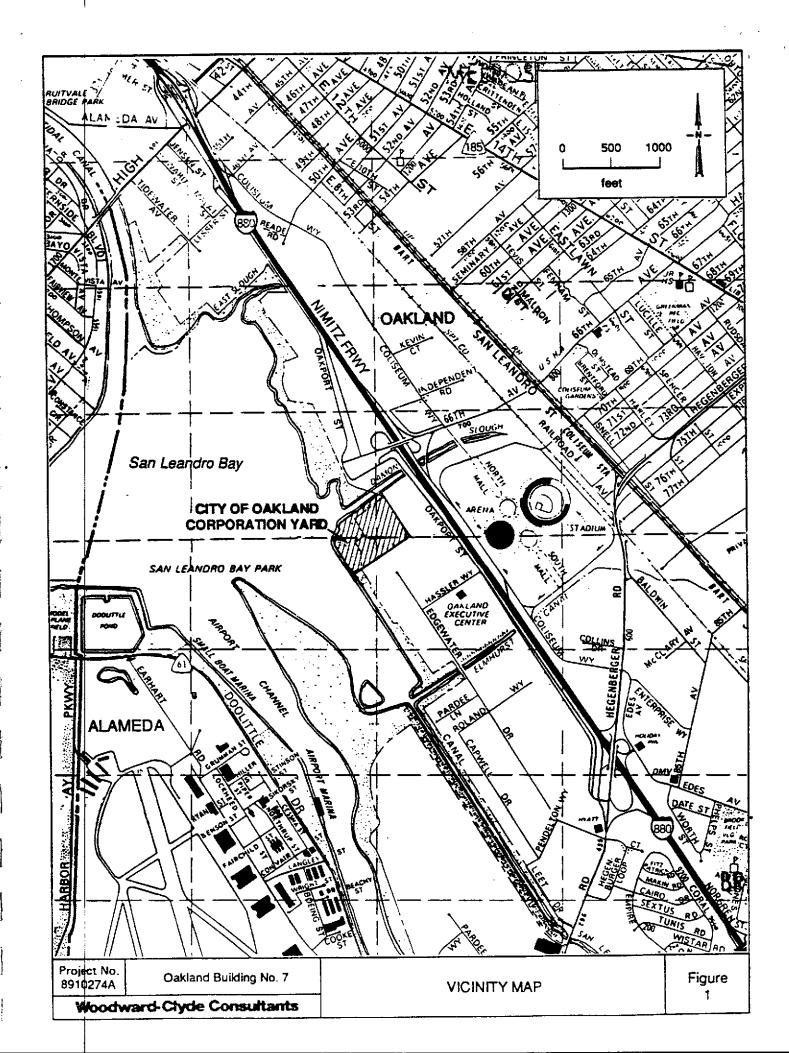
(i) Il state and lederal guidelines both exist, the lower of the two concentration limits is given.

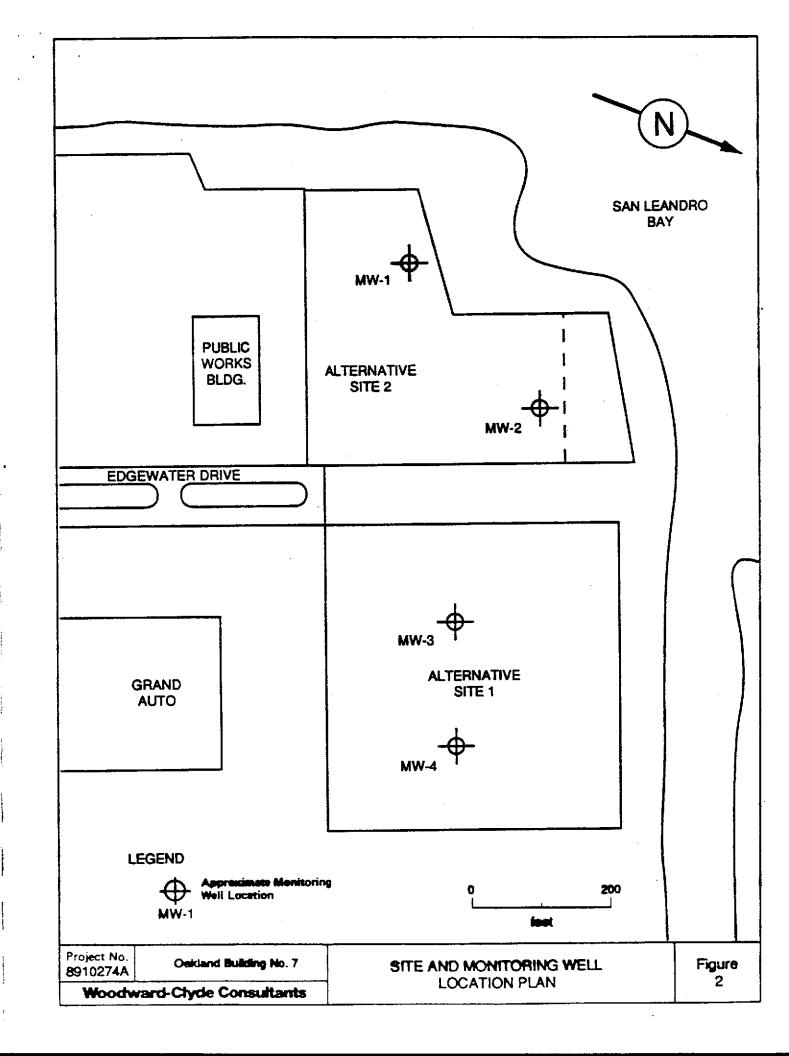
(j) Blank Indicates no water quality criteria known.

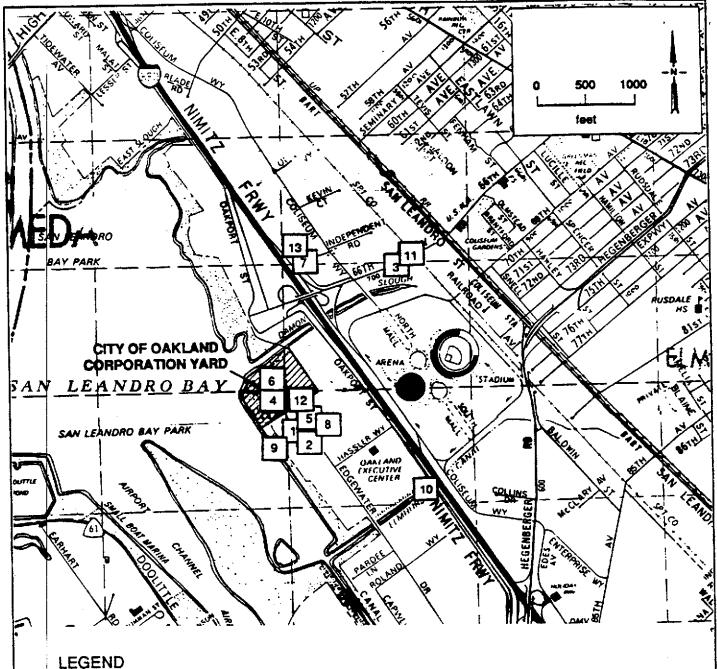
Table 2D. MONITORING WELL NO. 4 GROUNDWATER LABORATORY ANALYSIS

PARAMETER (a) UNITS SAMPLING EVENT		DRINKING WATE	R CRITERIA	MARINE CRITERIA				
• •		October,	Detection	PRIMARY MCLs	ACTION	S.F. BAY	CALIFORNIA	EPA ACUTE
		1989	Limit	(c),(d),(i)	LEVELS (e)	<b>BASIN PLAN</b>	OCEAN PLAN (g)	TOXICITY (h)
VOLATILE ORGANICS (EPA	Method	8240)						
Acetone	ug/L	• •	10.0	(j) 5	•			
Benzene	ug/L		2.0	5	1.0	İ		5100
Carbon disulfide	ug/L		2.0					•
Toluene	ug/L		2.0	2000	100	ł		6300
Ethylbenzene	ug/L		2.0	680	680	ł		430
Methylene Chloride	ug/L		2.0		40	1		12000
Total Xylenes	ug/L		2.0	1750	620			
SEMI-VOLATILE ORGANICS								
(EPA Method 8270)			j			}		•
2-Methylnapthalene	սց/ե		2.0			l		[
4-Methylphenol	ug/L		2.0			Į		1
Napthlene	ug/L		2.0	į	'	1	2350	1
Phenol	ug/L	• •	2.0			500 (f)	120	5800
PETROLEUM HYDROCARBOI	l NS with	I BTEX DIST	I INCTION					
(EPA Methods 8015/8020)			1			1		İ
Low/Medium B.P. Hydro-	f					ł		İ
carbons Gasoline Standard	ug/L	••	30.0			•		
Benzene	ug/L	• •	0.3	5	1.0			5100
Toluene	ug/L		0.3	2000	100			6300
Ethylbenzene	ug/L		0.3	680	680			430
Xylenes	ug/L		0.3	1750	620			<u> </u>

- (a) Compounds listed are only those compounds detected in one or more of the monitoring well borings sampled. Data for other compounds [not detected] is available in Appendix C.
- (b) -- Indicates parameter not present above the stated detection limit.
- (c) Drinking Water Standards Under the Safe Drinking Water Act, U.S. EPA, Criteria and Standards Division, Washington, D.C., February, 1989.
- (d) State of California Department of Health Services, Recently Adopted Maximum Contaminant Levels for contaminants in Drinking Water. April, 1989
- (e) Drinking Water Action Levels Recommended by the State of California Department of Health Services. April 19, 1989.
- (I) San Francisco Bay Basin Water Quality Control Plan, California RWQCB, San Francisco Bay Region. December, 1986, Table IV-1 (Shallow Water).
- (g) California State Water Resources Control Board. 1983 Water Quality Control Plan; Ocean Waters of California.
- (h) U.S. Environmental Protection Agency, Water Quality Advisories, March, 1986; U.S. Environmental Protection Agency, Quality Criteria for Water, May, 1986, and pertinent updates.
- (i) It state and federal guidelines both exist, the lower of the two concentration limits is given.
- (i) Blank indicates no water quality criteria known.







#### **RCRA Sites**

- 1 ACS Asbestos Hazard Management
- 2 PAC Bell

#### Fuel Leak List

- 3 McGuire & Hester
- 4 Port of Oakland\*\*
- 5 7307-F Edgewater Dr.\*\*

### Underground Storage Permits\*

- 6 7101 Edgewater Dr.\*\*
- 10 8001 Oakport St.
- 7 513 Independent Rd.
- 11 769-66th Av.
- 8 7200 Edgewater Dr.
- 12 7307-F Edgewater Dr.\*\*
- 9 7303 Edgewater Dr.
- 13 575 Independent Rd.
- \*Summary of activity in Appendix A
- \*\* This site is listed in both sources.

	roject No. 8910274A	Oakland Building No. 7	FUEL LEAK, UST AND	Figure
+		eart.Chide Consultants	TOXIC WASTE LOCATION MAP	3

APPENDIX A
LOGS OF EXPLORATORY BORINGS

# Woodward-Clyde Consultants 8910274A-ENVI Oakland Building No. 7



LEGEND

LOCATION			ELEVATIO	N AND DATUM			
AGENCY	DRILLER	DATE STARTED					
EQUIPMENT		DATE COMPLETED					
	DRILL BIT	COMPLET	ION DEPTH	<del></del>			
METHOD			SAMPLER	\$			
CASING	CANS FROM TO	· ·	NO. OF	DIST.	UNDIST.		
PERFORAT	ONS FROM TO		SAMPLES WATER	ATD	COMPL	24 HR	
PACK	FROM TO		LOGGED	BY	CHECKED BY	<u>.                                    </u>	
TYPE OF							
JEALS	FROM T	<b>.</b>					
DEPT H (FT)	DESCRIPTION	PIEZOMETER INSTALLTION	DEPTH (FT)	SAMPLES		ARKS , moisture ni, etc.)	
	SAMPLE INTI	RVAL					
	ANS	TIME	]	26	MW1 (1.0-2 0800	.5)	
		CENT	_ ]		1000		
	SAMPLER NECOV			+1			
	2 1151, 216	1	5_			. 51	
5 –	BLOW COUNT FO FOOT PENETI		$\Gamma$	∑ 50 6" ■	MW1 (5.0-6	i.ə)	
-	(UNLESS OTHE	ERWISE			]		
	j	NOTED)	-				
1 -	WELL CONSTRUCTION BLANK						
1 4	LJ CASING		10				
10_	SCREENED	111 111	3 '" -	<b>₩</b> 41	MW1 (10.0	-11.5)	
1 4	CASING	777	- 2 8		0810		
1 4	CEMENT		-	1			
1 4	GROUT		-		ŀ		
1 4	BENTONITE			1			
15_	M PENIONIE		15 _				
	SAND PACK		-	4			
			· .	{		•	
		ſ		4			
	GROUNDWATER LEVEL V			4 [ ] }	ļ		
20	AT TIME OF DRILLING (ATD) ATD	1	-	] [ ]	l		
	(OR)		NOT	E: THE BLOW	COUNTS REF	RESENT THE A 140-POUND	
	6 HOURS AFTER 6 HRS			HAMMER F	ALLING 30-IN	CHES	
	COMPLETION			REQUIRED	TO DRIVE A S THE LAST 12-	SAMPLER INCHES OF	
	OF DRILLING (OR)			AN 18-INCH	PENETRATION	ON.	
25	3 DAYS AFTER 3 DAYS COMPLETION						
1 23 _	OF DRILLING	1	l l				

LOG OF WELL 8910274A-ENVI **MW-1** Woodward-Clyde Consultants Oakland Building No. 7 ELEVATION AND DATUM MW-1 (in the NW parking lot of 7101 Edgewater Dr.) LOCATION DATE STARTED DRILLER Tom McCullen 09/29/89 AGENCY Datum Exploration Inc. DATE COMPLETED 09/29/89 EQUIPMENT **B-57** COMPLETION DEPTH DRILL BIT METHOD 6" Hollow Stem Auger SAMPLERS 2° Split Spoon CASING 2" PVC UNDIST. 6.0 16.0 PERFORATIONS 0.02 Slat BAMPLES COMPL 24 HR WATER ATD 6.4 TO 5.0 FROM 16.5 LEVEL PACK #2/12 Sand CHECKED BY LOGGED BY FROM 5.0 TO 4.0 **Activated Bentonite Pellets** TYPE OF L. Gruenberg P. Lucia SEALS FROM 4.0 TO 0.0 Grout with Ready Mix Top REMARKS SAMPLES DEPTH (FT) PIEZOMETER DEPTH (FT) DESCRIPTION INSTALLTION (Strength, moisture content, etc.) Asphalt concrete surface, approximately 6 in depth. Cuttings -- CLAYEY SILT (CL), brown, damp. 5 MW1 (5.0-6.5) 1600 SANDY CLAY (SC) - black with blue-gray mottling - medium to fine sand - some gravels to 2" diameter MW1 (7.0-9.5) - organics (e.g. woodchips) 1610 - medium stiff 10 - wet 10 - odor 15 15 Boring was terminated at 15.5 feet below the ground surface. 20 20

25

NOTE -- Well head is encased below ground in a

Christy box with a locking cap.

25

LOG OF WELL 8910274A-ENVI MW-2 Woodward-Clyde Consultants Oakland Building No. 7 ELEVATION AND DATUM LOCATION MW-2 (in the north parking lot) DATE STARTED 09/29/89 DRILLER Tom McCullen Datum Exploration Inc. AGENCY DATE COMPLETED 09/29/89 EQUIPMENT **B-57** COMPLETION DEPTH 16.5 DRILL BIT METHOD 6" Hollow Stem Auger SAMPLERS 2" Split Spoon CASING 2 PVC UNDIST. EO. 03 FROM TO 3 16.0 6.0 SAMPLES PERFORATIONS 0.02 Slat 24 HR WATER COMPL ATD 7.6 TO FROM 5.0 LEVEL 16.5 PACK #2/12 Sand CHECKED BY LOGGED BY FROM 5.0 4.0 **Activated Bentonite Pellets** TYPE OF P. Lucia L. Gruenberg 0.0 TO SEALS FROM 4.0 Grout with Ready Mix Top REMARKS SAMPLES PIEZOMETER DEPTH (FT) DEPTH (FT) (Strength, moisture INSTALLTION DESCRIPTION content, etc.) Asphalt concrete surface, approximately 6" in depth. CLAYEY SILT (CL) - green-brown with orange mottling MW2 (7.0-8.5) - very fine sands and rock fragments 0829 - loose MW2 (8.5-10.0) - very wet 0833 10 10 MW2 (10.0-11.5) CLAYEY GRAVEL (GC) 18 0845 - black, orange and gray - some fine sands and silts - gravels to 1" - dense - saturated 15 15 Boring was terminated at 16.5 feet below the ground surface. 20 20 Note -- Well head is encased below ground in a Christy 25

25

box with a locking cap.

LOG OF WELL 8910274A-ENVI **MW-3** Woodward-Clyde Consultants Oakland Building No. 7 ELEVATION AND DATUM MW3 (in the equipment yard) LOCATION DATE STARTED 09/29/89 DRILLER Tom McCullen AGENCY Datum Exploration Inc. DATE COMPLETED 09/29/89 EQUIPMENT B-57 COMPLETION DEPTH DRILL BIT 18.5 METHOD 6" Hollow Stem Auger SAMPLERS 2° Split Spoon CASING 2" PVC HO. OF UNDIST. DIST. 8.0 FROM 18.0 TO SAMPLES 0.02 Slat PERFORATIONS WATER COMPL 24 HR ATD 7.5 FROM TO 7.0 18.5 LEVEL PACK #2/12 Sand CHECKED BY LOGGED BY FROM 7.0 6.0 Activated Bentonite Pellets TYPE OF P. Lucia L. Gruenberg 0.0 TO 6.0 SEALS FROM Grout with Ready Mix Top REMARKS SAMPLES DEPTH (FT) PIEZOMETER (Strength, moisture DEPTH (FT) INSTALLTION DESCRIPTION content, etc.) Ground surface is relatively flat and unpaved. 5 CLAYEY SILT (CL) -MW3 (6.0-7.5) - brown with some black and 17 1310 orange-brown stains MW3 (7.5-9.0) - some fine to medium sand 1315 - medium stiff MW3 (9.0-10.5) - very plastic 10 - damp 1320 10 MW3 (10.5-12.0) SILTY CLAY (CL to CH) 1350 - light brown with blue-black stains - fine to medium sand - very soft - very plastic 15 15 - wet Cuttings -- CLAY (CL toCH), gray, very plastic, saturated. Boring was terminated at 20 16.5 feet below the 20 around surface.

25

LOG OF WELL 8910274A-ENVI MW-4 Woodward-Clyde Consultants Oakland Building No. 7 ELEVATION AND DATUM MW-4 (in the open field next to the equipment yard) DRILLER Tom McCullen DATE STARTED 09/29/89 Datum Exploration Inc. AGENCY DATE COMPLETED 09/29/89 EQUIPMENT COMPLETION DEPTH DRILL BIT 16.0 METHOD 6 Hollow Stem Auger SAMPLERS 2° Split Spoon CASING PVC UNDIST. DIST. TO 15.5 5.5 PERFORATIONS 0.02 Slat 24 HR COMPL ATD 6.0 FROM 16.0 TO 4.5 PACK #2/12 Sand LEVEL CHECKED BY LOGGED BY FROM 4.5 TO 3.5 **Activated Bentonite Pellets** TYPE OF P. Lucia L Gruenberg SEALS FROM 3.5 TO 0.0 Grout with Ready Mix Top REMARKS SAMPLES PIEZOMETER DEPTH (FT) DEPTH (FT) DESCRIPTION INSTALLTION (Strength, moisture content, etc.) Ground surface is relatively flat and unpaved. Cuttings -- CLAYEY SILT (CL), brown, damp. 5  $\nabla$ SILTY SAND (SM) MW4 (6.0-7.5) - black/gray 22 1056 - medium sands and some gravels from 1.5" to 2" - some organics (e.g. woodchips) - medium dense - very wet 10 10 Cuttings -- CLAY(CL to CH), gray, very plastic, saturated. 15 15 Boring was terminated at 16.0 feet below the ground surface. to 20 20

25

W	ATER	SAN	<b>IPLE</b>	LOG	s	ample	No.	MW2
Project No. :	8910	274	A Ca	rpyon	Oa d	::: <u> </u>	0/3	189
Project Name Sample Locat	ion: 71	01	Edge	waser	On.	DA	u	
Well Descripti	L	nes	19 1	sunny				
Observations	/ Comments	:						
Quality	Assura	nce	Sumpling	Measure Waler				LOPMENT
Pump Lines:		<b>,</b>		<u> </u>	ailer Lines:	_		/ Ciczned
Method of cl	_		1414 1414	10/3/	129		librated	
Specific Cond Comments:			.7+0	.4 = 15.	1 (	<b>5.</b>  -	· 7.	6) = T × 7.4
Sampl	ing rement	s	Water Li	wel (below MP) a	sian: I blac	,7+0 k m	.4 and	End:
Time	Discharge (gallons)	pH	Temp. (°C)	Specific Conductance (jumbos / cm)	Turbidity	Color	Odor	Sal % mments
1510	~2	7.45	23,0	16700	V. hugh	44	-	/1
1534	~10	7,40	21.1	18000	V. high	/1	-	12.4
1549	~17	7.56	21.0	19000	v.wg	10		13.8
1610	~30	1.52	21.0	18600	nigh	4.		12.5
							<u> </u>	
				<b></b>		ļ	<u> </u>	
							ļ	
					<u> </u>	<u> </u>		
				c	asing Volum	es Remo	wed: _	
Total Disc	disposal of							
	nd size of sa							
			,		W000	tward	UR# 100	de Consultants Oakland, CA 94607-4014
Collected	by:						(415) 8	93-3600

(galons) (C) (μπηος / cm)  1235 ~ 2 7.48 22.5 33000 mod-highed stra 24.5  1243 ~ 4 7.49 71.9 35000 mod highed stra 24.5 μ  1410 ~ 6 1.31 72.2 37000 v Cas, pril. etair 26.1	Weather C		n:	01				<u>. C</u>			
Quality Assurance  Sampling Method:  Method to Measure Water Level:  Society  Method of cleaning Pump / Bailer:  Method of cleaning Pump / Bailer:  Method of cleaning Pump / Bailer:  Method of cleaning Pump / Bailer:  Method of cleaning Pump / Bailer:  Method of cleaning Pump / Bailer:  Method of cleaning Pump / Bailer:  Method of cleaning Pump / Bailer:  Method of cleaning Pump / Bailer:  Method of cleaning Pump / Bailer:  Method to Measure Tap DT  Calibrated  Calibrated  Calibrated  Calibrated  Measurements:  Measurements  Mea		Conditi	ions: 🥌	un	<u>m</u>	nice!					<del></del>
Pump Lines: New / Gleaned Bailer Lines; New / Gleaned Method of cleaning Pump / Bailer: Allerance Tap DT  ph Meter No.: See Min4 10/3/89 Calibrated  Specific Conductance Meter No.:  Comments: T0 = 18.2 (18.2 - 6.81) (-1.) TT x 7.48 =  Sampling Measurements  Water Level (below MP) = Start: 6.81 + 0.4 End: /7.74  Measuring Point (MP): black mark  Time Discharge (galons) ph Temp. (Conductance (umhos / cm) Turbidity Color Odor Calibrated (umhos / cm) Turbidity Color Odor Calibrated (umhos / cm) Turbidity Color Odor Calibrated (umhos / cm) Turbidity Color Odor Calibrated (24.5 ph 12.43	Observation	ons / C	Comment	<u> </u>	<u> </u>				-	<del></del>	
Pump Lines: New / Gleaned Bailer Lines; New / Gleaned Method of cleaning Pump / Bailer: Allerance Tap DT  ph Meter No.: See Min4 10/3/89 Calibrated  Specific Conductance Meter No.:  Comments: T0 = 18.2 (18.2 - 6.81) (-1.) TT x 7.48 =  Sampling Measurements  Water Level (below MP) = Start: 6.81 + 0.4 End: /7.74  Measuring Point (MP): black mark  Time Discharge (galons) ph Temp. (Conductance (umhos / cm) Turbidity Color Odor Calibrated (umhos / cm) Turbidity Color Odor Calibrated (umhos / cm) Turbidity Color Odor Calibrated (umhos / cm) Turbidity Color Odor Calibrated (24.5 ph 12.43	=				1	h	EUL	DE	V		
Pump Lines: New / Cleaned Bailer Lines; New / Gleaned  Method of cleaning Pump / Bailer: Allower Top DT  pH Meter No.: See Min4 10/3/89 Calibrated  Specific Conductance Meter No.:  Comments: TO = 18.2 (18.2 - 6.81) (-1) TT X 7.48 =  Sampling Measurements  Measurements  Water Level (below MP) at Start: 6.81 + 0.4 End: 17.76  Measurements  Time Discharge (galons) pH Temp. Conductance (galons) pH Temp. Conductance (galons) pH Temp. (Conductance (galons) pH Temp. (	Quali	ity A	Assura	ance						i f	
Specific Conductance Meter No.:  Comments: T0 =   1.2	Pump Line	es:	(	New /						_	ned
Specific Conductance Meter No.:  Comments: T0 =   18.2			ning Pump	/ Baile	Ale	mer I	ap 1	DI_			
Sampling   Waser Level (below MP) = Start: 6.81+0.4   End: 17.74     Measurements   Waser Level (below MP) = Start: 6.81+0.4   End: 17.74     Measurements   Measuring Point (MP):	pH Meter	No.:	_64	e M	W4	10/3/89	<u> </u>	c	librated		
Sampling   Weder Level (below MP) = Start: 6.81 + 0.4   End: 17.76	•					<u>"</u>					
Measurements   Measuring Point (MP):	Comments	T	70 =	18.2		(182-6.	<b>3</b> 1) (	÷)1	πχ	7.48	=
1235 ~ 2 1.48 22.5 33880 mod-highed stra 24.5 1243 ~ 4 1.49 25.8 3580 mod highed stra 24.5 m 1410 ~ 6 1.31 22.2 37000 v. Car yell. clair 26.1	Samp	pling	g		7 was 1	and (heiner MP) :	sunb blac	81+0 Km	.4		1.76
1247 ~4 749 21.9 3000 mad 300 - 24.5 pt 1410 ~6 1.31 22.2 39000 v. Car yell clair 26.1	Samp	plinç sure	g ernent:	s	Water L Measur Temp.	ing Point (MP):  Specific Conductance	blee	k m	.9 ark	End: /1	9.76 ·
1410 ~ 6 1.31 22.2 37000 v. Car yell. claw 26.1	Samp Meas	plinç sure	g ement: Discharge (galons)	S pH	Water L Measur Temp. (°C)	svel (below MP) : ing Point (MP): Specific Conductance (µnhos / cm)	blac	k m	.9 ark	End: /1	
1430 ~ 10 164 193 25000 high blad - 26.1 5	Samp Meas	pline sure	g ernent: )ischarge (gallons)	S pH 7,48	Water L Measur Temp. (°C)	svel (below MP) : ing Point (MP): Specific Conductance (µnhos / cm)	blac	k m	.9 ark	End: /1	
	Samp Meas	pline sure	g ement: Discharge (galons)	s pH 7,48 7,49	Weder L Measur Temp. (°C) 22.5 U.1	svel (below MP) : ing Point (MP): Specific Conductance (µnhos / cm)	Turbidity  mod-hi  mod	k m	.q ark	End: /1  Sel / 21,5	
	Samp Meas Time	pling	g ement: Discharge (galons)	5 7,48 7,49 1,31	Weder L Measur Temp. (°C) 22.5 U.1	svel (below MP) : ing Point (MP): Specific Conductance (µnhos / cm)	Turbidity  mod-hi  mod	k m	.q ark	End: /1  Sel / 21,5	
	Samp Meas Time (235) (247) (410)	pling	g ernent: Discharge (galons) 2	s 7,48 7,49 1,31	Water L Measur Temp. (°C) 22.5 7J.9	svel (below MP) : ing Point (MP): Specific Conductance (µnhos / cm)	Turbidity  mod-hi  mod	k m	.q ark	Sec 2 24,5 24,5 26.1	
	Samp Meas Time (235) (247) (410)	pling	g ernent: Discharge (galons) 2	s 7,48 7,49 1,31	Water L Measur Temp. (°C) 22.5 7J.9	svel (below MP) : ing Point (MP): Specific Conductance (µnhos / cm)	Turbidity  mod-hi  mod	k m	.q ark	Sec 2 24,5 24,5 26.1	
Total Discharge: ~ ( O Casing Volumes Removed:	Samp Meas (235) 1243 1410	plingsure	g ement: Discharge (gallons) 2 2 4	s 7,48 7,49 1,31 1,54	Veder L Measur Tomp. (°C) 22.5 71.9 72.2 19.3	Specific Conductance (unhos / cm) 3 3 4 4 9 3 7 5 6 9	Turbidity  mod-hi  mod-hi  mod-hi  mod  Con;  mod  high	Color frage	odor Strang	54.5 24.5 26.1 26.1	primerits  A A C A

W.	ATER	SA	MPL	E LOG		Samp	le No	. MW+ .	
Project No. :			-	p yard		Date: 10	9/3	189	-
Sample Loca	stion: 1	101		cwate	<u> </u>	001	د		<del>-</del>   -
Well Descrip Weather Cor		um	<del>سم</del> ,	nice!					- -
Observations	/ Comment	s:							_   _
Quality	/ Assura	эпсе		Mensure Wate				LOPE EN	$\tau$
Pump Lines:			Cleaned		Bailer Line:		New	/ Cleaned	-
Method of cl		- / Bailer - 58	` ——	renox		C.	Librated	+01025	وط
Specific Con	··· ———	ser No.:		150 4=15.4	692	· · · · · · · · · · · · · · · · · · ·	alibrate	red linear	77
Comments:	8/G	= 4	519		tell as	. cas	ا بھی	rol.	_
X5=	329	al .		····				1 - 4	
Sampli Measu	ing rement	s		wel (below MP) : ng Point (MP);				End: 11.5 +0.	4 - 4
Time	Discharge (gallons)	рН	Temp. (°C)	Specific Conductance (µmhos / cm)	Turbidity	Cotor	Odor	Sec organiza	
1155	<b>~</b> 3	7,44	22.4	14800	high	4 1 Table	317-11	purped de	gg 9.1
1315	~15	7.56	23.0	15900	high	357	_	10.8	-
1330	~25	7.36	20.8	20000	high	gra		136 baile	<u>ady</u>
1350	~30	7,79	21.5	16200	high	7	_	11.2 high 6	
									_
	<u> </u>	<u> </u>		<u> </u>			<u> </u>	<u></u>	
ł				c	asing Yolu:	nes Remo	wed: _		-
	disposal of d d size of sar	-	_						_
. ——			•		W001	dward	-Clyc	le Consultant	s

W	ATER	SAN	<b>IPLE</b>	LOG	s	ample	e No.	MWI	
Project No. :	_	27	41	16		E+:	0/0	4/89	-
Project Name Sample Local		kla. 101	Edi	orp ya gewate	n t	Or.	DA	K	- -
Well Descripti Weather Con		un	ny.						_
Observations			-		4114 0	eee Cl	- 50	effer bai	eq.
			- Cimpinity	Method: K	ELL	DE	YE	OPMEN	
Quality	Assura	ince	Method 10	Measure Wate	•	Sol	14-C	/ Jeaned	-
Pump Lines: Method of ck		New / / Bailer:	Cleaned		ailer Lines:	25	New_	7.03	
pH Meter No	14	45	87	50		Ca	librated	red lived	-
Specific Conc Comments:	TA -	ter No.: _		+0.4					_
1 well c	esing	vok	- (19	6.2-6.6	يخ لزا	77 /	c 7.4	<u> </u>	-
			1			2.0+	o A	End: ~12'	
Sampl Measu	ing rement	<u>s</u>	Measurin	g Paint (MP):	Beck	. ms	nk		
Time	Discharge (gallons)	рН	Temp. (°C)	Specific Conductance (µmhos / cm)	Turbidity	Color	Octor	Sal 7	
0845	~2	7.65	220	1500	high	600	500	**** **	
1030	~4	7.74	22.2	9000	mod	12.	1-	6.0	
1150	~6	6.35	23.0	9200	mod	, n	<del>-</del>	6.2	
1525	~10	7.19	23.8	9100	MOd	<del>                                     </del>	-	5.5	
1344	~15	ba	led	my_	<u> </u>		<u> </u>	<del> </del>	
1400	Sample	1.07	23.0	9800	high	gray	-	6.2	
								+2	
Total Disc	harge:	~ 19	5		asing Volum	•.		<u>-</u>	
	disposal of			1 _6	5 gal	ute	<b>b</b> 1	40 gal	
									<del></del>
			_		Woo	dward	<b>I-Cly</b>	de Consultat , Oakland, CA 94607-40	nts

W/	ATER	SAN	<b>IPLE</b>	LOG	S	ample	No.	MW2	]
Project No. : Project Name Sample Local	nal	24	A Cr	ENIVI rp Yan water		. <u> </u>	0/4 DAK	/99	
Sample Local Well Descript									
Weather Con								· · · · · · · · · · · · · · · · · · ·	
Observations	/ Comments	:							
Quality	Assura	nce	Sampling	Method: I	efla	ر اور (راور	ist		
			Cleaned	В.	ailer Lines:	1	view .	Cleaned	
	saning Pump		AL	10/4/		P.T			-   -
pH Mater No Specific Con-	ductance Met	er No.:		le !		c	Morated		-
Comments:	<u> 70= 1</u>	5.6	+04	= 16.0					-
									-
			1			7.21	0.4	F.2+0.+	
Sampl Measu	ing rement	s	Water Le	wat (below MP) a ng Point (MP):	sian:	1.21 de m	0.4 Me	7,2+0.+	-
		S pH	Water Le Measurin Temp. (°C)	reat (below MP) and Point (MP):  Specific Conductance (umhos / cm)	start:	4.2.1 4 m	0.4 Mere	5.00 springerits	-
Measu	Discharge	рн <b>5.5</b> %	Measurin	Specific Conductance	blac	AM	المعم	\$60% ments	-
Time 1205	Discharge	pH 5.51 7.53	Temp. (°C) 22.3 2-1.2	Specific Conductance (umhos / cm)	Turbidity  Cow  high	AM	المعم	10.3	140
Measu 1205 1220	Discharge (gallons) Limit - 15	рн 5.51 7.53 1.95	Measurin Temp. (°C) 27.3 27.2 27.0	Specific Canductance (umhos / om)  14900 / 1500	Turbidity	AM	المعم	\$60% ments	100
Time 1205	Discharge	pH 5.51 7.53	Measurin Temp. (°C) 27.3 27.2 27.0	Specific Conductance (umhos / cm)	Turbidity  Conv  high	AM	المعم	\$00%. 10.3 12.0 -1.3 (1.9	140
Measu 1205 1220	Discharge (gallons) Limit - 15	рн 5.51 7.53 1.95	Measurin Temp. (°C) 27.3 27.2 27.0	Specific Canductance (umhos / om)  14900 / 1500	Turbidity  Conv  high	AM	المعم	\$00%. 10.3 12.0 -1.3 (1.9	
Measu 1205 1220	Discharge (gallons) Limit - 15	рн 5.51 7.53 1.95	Measurin Temp. (°C) 27.3 27.2 27.0	Specific Canductance (umhos / om)  14900 / 1500	Turbidity  Conv  high	AM	المعم	\$00%. 10.3 12.0 -1.3 (1.9	
Measu 1205 1220	Discharge (gallons) Limit - 15	рн 5.51 7.53 1.95	Measurin Temp. (°C) 27.3 27.2 27.0	Specific Canductance (umhos / om)  14900 / 1500	Turbidity  Conv  high	AM	المعم	\$00%. 10.3 12.0 -1.3 (1.9	
Measu 1205 1220	Discharge (gallons)  Limit -16 -15 -30	он 5.51 7.53 7.95 7.94	Temp. (°C)  27.3  27.2  27.0  19.3	Specific Canductance (umhos / om)  14900 / 1500	Turbidity  Conv  high		Odor	\$00%. 10.3 12.0 -1.3 (1.9	
Measu Time 1205 1220 1230 1245 Total Disc	Discharge (gallons)  List F - 1C  15  30  harge:	5.58 7.53 7.95 7.94	Measuring (C) (C) (C) (C) (C) (C) (C) (C) (C) (C)	Specific Canductance (urrhos / cm)    14900	Turbidity  Cow  high  It	Coign Co	Odor	\$00%. 10.3 12.0 -1.3 (1.9	
Measu Time 1205 1220 1230 1245 Total Disc	Discharge (gallons)  List F - 1C  15  30  harge:	5.58 7.53 7.95 7.94	Measuring (C) (C) (C) (C) (C) (C) (C) (C) (C) (C)	Specific Conductance (urmhos / cm)    14900	Turbidity  Cow  high  It	Coign Co	Odor	\$00%. 10.3 12.0 -1.3 (1.9	
Measu Time 1205 1220 1230 1245 Total Disc	Discharge (gallons)  List F - 1C  15  30  harge:	5.58 7.53 7.95 7.94	Measuring (C) (C) (C) (C) (C) (C) (C) (C) (C) (C)	Specific Canductance (urrhos / cm)    14900	Turbidity  Low  Lite  11  44  Wood	Color Color	Oder	\$00%. 10.3 12.0 -1.3 (1.9	s lui

Project No. :		tla	-4 (	ore Y	and o	zio:[_	<u>-7-</u>	4/89	· · · · · · · · · · · · · · · · · · ·
Project Name Sample Loca			Edge	rater	Or.	0	46		
Well Descrip									
Weather Cor	vditions:								
Observations	/ Comment	·							
l — — — — — — — — — — — — — — — — — — —									
Cuality	/ Assura	ممقد	Sampling	Method:	ifen	<u>ba</u>	ille		<del></del>
Guanty	ASSUIC	ai A.C	Method 1	o Measure Wate	r Level :	Soci	تعد		
Purp ones:		rich +	Cleaned	6	lailer Lines:		New	/ Cican	<u></u>
Method of ci	leaning Pum	p / Bailer:							
pH Meter No	o.:	\$	ee H	WILL	2/4/	<b>[]</b> c	librated		
Specific Con	ductance Me	ser No.:	11			c	alibrates	d*	<u> </u>
Comments:	TO.	= 1	<u>5.7</u>	+0,4					
1									
<del></del>									
									<b>8</b> 4.0
Sampl	ing ırement	s	Water La	evel (below MP) :	n Start:	5.6+	0.4	End: <b>/</b> 6.	<b>3</b> 5+0.
		S pH	Water Lo	svel (below-MP): ng Point (MP): Specific Conductance (umhos/cm)	a Start:	5.6+	0.4	End: 6.	<b>3</b> 5+0
Measu	Discharge		Measuri Temp.	Specific Conductance	blac	5.6 + L M	0.4 Mk	Salta	<b>\$</b> 5+0.
Measu	Discharge (gallons)	рн 7,54	Temp.	Specific Conductance (urnhos / cm)	Turbidity	5.6 +	0.4 Mk	End: 6.	Synants (O
Measu	Discharge (galons)	pH 7,54 7,08	Temp.	Specific Conductance (umhos / cm)	Turbidity	5.6 +	0.4 Mk	Sal	Co
Measu	Discharge (galons)  Whit ~5	pH 754 708 6.91	Temp. (°C) 20,5 20,0 19,3	Specific Conductance (umhos / cm) 130 00	Turbidity  Coist  Mod	5.6 +	0.4 Mk	Sal <sup>e</sup> 9.4 (0.0	Synants (O
Meast 0917 0932 0946	Discharge (galons)  Whit ~5	pH 754 708 6.91	Temp. (°C) 20,5 20,0 19,3	Specific Conductance (umhos / cm) 130 00 14100	Turbidity  Prior  Mod  Migh	5.6 +	0.4 Mk	Sale 9.4 (0.0	Synants (O
Meast 0917 0932 0946	Discharge (galons)  Out 1. ~5  ~12  ~13	pH 754 708 6.91	Temp. (°C) 20,5 20,0 19,3	Specific Conductance (umhos / cm) 130 00 14100	Turbidity  Prior  Mod  Migh	5.6 +	0.4 Mk	Sale 9.4 (0.0	Synants (O
Meast 0917 0932 0946	Discharge (galons)  Out 1. ~5  ~12  ~13	pH 754 708 6.91	Temp. (°C) 20,5 20,0 19,3	Specific Conductance (umhos / cm) 130 00 14100	Turbidity  Prior  Mod  Migh	5.6 +	0.4 Mk	Sale 9.4 (0.0	Synants (O
Meast 0917 0932 0946	Discharge (galons)  Out 1. ~5  ~12  ~13	pH 754 708 6.91	Temp. (°C) 20,5 20,0 19,3	Specific Conductance (umhos / cm) 130 00 14100	Turbidity  Prior  Mod  Migh	5.6 +	0.4 Mk	Sale 9.4 (0.0	Synants (O
Meast 70917 0932 0946 1007	Discharge (gallons) Unet. ~5 ~12 ~13	PH 7:54 7:08 6:91 7:49	Temp. (C) 205 20.0 19.3 20.2	Specific Conductance (umhos / cm) 130 00 14100 15000	Turbidity Cois Mod Migh	Color Color Personal	0.4 ALK	9.4 (0.0 10.4 (0.5	O marita
Total Disc	Discharge (galons)  Unit. ~5  ~12  ~13  Spann	pH 7-54 7-03 6-91 7-69	Temp. (C) 205 20.0 49.3 20.2	Specific Conductance (umhos / cm) 130 00 14100 15000	Turbidity  Pois  Mod  Migh  V. Los	Cotor  Cotor  Parish  String	0.4 ALK	9.4 (0.0 10.4 (0.5	O marita
Total Disc.	Discharge (gallons)  inet.  -5  -12  -13  Some	pH 1-54 1-08 6-91 1-04 	Temp. (C) 20.5 20.0 19.3 20.2	Specific Conductance (umhos / cm) 130 00 14100 15000	Turbidity  Cois  Mod  Migh  V. Cois	Color Color	O.4	9.4 (0.0 10.4 10.5	O marita

## APPENDIX C LABORATORY ANALYSES

#### Woodward-Clyde Consultants Chain of Custody Record 500 12th Street, Suite 100, Oakland, CA 94607-4041 (415) 893-3600 **ANALYSES** PROJECT NO. 8010247A-ENVI of Containers 8240 8270 3015 REMARKS SAMPLERS (Signature) (Sample preservation. handling procedures, etc.) SAMPLE NUMBER DATE | TIME MWZ 1/241.08:29 MWZ(7.0-85) NL= 7.0 0833 MWZ (86-10,0) A 0833 MWZ (3.5.10.0) B MW4 NL = 6.0 MWZ (8,5-10.0) C ĺ MW7(10.0-11.5)C W. L. 2 7.5' MW4 (6.0 . 7.5) B 1056 MM4(6,0-7,5) C 1c56 NVS 1. W1. 2 6.0 1310 NW3 (6,0 7.5) B 1310 UN3 (6.0-7.5) C for MW3 1315 MW3 (7,5-9.0)C 1330 MW3 (9.0.10.5)C 1350 MW3 (10.5-12.0)A X 1350 MW3 (10.5-12.0)3 1350 MW3(105-12.6)C 1600 MWI (50 65) A 1 1400 MW1 (5.0-6.5) B BY MWI 1 1600 MW165.0-6.5X. 1610 MN 1 (7.0. C.S)1 1010 MNI (7.0-8.5)B 1610 MIV 1 (7.0-8.5)C TOTAL NUMBER OF CONTAINERS RECEIVED # RELINQUISHED BY: DATE/TIME RECEIVED BY: RELINQUISHED BY : DATE/TIME (Signature) (Signature) (Signature) (Signature) COIS Chris DATE/TIME RECEIVED FOR LAB BY: COURIER: SHIPPED BY : METHOD OF SHIPMENT: (Signature) (Signature) (Signature)



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

Woodward-Clyde Consultants 500 12th SL, Suite 100 Oakland, CA 94607-4041 Attention: Lois Gruenberg Client Project ID: #8910247A-ENV1

Matrix Descript: Soil

Analysis Method: EPA 5030/8015/8020

First Sample #: 910-0796

Sampled:

Sep 29, 1989

Received: Sep 29, 1989 Analyzed: Oct 10, 1989

Reported: Oct 16, 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)	Ethyi Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
910-0796	MW2 (8.5-10.0)A	2.0	N.D.	N.D.	N.D.	N.D.
910-0797	MW4 (6.0-7.5)B	2.5	N.D.	N.D.	N.D.	N.D.
910-0798	MW3 (6.0-7.5)B	6.4	N.D.	N.D.	N.D.	N,D.
910-0799	MW1 (5.0-6.5)B	7.0	N.D.	N.D.	0.18	0.15

	<del></del>	<del> </del>				
Detection Limits:	1.0	0.05	0.1	0.1	0.1	1
]						

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

Woodward-Clyde Consultants 500 12th St., Suite 100

Client Project ID: #8910247A-ENV1

Oakland, CA 94607-4041 Attention: Lois Gruenberg

QC Sample Group: 9100796-9

Reported: Oct 16, 1989

#### **QUALITY CONTROL DATA REPORT**

ANALYTE	Toluene		Ethyl Benzene	Xylenes		
Method: Analyst: Reporting Units: Date Analyzed: QC Sample #:	EPA 8015/8020 Spak/Dinsay mg/kg Oct 10, 1989 910-0043		EPA 8015/8020 Spak/Dinsay mg/kg Oct 10, 1989 910-0043	EPA 8015/8020 Spak/Dinsay mg/kg Oct 10, 1989 910-0043		
Sample Conc.:	N.D.		N.D.	N.D.		
Spike Conc. Added:	1.0		1.0	3.0	,	
Conc. Matrix Spike:	0.65		0.78	2.3	-	
Matrix Spike % Recovery:	65		78	77		
Conc. Matrix Spike Dup.:	0.65		0.76	2.3		
Matrix Spike Ouplicate % Recovery:	65		76	77		
Relative % Difference:	0		2.6	0		
Laboratory blank the following anal		None Detected				
SEQUOIA ANALYT	TICAL	% Recovery:		Conc. of Sample	x 100	·
M Tagu Vickie Tague	Ĺ	Relative % Difference:	Conc. of M.S.	- Conc. of M.S.D.  Conc. of M.S.D.) / 2	x 100	
Project Manager		<u></u>				9100796.WOO <2>



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: Lois Gruenberg

Client Project ID: #8910247A-ENV1 Sample Descript: Soil, MW2 (8.5-10.0)A Analysis Method: EPA 8240

910-0796 Lab Number:

Sampled: Sep 29, 1989 Sep 29, 1989 Received: Analyzed: Oct 12, 1989 Reported: Oct 16, 1989

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

Analyte	Detection Limit µg/kg		Sample Results µg/kg
Acetone	500.0	.0442445404444444444444444	N.D.
Benzene	100.0	**********************	N.D.
Bromodich oromethane	100.0	444544444444444444444444444444444	N.D.
Bromoform	100.0	48800000000000000000000000000000000000	N.D.
Bromomethane	100.0	******************************	N.D.
2-Butanone	500.0	+=+6145000000000000000000000000000000000000	N.D.
Carbon disulfide	100.0	********************************	N.D.
Carbon tetrachioride	100.0		N.D.
Chlorobenzene	100.0		N.D.
Chlorodibromomethane	100.0	************	N.D.
Chloroethane	100.0		N.D.
2-Chioroethyl vinyl ether	500.0	*****************************	N.D.
Chloroform	100.0	************	N.D.
Chloromethane	100.0		N.D.
1,1-Dichloroethane		4+4444405044044444444444444444444444444	N.D.
1,2-Dichloroethane	100.0		N.D.
1,1-Dichloroethene	100.0	************	N.D.
Total 1,2-Dichloroethene	100.0	4 244444401 204 24466444144 204 4044444444	N.D.
1,2-Dichioropropane	100.0	*******************************	N.D.
cis 1,3-Dichloropropene	100.0	********************************	N.D.
trans 1,3-Dichloropropene	100.0	**************************	N.D.
Ethylbenzene	100.0	4404455555555555555555555555555555	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.
Tetrachioroethene	100.0	===	N.D.
Toluene		**************************	N.D.
1,1,1-Trichloroethane	100.0	**************************	N.D.
1,1,2-Trichloroethane	100.0	*************************	N.D.
Trichloroethene	100.0	******************************	N.D.
Trichiorofluoromethane	100.0	**************************	
Vinyl acetate	100.0	49407074400014444450077400414444444477777	
Vinyl chloride	100.0	######################################	
Total Xylenes	100.0	***************************************	N.D.

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

SEQUOIA ANALYTICAL



Client Project ID: #8910247A-ENV1 Sample Descript: Soil, MW4 (6.0-7.5)B

Analysis Method: EPA 8240 Lab Number: 910-0797 Sampled: Sep 29, 1989 Received: Sep 29, 1989 Analyzed: Oct 13, 1989 Reported: Oct 16, 1989

Samuela Dagueta

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

Analyte	Detection Limit µg/kg		Sample Results µg/kg
Acetone	500.0	~\$0\$2456056054897466084640588888888888	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.
	100.0	******************************	N.D.
Chloroethane2-Chloroethyl vinyl ether	500.0		N.D.
2-Chloroethyl vinyl ether	100.0		N.D.
Chloroform	100.0		N.D.
Chloromethane	100.0		N.D.
1,1-Dichloroethane	100.0	,,t40c010000101010000000001000000000000000	N.D.
1,2-Dichloroethane	100.0		N.D.
1,1-Dichloroethene Total 1,2-Dichloroethene		444444444444444444444444444444444444444	N.D.
total 1,2-Dichloroetherie	100.0		N.D.
1,2-Dichloropropane	100.0	*************************	N.D.
cis 1,3-Dichloropropene	100.0	*********************	N.D.
trans 1,3-Dichioropropene		*******************	N.D.
Ethylbenzene	500.0	***************************************	M D
2-Hexanone		***************************************	MID
Methylene chloride		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N O
4-Methyl-2-pentanone	71111		MO
Styrene			N.D.
1,1,2,2-Tetrachioroethane		***************************************	
Tetrachloroethene		************************	AL C
Toluene		*******************************	
1,1,1-Trichloroethane	• • • • • • • • • • • • • • • • • • • •	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ND
1,1,2-Trichloroethane			MD
Trichloroethene	. 100.0		
Trichlorofluoromethane		414444444444444444444444444444444444444	ND
Vinyl acetate	100.0		N. D
Vinyl chloride		••••	N.D.
Total Xvienes	100.0	********************	

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

**SEQUOIA ANALYTICAL** 



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Woodward-Clyde Consultants 500 12th St., Suite 100 Oakland, CA 94607-4041 Attention: Lois Gruenberg Client Project ID: #8910247A-ENV1 Sample Descript: #8910247A-ENV1

Analysis Method: EPA 8240 Lab Number: 910-0799 Sampled: Sep 29, 1989 Received: Sep 29, 1989 Analyzed: Oct 13, 1989 Reported: Oct 16, 1989

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

Analyte	Detection Limit µg/kg		Sampie Results µg/kg
Acetone	500.0		N.D
Benzene	100.0		1,100
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.
Chioroform			N.D.
Chloromethane		**********************	N.D.
1.1-Dichloroethane		************************	N.D.
1,2-Dichlorpethane			N.D.
1,1-Dichloroethene			N.D.
Total 1,2-Dichloroethene			N.D.
· - · · · · ·		*************************	N.D.
1,2-Dichloropropane		102010000000000000000000000000000000000	N.D.
cis 1,3-Dichloropropene			N.D.
trans 1,3-Dichloropropene			
			N.D.
2-Hexanone		***************************************	N.D.
Methylene chloride		***************************************	N.D.
4-Methyl-2-pentanone		***************************************	AL D
Styrene		.,,	N.O.
1,1,2,2-Tetrachloroethane		****************************	N.D.
Tetrachlorpethene		***************************************	
Toluene			بر 190 N.D.
1,1,1-Trichloroethane		***************************************	AL D
1,1,2-Trichioroethane		******************************	
Trichloroethene			N.D.
Trichloroffuoromethane		***************************************	N.D.
Vinyl acetate		*******************************	
Vinyl chloride	. 100.0		
Total Xylenes	100.0		7,400

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

SEQUOIA ANALYTICAL



Client Project ID: #8910247A-ENV1 Method (units):

EPA 8240 (µg/L purged)

Analyst(s): QC Sample #: T. Fowler 910-0541 Q.C. Sample Dates

Analyzed: Oct 13, 1989 Reported: Oct 16, 1989

#### QUALITY CONTROL DATA REPORT

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference
1,1-Dichloro- ethene	N.D.	50	47	94	44	88	6.6
Trichloroethene	N.D.	50	52	104	51	102	1.9
Benzene	N.D.	50	53	106	53	106	0
Toluene	N.D.	50	45	90	46	92	2.2
Chlorobenzene	N.D.	50	50	100	51	102	2.0

SEQUOIA ANALYTICAL

% Recovery:	Conc. of M.S Conc. of Sample	x 100
	Spike Conc. Added	
Relative % Difference:	Conc. of M.S Conc. of M.S.D.	x 100
	(Conc. of M.S. + Conc. of M.S.D.) / 2	



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: Lois Gruenberg Client Project ID: #8910247A-ENV1 Sample Descript: Soil, MW2 (8.5-10.0)A

Analysis Method: EPA 8270 Lab Number: 910-0796 Sampled: Sep 29, 1989
Received: Sep 29, 1989
Extracted: Oct 6, 1989
Analyzed: Oct 12, 1989
Reported: Oct 16, 1989

Sample Results

# SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

8 l. da		Detection Limit		Sample nesults
Analyte		μg/kg		µg/kg
				N.D.
Aconanhthe	ne	5,000.0	*******************************	N.D.
Acceptability	ene	5,000.0		N.D.
Apilino		5,000.0	***********************	N.D.
A athropope	***************************************	5,000.0	.456124000000000000000000000000000000000000	N.D.
Pagaiding		125,000.0	77774 = 40224 <u>274404400 277700446244</u>	N.D.
Dertzionie		25,000.0		N.D.
Pagao(a)ant	hracene	5,000.0	+======================================	N.D.
Der IZU(a)anı	pranthene	5,000.0	****************************	N.D.
Deitzu(D)iiuk	ranthene	5,000.0	114017400441017774444405740044441777	N.D.
Benzo(k)nuk	perylene	5,000.0	**********	N.D.
penzo(g,n,i)	ene	5,000.0	-4-11-0620++441620++441620++441620++44162	N.D.
Benzo(a)py	nd	5,000.0	.01001041001410000000000000000000000000	N.D.
Benzyi alcoi	ethoxy)methane	5,000.0	44457700448855070044659070070584609700	N.D.
Bis(2-chiord	ethyl)ether	5,000.0	*************************	
Bis(2-chiore	pisopropyl)ether	5,000.0		N.D.
Bis(2-chioro	exyl)phthalate	25,000.0	44 20 2 27 400 244 242 27 27 20 444 20 27 20 244 20 20 20	N.D.
Bis(2-etnyin	enyl phenyl ether	5,000.0		N.D.
4-Bromoph	h phthalate	5,000.0	~4064 > 01 70 70 70 70 64 2 27 77 20 4 20 27 77 70 70 70 70	N.D.
Butyl benzy	ine	5,000.0		N.D.
4-Chloroan	phthalene	•	~ 4+************************	N.D.
2-Chlorona	pninale ie			N.D.
4-Chloro-3-	methylphenol	_'	********************	N.D.
2-Chloroph	enol		\. =	N.D.
4-Chloroph	enyl phenyl ether	• • • • • • • • • • • • • • • • • • • •	2074047402002744041020774004440277744	N.D.
Chrysene		· · · · · · · · · · · · · · · · · · ·	**************************************	N.D.
Dibenz(a,h	anthracene	·	*************************	N.D.
Dibenzofur	an			, N.D.
Di-N-butyl	phthalate			, N.D.
1,3-Dichlor	obenzene		4+44=4=++++++++++++++++++++++++++++++++	. N.D.
1,4-Dichlor	obenzene			. N.D.
1,2-Dichlor	obenzene	·	******************************	, N.D.
3,3-Dichlot	obenzidine		400000000000000000000000000000000000000	NI PO
2,4-Dichlo	ophenol	· · · · · · · · · · · · · · · · · · ·	************	
Diethyl phi	halate	"		
2 4-Dimeth	Mohenol	. 5,000.0		. N.D.
Dimethyl r	hthalate	5,000.0	***************************************	
4 6-Dinitro	-2-methylphenol	25,000.0	************************	NI D
2,4-Dinitro	phenol	23,000.0	***************************************	

Client Project ID: #8910247A-ENV1 Sample Descript: Soil, MW2 (8.5-10.0)A

Analysis Method: EPA 8270 Lab Number: 910-0796 Sampled: Sep 29, 1989
Received: Sep 29, 1989
Extracted: Oct 6, 1989
Analyzed: Oct 12, 1989
Reported: Oct 16, 1989

## SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg		Sample Results µg/kg
2.4-Dinitrotoluene	5,000.0	***************************************	N.D.
2.6-Dinitrotoluene	5,000.0	***************************************	N.D.
Di-N-octyl phthalate	5,000.0	***************************************	N.D.
Fluoranthene	5,000.0	***************************************	N.D.
Fluorene	5,000.0		N.D.
Hexachiorobenzene	5,000.0	***************************************	N.D.
Hexachlorobutadiene.	5,000.0		N.D.
Hexachlorocyclopentadiene	5,000.0	************************************	N.D.
Hexachloroethane	5,000.0	***************************************	N.D.
Indeno(1,2,3-cd)pyrene	5,000.0		N.D.
· Isophorone		***********************************	N.D.
2-Methylnaphthalene		**************************	N.D.
2-Methylphenol		***********	N.D.
4-Methylphenol			N.D.
Naphthalene	5,000.0	***************************************	N.D.
2-Nitroaniline	25,000.0	***************************************	N.D.
3-Nitroaniline		***************************************	N.D.
4-Nitroaniline			N.D.
Nitrobenzene		***************************************	
2-Nitrophenol			N.D.
4-Nitrophenol		***************************************	N.D.
N-Nitrosodiphenylamine		***************************************	N.D.
N-Nitroso-di-N-propylamine		***************************************	N.D.
Pentachiorophenoi	25,000.0	*************************************	N.D.
Phenathrene		********************************	N.D.
Phenol			N.D.
Pyrene		*************************************	N.D.
1,2,4-Trichlorobenzene		*******************************	N.D.
2.4,5-Trichlorophenol			N.D.
2.4.6-Trichlorophenol		pq44000004400446310794577445607442841	N.D.

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.

SEQUOIA ANALYTICAL

Vickie Tague Project Manager

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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: Lois Gruenberg Client Project ID: #8910247A-ENV1 Sample Descript: Soil, MW4 (6.0-7.5)B

Analysis Method: EPA 8270 Lab Number: 910-0797 Sampled: Sep 29, 1989
Received: Sep 29, 1989
Extracted: Oct 6, 1989
Analyzed: Oct 12, 1989
Reported: Oct 16, 1989

Sample Results

# SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte		Detection Limit µg/kg		Sample Results µg/kg
		100.0		N.D.
Acenaphthe	ne	100.0	******************************	N.D.
Aconanhthy	lene	100.0	***********************	N.D.
Anilina		100.0		N.D.
Anthracane		2,500.0	************************	N.D.
Banzidina		500.0	************	N.D.
Benzoic Ac	d	100.0	,	N.D.
Benzo(a)an	thracene	100.0	**************	N.D.
Da-=a/h\fl:	ioranthene	100.0	*************************	N.D.
D//4	AMERICAN TRANSPORT OF THE PROPERTY OF THE PROP	100.0		N.D.
Postola h	ineniere	100.0	************	N.D.
Renzo(a)ny	rene	100.0		N.D.
Benzyi alco	hol		, 446244994444644444444444444	N.D.
Bis(2-chlor	oethoxy)methane		****************************	N.D.
Bis(2-chlor	oethyl)ether	• • - •	4 *** 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	N.D.
Bis(2-chior	oisopropyl)ether	500.0		N.D.
Bis(2-ethyl	hexyl)phthalate	·	**************************	N.D.
4-Bromopi	nenyl phenyl ether	100.0	*****************	N.D.
Butyl benz	yl phthalate	100.0	*************	
4-Chloroat	niline	100.0		
2-Chloron	aphthalene	100.0	440020+4404020+20424020+44440024034444	
4-Chloro-3	-methylphenol	100.0		110
2-Chlorop	henol	100.0	444411112000+061745+4100074+44127+644	NO
4-Chlorop	henyl phenyl ether	100.0	141444-414014444444444444444	
Chrysene.		100.0	******************	N. E.
Dibenz(a,	n)anthraceneran	100.0	************	
Dibenzon	phthalate	500.0	44484444444444444444444444444444444444	
Di-N-buty	robenzene	100.0	***********************	N.D
1,3-Dichie	probenzeneprobenzene	. 100.0	********************	
1,4-Dichie	probenzene	100.0	***********************	
1,2-Dicnig	probenzidine	<b>50</b> 0.0	***********************	
3,3-DICDIC	prophenol	100.0		
2,4-UICNI	hthaiate	100.0	+4+4405444444400+64450000000000044446600000	N.D.
Dietnyi pi	thylphenol	100.0	-++***********************	
2,4-UIMe	phthalate		*******************	
Dimetny	o-2-methylphenol	500.0	-4-4-1-0-1-0-4-1-0-1-0-1-0-1-0-1-0-1-0-1	N.D.
4,6-DINIU	ophenol	500.0		,,, F4-00°-
2,4-DHHU	Option on the second			



ts Client Project ID: #8910247A-ENV1 Sample Descript: Soil, MW4 (6.0-7.5)B

Analysis Method: EPA 8270 Lab Number: 910-0797 Sampled: Sep 29, 1989
Received: Sep 29, 1989
Extracted: Oct 6, 1989
Analyzed: Oct 12, 1989
Reported: Oct 16, 1989

# SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg		Sample Results µg/kg
	100.0	******************************	N.D.
2,4-Dinitrotoluene	100.0	****************	N.D.
2,6-Dinitrotoluene	100.0	************	N.D.
DI-N-octyl phthalate	100.0	******************	N.D.
Fluoranthene	100.0		N.D.
Fluorene			N.D.
Heyachlorobenzene	100.0	***********************	N.D.
Hovachiorobutadiene	. 100.0	*****************************	N.D.
Hexachlorocyclopentadiene	100.0		N.D.
Hexachloroethane	100.0		N.D.
Indeno(1,2,3-cd)pyrene	100.0	. 2000004402200 422200000000000000000000	N.D.
· Isophorone	100.0	********************************	N.D.
2-Methylnaphthalene	100.0		N.D.
2-Methylphenol	100.0	>>=====	N.D.
4-Methylphenol	100.0	*******************************	N.D.
Naphthalene	100.0	******************************	N.D.
2-Nitroaniline	. 500.0	**************************	N.D.
3-Nitroaniline	. 500.0	***********************************	AL D
4-Nitroaniline	. 500.0	************************	MO
Nitrobenzene	. 100.0	*************************	NO
2-Nitrophenol	. 100.0	*********************	· NO
4-Nitrophenol	. <b>500</b> .0		N.D.
N-Nitrosodiphenylamine	. 100.0		. N.D. N.D.
N-Nitroso-di-N-propylamine	100.0	**********************	
N-Nitroso-di-N-propylatiline	500.0		. N.D. N.D.
Phenathrene	100.0	-4454466485444-0445455	•
Phenathrene	100.0	20240445624440444452944446444464	. N.D.
Phenol	100.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	. N.D.
Pyrene	100.0	.40040000000000000000000000000000000000	. N.D.
1,2,4-Trichlorobenzene	500.0	***********************	, N.D.
2,4,5-Trichlorophenol		LD-00001005444444-4445577440010446577744	N.D.

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

SEQUOIA ANALYTICAL

Vickie Tague <sup>U</sup> Project Manager

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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: Lois Gruenberg

Client Project ID: #8910247A-ENV1 Analysis Method: EPA 8270

Lab Number:

Sample Descript: Soil, MW3 (6.0-7.5)B

910-0798

Sep 29, 1989 Sampled: Sep 29, 1989 Received: Extracted: Oct 6, 1989 Oct 13, 1989 Analyzed: Oct 16, 1989 Reported:

## SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte		Detection Limit µg/kg		Sample Results µg/kg
2.4 Dinitrotoluene		100.0	***************************************	N.D.
2,4-Distillictorusine.	***************************************	100.0	**********	N.D.
Di M catal phthais	te	100.0	P#====================================	N.D.
Di-14-Octyr phintera	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	100.0	****************************	N.D.
Fluoratili lei le		100.0	450000000000000000000000000000000000000	N.D.
Hovachlorohanza	ne	100.0		N.D.
Hexaci io operze	ene	100.0	***************************************	N.D.
Hexachiorodyclor	pentadiene	100.0	******************************	N.D.
Havaobloroethan	3	100.0	****************************	N.D.
Indono(1.2.3-cd)	yrene	100.0	***************************************	N.D.
Indeno(1,2,3-cu)p		100.0	*********************	N.D.
O Mathidocabhair	ene	100.0	*******************************	N.D.
2-Methylopopol		100.0	*************************	N.D.
2-Methylphenol	***************************************	100.0	************	N.D.
4-Meuryipheno		100.0	*************************	N.D.
Napriliaierie		500.0	********************	N.D.
2-Nitroansine		500.0	*************************	N.D.
3-Naroaniine		500.0	~=~++++++++++++++++++++++++++++++++++++	N.D.
	**********************		******************	
2-Nitropherio			**********************	N.D.
4-Nitropnenoi	/lamine		**********	N.D.
N-Narosociphen	yalinie			
N-NITIOSO-QI-IN-PI	ropylamine	•	***********************	, N.D.
Pentachiorophen	IQI			N.D.
				N.D.
Phenol				. N.D.
Pyrene			******************************	MID
1,2,4-i richiprope	enzene		******************	MD
2,4,5-Trichloropi	nenol		*******************************	ALD.
2 4 6-Trichloroof	nenol	. 100.0	****	

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

SEQUOIA ANALYTICAL

Vickie Taque Project Manager

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Client Project ID: #8910247A-ENV1 Sample Descript: Soil, MW3 (6.0-7.5)B

Analysis Method: EPA 8270 Lab Number: 910-0798 Sampled: Sep 29, 1989
Received: Sep 29, 1989
Extracted: Oct 6, 1989
Analyzed: Oct 13, 1989
Reported: Oct 16, 1989

### SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg		Sample Results µg/kg
Acenaphthene	100.0	+0<-+2-+4444444444444444444444444444444444	N.D.
Acenaphthylene	100.0	**********************	N.D.
Aniline	100.0		N.D.
Anthracene	100.0	***************************************	N.D.
Benzidine	2,500.0	***************************************	N:D.
Benzoic Acid	<b>50</b> 0.0	~ E *** * * * * * * * * * * * * * * * *	N.D.
Benzo(a)anthracene	100.0	**************	N.D.
Benzo(b)fluoranthene	100.0	************************	N.D.
Benzo(k)fluoranthene	100.0	101744441444444444444444444444	N.D.
Benzo(g,h,i)perylene	100.0	*******	N.D.
Benzo(a)pyrene	100.0	*******************************	N.D.
Benzyl alcohol	100.0		N.D.
Bis(2-chloroethoxy)methane	100.0	**************************************	N.D
Bis(2-chloroethyl)ether	100.0	***********	N.D.
Bis(2-chloroisopropyl)ether	100.0	***************************************	N.D.
Bis(2-ethylhexyl)phthalate	500.0		N.D.
4-Bromophenyl phenyl ether	100.0	*****************	N.D.
Butyl benzyl phthalate	100.0	4444441   100	N.D.
4-Chloroaniline	100.0	***************************************	N.D.
2-Chioronaphthalene	100.0		N.D.
4-Chloro-3-methylphenol	100.0	***************************************	N.D.
2-Chiorophenoi	100.0	***************************************	N.D.
4-Chlorophenyl phenyl ether	100.0		N.D.
Chrysene	100.0	***************************************	N.D.
Dibenz(a,h)anthracene	100.0	***************************************	N.D.
Dibenzofuran	100.0	***************************************	N.D.
Di-N-butyl phthalate		***************************************	N.D.
1,3-Dichlorobenzene	100.0	14440054024074074074444444444	N.D.
1,4-Dichlorobenzene	100.0		N.D.
1,2-Dichlorobenzene	100.0	1-+++++++++++++++++++++++++++++++++++++	N.D.
3,3-Dichlorobenzidine	500.0		N.D.
2.4-Dichtorophenol	100.0	*****************************	N.D.
Diethyl phthalate	100.0		N.D.
2,4-Dimethylphenol	100.0	***************************************	N.D.
Dimethyl phthalate	100.0	***************************************	N.D.
4,6-Dinitro-2-methylphenol			N.D.
2,4-Dinitrophenol	500.0		N.D.



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

Client Project ID: #8910247A-ENV1 Sample Descript: Soil, MW1 (5.0-6.5)B

Analysis Method: EPA 8270 Lab Number: 910-0799

Sampled: Sep 29, 1989 Sep 29, 1989 Received: Extracted: Oct 6, 1989 Oct 13, 1989 Analyzed: Oct 16, 1989 Reported:

### SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte		Detection Limit µg/kg		Sample Results µg/kg
Acenaphthene		100.0	101002444344354555555555555555555555555555	N.D.
	7 <del>6</del>	100.0	44546344434444444444444444444	N.D.
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	100.0	P2000000000000000000000000000000000000	N.D.
		100.0	*************************	N.D.
	***************************************	2,500.0		N.D.
_ + · · - · · - · · · · · · · · · · · · ·		500.0		N.D.
	acene	100.0	######################################	N.D.
Benzo(h)fluora	anthene	100.0		N.D.
	anthene	100.0	**************************	N.D.
	erylene	100.0	>10222706940001A00AAAAAABBBBBBBBBBBB	N.D.
	ne	100.0	*****************************	N.D.
		100.0		N,D.
Bis(2-chloroet	hoxy)methane	100.0		N.D.
	hyl)ether	100.0	1447944444444444444444	N.D.
	opropyl)ether	100.0	************	N.D.
	yl)phthalate	500.0		N.D.
	yl phenyl ether	100.0	************	N.D.
	hthalate	100.0	*************	N.D.
	B	100.0	-4444828888888888888888888	N.D.
- '	thalene	100.0		. N.D.
4-Chloro-3-me	ethylphenol	100.0	~	N.D.
	ol	100.0	********************************	N.D.
4-Chiorophen	yl phenyl ether	100.0	444444	N.D.
	······································	100.0		N.D.
	nthracene	100.0	************	N.D.
, ,	***************************************	100.0		N.D.
	halate	500.0	*************************	N.D.
	enzene	100.0		N.D.
	enzene	100.0	**********	N.D.
•	enzene	100.0		N.D.
•	enzidine	500.0	************************	N.D.
-1 1	henol	100.0	44 1200000000000000000000000000000000000	N.D.
	ate	100.0	**********************	N.D.
	henol	100.0	44444444	N.D.
	nalate	` 100.0	***************************************	N.D.
	methylphenol	500.0	141000000000000000000000000000000000000	N.D.
	enol	500.0	***************************************	N.D.



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

Attention: Lois Gruenberg

lyde Consultants Client Project ID: #8910247A-ENV1
Suite 100 Sample Descript: Soil, MW1 (5.0-6.5)B

Analysis Method: EPA 8270 Lab Number: 910-0799 Sampled: Sep 29, 1989
Received: Sep 29, 1989
Extracted: Oct 6, 1989
Analyzed: Oct 13, 1989
Reported: Oct 16, 1989

## SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg		Sample Results µg/kg
2,4-Dinitrotoluene	100.0	**************************	N.D.
2,6-Dinitrotoluene	100.0		N.D.
Di-N-octyl phthalate	100.0		N.D.
Fluoranthene	100.0	************************	N.D.
Fluorene	100.0		N.D.
Hexachlorobenzene	100.0		N.D.
Hexachlorobutadiene.	100.0		N.D.
Hexachlorocyclopentadiene	100.0	***************************************	N.D.
Hexachloroethane	100.0		N.D.
Indeno(1,2,3-cd)pyrene		*******************	N.D.
	400.0		N.D
Isophorone2-Methylnaphthalene	100.Q		. 740
2-Methylphenol	100.0	***************************************	N.D.
4-Methylphenol	100.0	***************************************	N.D.
Naphthalene			660
2-Nitroaniline	500.0	***************************************	N.D.
3-Nitroaniine	E00.0		N.D.
4-Nitroaniline.	550.0		N.D.
Nitrobenzene			N.D.
2-Nitrophenol		. 4	N.D.
4-Nitrophenol		441042002007.070004644441000700464044	N.D.
N-Nitrosodiphenylamine			N.D.,
N-Nitroso-di-N-propylamine		**************	N.D.
Pentachlorophenol			N.D.
Phenathrene	100.0	******************************	N.D.
Phenol	100.0		110
Pyrene			N.D.
1,2,4-Trichlorobenzene		************	N.D.
2,4,5-Trichlorophenol		*************	N.D.
2,4,6-Trichlorophenol		*******************************	N.D.

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

**SEQUOIA ANALYTICAL** 

Vickie Tague ()
Project Manager

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9100796.WOO < 15>



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

Woodward-Clyde Consultants Client Pro 500 12th St., Suite 100 Method ( Oakland, CA 94607-4041 Analyst(s Attention: Lois Gruenberg QC Sam

Client Project ID: #8910247A-ENV1 Method (units): EPA 8270 (µg)

Analyst(s): T. Fowler QC Sample #: 910-0184

Q.C. Sample Dates

Analyzed: Oct 13, 1989 Reported: Oct 16, 1989

#### QUALITY CONTROL DATA REPORT

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference
Phenol	N.D.	100	92	92	93	93	1.1
2-Chlorophenol	N.D.	100	93	93	97	97	4.2
1,4-Dichloro- benzene	N.D.	50	43	86	45	90	4.5
N-Nitroso-Di-N- propylamine	N.D.	50	54	108	54	108	0
1,2,4-Trichloro- benzene	N.D.	50	41	82	42	84	2.4
4-Chloro- 3-Methylphenol	N.D.	100	88	88	88	88	0
Acenaphthene	N.D.	50	44	88	43	86 `	2.3
4-Nitrophenol	N.D.	100	93	93	104	104	11
2,4-Dinitro- toluene	N.D.	50	40	80	39	78	2.5
Pentachloro- phenol	N.D.	100	103	103	111	111	7.5
Pyrene	N.D.	50	51	102	57	114	11

SEQUOIA ANALYTICAL

VVVV (UVVV) Vickie Tague ()
Project Manager

% Recovery:	Conc. of M.S Conc. of Sample	x 100	
-	Spike Conc. Added		
Relative % Difference:	Conc. of M.S Conc. of M.S.D.	x 100	
	(Conc. of M.S. + Conc. of M.S.D.) / 2		

9100796.WOO <16>



Project: #8910274A-ENV1

Enclosed are the results from 12 water samples received at Sequoia Analytical on October 4,1989. The requested analyses are listed below:

9100918 A	Water, MW-4	10/4/89	EPA 8270
9100918 B	Water, MW-4	10/4/89	EPA 5030/8015/8020
9100918 C	Water, MW-4	10/4/89	EPA 8240
9100919 A	Water, MW-3	10/4/89	EPA 8270
9100919 B	Water, MW-3	10/4/89	EPA 5030/8015/8020
9100919 C	Water, MW-3	10/4/89	EPA 8240
9100920 A	Water, MW-2	10/4/89	EPA 8270
9100920 B	Water, MW-2	10/4/89	EPA 5030/8015/8020
9100920 C	Water, MW-2	10/4/89	EPA 8240
9100921 A	Water, MW-1	10/4/89	EPA 8270
9100921 B	Water, MW-1	10/4/89	EPA 5030/8015/8020
9100921 C	Water, MW-1	10/4/89	EPA 8240

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL



Woodward-Clyde Consultants 500 12th \$t., Suite 100 Oakland, CA 94607-4041

Client Project ID: Matrix Descript:

#8910274A-ENV1 Water

Sampled: Received:

Oct 4, 1989 Oct 4, 1989

Attention: Lois Gruenberg

Analysis Method: First Sample #:

EPA 5030/8015/8020 910-0918

Oct 12, 1989 Analyzed: Reported: Oct 25, 1989

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

Sam Num		Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene μg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xyienes μg/L (ppb)
91009	18 B	MW-4	N.D.	N.D.	N.D.	N.D.	N.D.
91009	19 B	MW-3	N.D.	N.D.	N.D.	N.D.	N.D.
91009	20 B	MW-2	N.D.	N.D.	N.D.	N.D.	N.D.
91009	21 B	MW-1	540	65	26	14	22

			1			
Detection Limits:	30.0	0.3	0.3	0.3	0.3	
<u> </u>						

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

Woodward-Clyde Consultants 500 12th St., Suite 100 Oakland, CA 94607-4041 Client Project ID: #8910274A-ENV1

Attention: Lois Gruenberg

QC Sample Group: 9100918-21

Reported: Oct 25, 1989

#### QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	
Method: Analyst: Reporting Units: Date Analyzed: QC Sample #:	EPA 8020 K. Mitchell μg/L Oct 12, 1989 910-1417	EPA 8020 K. Mitchell μg/L Oct 12, 1989 910-1417	EPA 8020 K. Mitchell μg/L Oct 12, 1989 910-1417	EPA 8020 K. Mitchell μg/L Oct 12, 1989 910-1417	
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	
Spike Conc. Added:	2.5	2.5	2.5	7.5	
Conc. Matrix Spike:	2.8	2.3	2.7	7.0	
Matrix Spike % Recovery:	112	92	108	93	
Conc. Matrix Spike Dup.:	2.3	2.0	2.3	5.7	
Matrix Spike Duplicate % Recovery:	92	80	92	76	
Relative % Difference:	20	14	16	20	
aboratory blank	contained	Çe e			

Laboratory blank contained the following analytes:

None Detected

SEQUOIA ANALYTICAL

Vickie Tague Project Manager % Recovery:

Conc. of M.S..- Conc. of Sample x 100

Spike Conc. Added

Relative % Difference:

Conc. of M.S. - Conc. of M.S.D. x 100

(Conc. of M.S. + Conc. of M.S.D.) / 2

9100918.WOO <2>



Client Project ID: Sample Descript: Analysis Method: Lab Number: #8910274A-ENV1 Water, MW-4 EPA 8240 910-0918 C Sampled: Received: Analyzed: Oct 4, 1989 Oct 4, 1989 Oct 17, 1989

Reported:

Oct 17, 1989 Oct 25, 1989

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

Analyte	Detection Limit µg/L		Sample Results µg/L
Acetone	10.0	******************************	N.D.
Benzene.			N.D.
Bromodichioromethane			N.D.
Bromoform		***************************************	N.D.
Bromomethane		***************************************	N.D.
2-Butanone		***************************************	N.D.
Carbon disulfide		***************************************	N.D.
Carbon tetrachloride			N.D.
Chlorobenzene	2.0	***************************************	N.D.
Chlorodibromomethane	2.0	410000000000000000000000000000000000000	N.D.
Chloroethane	2.0	************	N.D.
2-Chloroethyl vinyl ether	10.0	***************************************	N.D.
Chloroform		*********************************	N.D.
Chioromethane			N.D.
1.1-Dichloroethane	2.0	***************************************	N.D.
1,2-Dichioroethane	2.0	**************************	N.D.
1,1-Dichioroethene	2.0	************	N.D.
Total 1,2-Dichloroethene	2.0	4848484848484	N.D.
1,2-Dichioropropane	2.0	**********************************	N.D.
cis 1,3-Dichloropropene			N.D.
trans 1,3-Dichloropropene		***********************	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-Tetrachioroethane	2.0	*************************	N.D.
Tetrachloroethene	2.0	*********************	N.D.
Toluene	2.0	***********	N.D.
1,1,1-Trichloroethane		**********	N.D.
1,1,2-Trichloroethane	2.0	727444444444444444444444	N.D.
Trichloroethene		***********	N.D.
Trichlorofluoromethane	2.0	***********************	N.D.
Vinyl acetate		********************************	N.D.
Vinyl chipride		++++++++++++++++++++++++++++++++++++++	N.D.
Total Xylenes	2.0	***********************	N.D.

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

SEQUOIA ANALYTICAL

Client Project ID: #8910274A-ENV1
Sample Descript: Water, MW-3
Analysis Method: EPA 8240
Lab Number: 910-0919 C

Sampled: Oct 4, 1989
Received: Oct 4, 1989
Analyzed: Oct 17, 1989
Reported: Oct 25, 1989

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

Analyte	Detection Limit	Sample Results
·	μg/L	µg/L

Acetone	10.0	**************************	15
Benzene	2.0	.00000000000000000000000000000000000000	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		2.8
Carbon tetrachloride	2.0	***************************************	N.D.
Chlorobenzene	2.0	*******************************	N.D.
Chlorodibromomethane	2.0	***************************************	N.D.
Chioroethane	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	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	N.D.
4-Methyl-2-pentanone	10.0	pq4+44=+++++++++++++++++++++++++++++++++	N.D.
Styrene	2.0	~\$A\$*\$\$	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	101400001010101010101010101010101010101	N.D.
Vinyi 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** 



Client Project ID: Sample Descript: Analysis Method:

Lab Number:

#8910274A-ENV1 Water, MW-2 EPA 8240 910-0920 C Sampled: Received: Analyzed:

Oct 4, 1989 Oct 4, 1989 Oct 17, 1989

Reported: Oct 25, 1989

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

Analyte		Detection Limit µg/L		Sample Results  µg/L
Acetone	***************************************	10.0	*/*************************************	N.D.
		2.0	<del></del>	. 3.3
	nloromethane	2.0	*****************************	N.D.
	n	2.0	***************************************	N.D.
	hane	2.0	***************************************	N.D.
	e	10.0		N.D.
	sulfide	2.0		N.D.
	rachloride	2.0	***************************************	N.D.
	zene	2.0	*****************************	N.D.
	romomethane	2.0	***************************************	N.D.
	anę	2.0	~~~*******	N.D.
2-Chloroet	hyl vinyl ether	10.0	******************	N.D.
Chloroforr	n	2.0	**************************	N.D.
Chioromet	hane	2.0	*******************************	N.D.
	roethane	2.0	-10-504-5-4-4-5-4-4-4-4-4-4-4-4-4-4-4-4-4-	N.D.
1,2-Dichlo	roethane	2.0		N.D.
1,1-Dichlo	roethene	2.0	************	N.D.
Total 1,2-0	ochloroethene	2.0	****************	N.D.
1,2-Dichlo	ropropane	2.0	*****************************	N.D.
cis 1,3-Dio	hloropropene	2.0	*******************************	N.D.
trans 1,3-0	ichloropropene	2.0	*****************************	N.D.
	ane	2.0	***************	N.D.
2-Hexanor	ne	10.0	******************************	N.D.
Methylene	chloride	2.0	**************************************	N.D.
	-pentanone	10.0		N.D.
	····	2.0		N.D.
	rachloroethane	2.0	***************************************	N.D.
	oethene	2.0		N.D.
	**************************************	2.0		N.D.
1.1.1-Trich	loroethane	2.0		N.D.
	ioroethane	2.0		N.D.
	thene	2.0		N.D.
	uoromethane	2.0	***************************************	N.D.
	te	2.0	*******************************	N.D.
	ide	2.0		N.D.
	1es	2.0	******************************	N.D.
			****************************	File.

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

SEQUOIA ANALYTICAL

Client Project ID: Sample Descript: Analysis Method: Lab Number:

#8910274A-ENV1 Water, MW-1 EPA 8240 910-0921 C Sampled: Oct 4, 1989 Received: Oct 4, 1989 Analyzed: Oct 17, 1989 Reported: Oct 25, 1989

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

Analyte	Detection Limit µg/L		Sample Results  µg/L
Acetone	10.0	***************************************	N.D.
Benzene	2.0	***************************************	120
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	44 84 H W B W B W W W W W W W W W W W W W W W	N.D.
2-Chloroethyl vinyl ether	10.0	~!!!!!!	N.D.
Chloroform	2.0	***************************	N.D.
Chioromethane	2.0	445444444444	N.D.
1,1-Dichloroethane		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
1,2-Dichioroethane	2.0	***************************************	N.D.
1,1-Dichloroethene	2.0		N.D.
Total 1,2-Dichloroethene			N.D.
1,2-Dichloropropane	2.0	***************************************	N.D.
cis 1,3-Dichloropropene	2.0	445444455555555555555555555555555555555	N.D.
trans 1,3-Dichloropropene	2.0	*************************	N.D.
Ethylbenzene		*****	
2-Hexanone.	10.0	***************************************	N.D.
Methylene chloride		444444444444444	N.D.
4-Methyl-2-pentanone		1100101414001414014014014014014014014014	N.D.
Styrene	2.0	414444444444444444444444444444444444444	N.D.
1,1,2,2-Tetrachioroethane		***************************************	N.D.
Tetrachloroethene	2.0	***************************************	N.D.
Toluene	=:=	**************************************	
1,1,1-Trichioroethane			N.D.
1,1,2-Trichloroethane		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
Trichloroethene	2.0		N.D.
Trichlorofluoromethane	2.0	######################################	N.D.
		*************************************	N.D. N.D.
Vinyl acetate	2.0	**************************	N.D.
Vinyl chloride	2.0 2.0		

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

**SEQUOIA ANALYTICAL** 



Client Project ID:

#8910274A-ENV1

Method (units): Analyst(s): QC Sample #: EPA 8240 (µg/L purged)

T. Fowler 910-0920 Q.C. Sample Dates

Analyzed: Oct 17, 1989 Reported: Oct 25, 1989

#### **QUALITY CONTROL DATA REPORT**

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference	
1,1-Dichloro- ethene	N.D.	50	41	82	40	80	2.5	
Trichloroethene	N.D.	50	47	94	44	88	6.6	
Benzene	3.3	50	51	95	49	91	4.3	
Toluene	N.D.	50	47	94	44	88	6.6	
Chlorobenzene	N.D.	50	50	100	48	96	4.1	

SEQUOIA ANALYTICAL

Vickie Tague U Project Manager % Recovery:

Conc. of M.S. - Conc. of Sample

x 100

Spike Conc. Added

Relative % Difference:

Conc. of M.S. - Conc. of M.S.D.

x 100

(Conc. of M.S. + Conc. of M.S.D.) / 2

9100918.WOO <7>

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

Client Project ID: #8910274A-ENV1
Sample Descript: Water, MW-4
Analysis Method: EPA 8270
Lab Number: 910-0918 A

Sampled: Oct 4, 1989
Received: Oct 4, 1989
Extracted: Oct 11, 1989
Analyzed: Oct 19, 1989
Reported: Oct 25, 1989

#### SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit pg/L		Sample Results µg/L
Acenaphthene	2.0	>==>=#################################	N.D.
Acenaphthylene	2.0	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
Aniline	2.0	.,	N.D.
Anthracene	2.0		N.D.
Benzidine	50.0	***************************************	N.D.
Benzoic Acid	10.0	**********	N.D.
Benzo(a)anthracene	2.0		N.D.
Benzo(b)fluoranthene	2.0	******************************	N.D.
Benzo(k)fluoranthene	2.0	***************************************	N.D.
Benzo(g,h,i)perylene	2.0		N.D.
Benzo(a) pyrene	2.0		N.D.
Benzyl alcohol	2.0	***************************************	N.D.
Bis(2-chloroethoxy) methane	2.0		N.D.
Bis(2-chloroethyl)ether	2.0	***************************************	N.D.
Bis(2-chloroisopropyl)ether	2.0	***************************************	N.D.
Bis(2-ethylhexyl)phthalate	10.0	***************************************	N.D.
4-Bromophenyl phenyl ether	2.0	**************************	N.D.
Butyl benzyl phthalate	2.0	*************	N.D.
4-Chloroaniline	2.0	***************************************	N.D.
2-Chloronaphthalene	2.0	***************************************	N.D.
4-Chloro-3-methylphenol	2.0	*****************	N.D.
2-Chlorophenol	2.0	**********	N.D.
4-Chlorophenyl phenyl ether	2.0	***************************************	N.Đ.
Chrysene	2.0	***************************************	N.D.
Dibenz(a,h)anthracene	2.0	**************************************	N.D.
Dibenzofuran	2.0		N.D.
Di-N-butyl phthalate	10.0		N.D.
1,3-Dichlorobenzene	2.0		N.D.
1,4-Dichlorobenzene	2.0	************	N.D.
1,2-Dichlorobenzene	2.0	4004000000000000000000000000000000000	N.D.
3.3-Dichlorobenzidine	10.0		N.D.
2,4-Dichlorophenol	2.0	144142484414422222222222222222222222222	N.D.
Diethyl phthalate	2.0		N.D.
2,4-Dimethylphenol	2.0	*************************	N.D.
Dimethyl phthalate	2.0	***************************************	N.D.
4,6-Dinitro-2-methylphenol	10.0	****************************	N.D.
2,4-Dinitrophenol	10.0	***************************************	N.D.

Client Project ID: Sample Descript: Analysis Method: Lab Number:

#8910274A-ENV1 Water, MW-4 EPA 8270 910-0918 A Sampled: Oct 4, 1989
Received: Oct 4, 1989
Extracted: Oct 11, 1989
Analyzed: Oct 19, 1989
Reported: Oct 25, 1989

### SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte		Detection Limit µg/L		Sample Results µg/L
2,4-Dinitro	toluene	2.0	70720 <del>70</del> 0000000000000000000000000000000	N.D.
2,6-Dinitro	toluene	2.0	***************************************	N.D.
Di-N-octyl	phthalate	2.0	*****************************	N.D.
Fluoranthe	me	2.0	101010004000004104101101101101101101101	N.D.
Fluorene	24b2162147244714471447144744444444444444444	2.0	*******************************	N.D.
Hexachio	obenzene	2.0	***************************************	N.D.
Hexachlor	obutadiene	2.0	***********	N.D.
Hexachio	ocyclopentadiene	2.0	***************************************	N,Ð.
Hexachio	oethane	2.0	*********************************	N.D.
Indeno(1,	2,3-cd)pyrene	2.0	***************************************	N.D.
Isophorori	<b>e</b>	2.0	***************************************	N.D.
	aphthalene	2.0	***************	N.D.
2-Methylp	henol	2.0	************	N.D.
4-Methylp	henol	2.0		N.D.
	ne	2.0	4414404WDVWHOVVVVVVVVVVVVVVVV	N.D.
	ine	10.0	*************************	N.D.
3-Nitroani	ine	10.0	4,000,000,000,000	N.D.
4-Nitroani	ine	10.0	************************	N.D.
Nitrobenz	ene	2.0	*************	N.D.
	anol	2.0		N.D.
4-Nitroph	anol	10.0		N.D.
N-Nitroso	diphenylamine	2.0	***********************	N.D.
	di-N-propylamine	2.0	******************************	N.D.
	rophenol	10.0		N.D.
Phenathre	ne	2.0	***************	N.D.
Phenol	***************************************	2.0	~*******************************	N.D.
		2.0	**************************************	N.D.
1,2,4-Trick	alorobenzene	2.0	<1652000000000000000000000000000000000000	N.D.
	Norophenoi	10.0	************************	N.D.
	norophenol	2.0	7141777774442741000000000000000000000000	N.D.

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

SEQUOIA ANALYTICAL

Vickie Tague ()
Project Manager

Page 2 of 2

9100918.WOO <9>

Woodward-Clyde Consultants 500 12th St., Suite 100 Oaldand, CA 94607-4041 Attention: Lois Gruenberg Client Project ID: #8910274A-ENV1
Sample Descript: Water, MW-3
Analysis Method: EPA 8270
Lab Number: 910-0919 A

Sampled: Oct 4, 1989 Received: Oct 4, 1989 Extracted: Oct 11, 1989 Analyzed: Oct 19, 1989 Reported: Oct 25, 1989

#### SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L		Sample Results µg/L
Acenaphthene	2.0		N.D.
Acenaphthylene	2.0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	N.D.
Aniline	2.0	***************************************	N.D.
Anthracene	2.0	******************************	N.D.
Benzidine	50.0	***************************************	N.D.
Benzoic Acid	10.0		N.D.
Benzo(a)anthracene	2.0	**************************************	N.D.
Benzo(b)fluoranthene	2.0	*****************************	N.D.
Benzo(k)fluoranthene	2.0	***************************************	N.D.
Benzo(g,h,i)perylene	2.0	***************************************	N.D.
Benzo(a) pyrene	2.0	100102120001200100000000000000000000000	N.D.
Benzyl alcohol	2.0	*******************************	N.D.
Bis(2-chloroethoxy)methane	2.0	********	N.D.
Bis(2-chloroethyl)ether	2.0		N.D.
Bis(2-chloroisopropyl)ether	2.0	***************************************	N.D.
Bis(2-ethylhexyl)phthalate	10.0	***********	N.D.
4-Bromophenyl phenyl ether	2.0	***************************************	N.D.
Butyl benzyl phthalate	2.0		N.D.
4-Chloroaniline	2.0	********************************	N.D.
2-Chloronaphthalene	2.0	.4	N.D.
4-Chioro-3-methylphenol	2.0	44444444444444444444444444444	N.D.
2-Chlorophenol	2.0	**************************************	N.D.
4-Chlorophenyl phenyl ether	2.0	***************************************	N.D.
Chrysene	2.0	***********************	N.D.
Dibenz(a,h)anthracene	2.0		N.D.
Dibenzofuran	2.0		N.D.
DI-N-butyl phthalate			N.D.
1,3-Dichlorobenzene		www.www.ww.co.co.co.co.co.co.co.co.co.co.co.co.co.	N.D.
1.4-Dichlorobenzene			N.D.
1,2-Dichlorobenzene			N.D.
3.3-Dichlorobenzidine		***************************************	N.D.
2,4-Dichlorophenol		***************************************	N.D.
Diethyl phthalate	2.0		N.D.
2,4-Dimethylphenol			N.D.
Dimethyl phthalate			N.D.
4,6-Dinitro-2-methylphenol	· -		N.D.
2.4-Dinitrophenol			N.D.



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

Client Project ID: #8910274A-ENV1
Sample Descript: Water, MW-3
Analysis Method: EPA 8270
Lab Number: 910-0919 A

Sampled: Oct 4, 1989
Received: Oct 4, 1989
Extracted: Oct 11, 1989
Analyzed: Oct 19, 1989
Reported: Oct 25, 1989

#### SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L		Sample Results  µg/L
2,4-Dinitrotoluene	2.0		N.D.
2,6-Dinitrotoluene	2.0	************	N.D.
Di-N-octyl phthalate	2.0		N.D.
Fluoranthene	2.0		N.D.
Fluorene	2.0	40106100010010011100100100100000	N.D.
Hexachlorobenzene	2.0		N.D.
Hexachlorobutadiene	2.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	N.D.
Hexachlorocyclopentadiene	2.0	*******************************	N.D.
Hexachloroethane	2.0	444444444444444444	N.D.
Indeno(1,2 3-cd)pyrene	2.0	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
Isophorone	2.0	4444444444444444444444444444	N.D.
2-Methylnaphthalene	2.0	~~~!~~~~~~~~~~~	N.D.
2-Methylphenol	2.0	**************************	N.D.
4-Methylphenol	2.0	***************************************	N.D.
Naphthalene	2.0		N.D.
2-Nitroaniline	10.0	***************************************	N.D.
3-Nitroaniiine	10.0	*10141*26*100101000174*00000000000001	N.D.
4-Nitroaniline	10.0	~ £ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	N.D.
Nitrobenzene	2.0	***************************************	N.D.
2-Nitrophenol	2.0	************************	N.D.
4-Nitrophenol	10.0	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
N-Nitrosodiphenylamine	2.0	+=+++++++++++++++++++++++++++++++++++++	N.D.
N-Nitroso-di-N-propylamine	2.0	***********************************	N.D.
Pentachlorophenol	10.0	***************************************	N.D.
Phenathrene	2.0	41254513017444141444441844100445154	N.D.
Phenol	2.0	420000000000000000000000000000000000000	N.D.
Pyrene	2.0	***************************************	N.D.
1,2,4-Trich orobenzene	2.0	***************************************	N.D.
2,4,5-Trichlorophenol	10.0		N.D.
2,4,6-Trich orophenol	2.0		N.D.

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

SEQUOIA ANALYTICAL

Vickie Tague U Project Manager

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9100918.WOO <11>



Woodward-Clyde Consultants 500 12th St., Suite 100 Oaldand, CA 94607-4041 Attention: Lois Gruenberg

Client Project ID: #8910274A-ENV1 Sample Descript: Water, MW-2 Analysis Method: Lab Number:

**EPA 8270** 910-0920

Oct 4, 1989 Sampled: Oct 4, 1989 Received: Oct 11, 1989 Extracted: Oct 19, 1989 Analyzed: Reported: Oct 25, 1989

### SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L		Sample Results µg/L
Acenaphthene	2.0	-244004700,000000000000000000000000000000	N.D.
Acenaphthylene	2.0	***************************************	N.D.
Aniine	2.0	464844047744444444444444444444444444	N.D.
Anthracene	2.0	=	N.D.
Benzidine	50.0	**********	N.D.
Benzoic Acid	10.0	*************	N.D.
Benzo(a)anthracene	2.0	***************************************	N.D.
Benzo(b)fluoranthene	2.0	***********	N.D.
Benzo(k)fluoranthene	2.0	*********	N.D.
Benzo(g,h,i)perylene	2.0		N.D.
Benzo(a) pyrene	2.0	*************************	N.D.
Benzyl alcohol	2.0	***************************************	N.D.
Bis(2-chloroethoxy)methane	2.0	******************************	N.D.
Bis(2-chloroethyl)ether	2.0		N.D.
Bis(2-chloroisopropyl)ether	2.0	1441441444444444444444444444444444	N.D.
Bis(2-ethylhexyl)phthaiate	10.0	***********	N.D.
4-Bromophenyl phenyl ether	2.0		N.D.
Butyl benzyl phthalate	2.0		N.D.
4-Chioroaniline	2.0	+4020442465205710040064444444444	N.D.
2-Chioronaphthalene	2.0		N.D.
4-Chloro-3-methylphenol	2.0	~~~~~~~	N.D.
2-Chlorophenol	2.0		N.D.
4-Chlorophenyl phenyl ether	2.0	************************************	N.D.
Chrysene	2.0	********************************	N.D.
Dibenz(a,h)anthracene	2.0	***************************************	N.D.
Dibenzofuran	2.0	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
Di-N-butyl phthalate	10.0	************************************	N.D.
1,3-Dichlorobenzene	2.0	******************************	N.D.
1,4-Dichlorobenzene		**********************	N.D.
1,2-Dichiorobenzene		1542240020000000000000000000000000000000	N.D.
3,3-Dichlorobenzidine	10.0	******************************	N.D.
2.4-Dichlorophenol		*************************************	N.D.
Diethyl phthalate	2.0		N.D.
2,4-Dimethylphenol	2.0	400000000000000000000000000000000000000	N.D.
Dimethyl phthalate			N.D.
4,6-Dinitro-2-methylphenol	10.0	***************************************	N.D.
2,4-Dinitrophenol		******************************	N.D.
tol A manage Abritania and control			



### 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: Lois Gruenberg Client Project ID: #8910274A-ENV1
Sample Descript: Water, MW-2
Analysis Method: EPA 8270
Lab Number: 910-0920 A

Sampled: Oct 4, 1989
Received: Oct 4, 1989
Extracted: Oct 11, 1989
Analyzed: Oct 19, 1989
Reported: Oct 25, 1989

#### SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit μg/L		Sample Results  µg/L
2.4-Dinitrotoluene	2.0	*******************************	N.D.
2.6-Dinitrotoluene		****************	N.D.
Di-N-octyl phthalate		**************************	N,D.
Fluoranthene			N.D.
Fluorene		************	N.D.
Hexachlorobenzene		4444444109492444444444A444444	N.D.
Hexachlorobutadiene		***********	N.D.
Hexachiorocyclopentadiene	2.0	++++++++++++++++++++++++++++++++++++++	N.D.
Hexachioroethane	2.0	******************************	N.D.
Indeno(1,2,3-cd)pyrene		39 44000 t 244000 t 33 44200 t 4464 t 4464	N.D.
Isophorone		171462631224222222770004054460446542244	N.D.
2-Methylnaphthalene	2.0		N.D.
2-Methylphenol		*********************	N.D.
4-Methylphenol		*********	N.D.
Naphthalene		**************************	N.D.
2-Nitroaniline		######################################	N.D.
3-Nitroaniline			N.D.
4-Nitroaniline		********************	N.D.
Nitrobenzene			N.D.
2-Nitrophenol		*************	N.D.
4-Nitrophenol			N.D.
N-Nitrosodiphenylamine			N.D.
N-Nitroso-di-N-propylamine		************************	N.D.
Pentachlorophenol		************************	N.D.
Phenathrene		44444444	N.D.
Phenol		***************************************	N.D.
Pyrene		gpqqqqqqq444444444444444444444444444444	N.D.
1.2.4-Trichlorobenzene			N.D.
2.4.5-Trichlorophenol			N.D.
2.4.6-Trichlorophenol		*****************	N.D.

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

SEQUOIÀ ANALYTICAL

Vickie Tague Project Manager

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Woodward-Clyde Consultants 500 12th St., Suite 100 Oakland, CA 94607-4041 Attention: Lols Gruenberg Client Project ID: #8910274A-ENV1
Sample Descript: Water, MW-1
Analysis Method: EPA 8270
Lab Number: 910-0921 A

Sampled: Oct 4, 1989
Received: Oct 4, 1989
Extracted: Oct 11, 1989
Analyzed: Oct 19, 1989
Reported: Oct 25, 1989

### SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L		Sample Results µg/L
Acenaphthene	2.0	184059774444444444444444444444444444	N.D.
Acenaphthylene	2.0	***************************************	N.D.
Aniine	2.0	444400000000000000000000000000000000000	N.D.
Anthracene	2.0		N.D.
Benzidine	50.0	***************************************	N.D.
Benzoic Acid	10.0	***************************************	N.D.
Benzo(a)anthracene	2.0	***************************************	N.D.
Benzo(b)fluoranthene	2.0	***************************************	N.D.
Benzo(k)fluoranthene	2.0		N.D.
Benzo(g,h,i)peryiene	2.0	***************************************	N.D.
Benzo(a)pyrene	2.0	**************************************	N.D.
Benzyl alcohol	2.0		N.D.
Bis(2-chloroethoxy) methane	2.0	******************************	N.D.
Bis(2-chloroethyl)ether	2.0	*************	N.D.
Bis(2-chloroisopropyi)ether	2.0	***************************************	N.D.
Bis(2-ethylhexyl)phthalate	10.0	IDIOUGO: 000000000000000000000000000000000000	N.D.
4-Bromophenyl phenyl ether	2.0		N.D.
Butyl benzyl phthalate	2.0	44646444444444444444444444444444	N.D.
4-Chloroaniline	2.0	•402204•4•4•4•4	N.D.
2-Chloronaphthalene	2.0	*********	N.D.
4-Chloro-3-methylphenol	2.0	•••••	N.D.
2-Chiorophenol	2.0	*******************************	N.D.
4-Chlorophenyl phenyl ether	2.0	***************************************	N.D.
Chrysene	2.0		N.D.
Dibenz(a,h)anthracene	2.0		N.D.
Dibenzofuran	2.0		N.D.
Di-N-butyl phthalate	10.0		ĨN.D.
1,3-Dichlorobenzene			N.D.
1,4-Dichiorobenzene		************************	N.D.
1,2-Dichlorobenzene	7.2		N.D.
3,3-Dichlorobenzidine			N.D.
	= =		N.D.
2,4-Dichlorophenol	2.0		N.D.
Diethyl phthalate	<u> </u>	***************************************	N.D.
2,4-Dimethylphenol	7.7		N.D.
Dimethyl phthalate		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
4,6-Dinitro-2-methylphenol		*******************************	N.D.
2,4-Dinitrophenol	10.0		. 1



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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: Lois Gruenberg Client Project ID: Sample Descript: Analysis Method: Lab Number:

#8910274A-ENV1 Water, MW-1 EPA 8270 910-0921 A Sampled: Oct 4, 1989
Received: Oct 4, 1989
Extracted: Oct 11, 1989
Analyzed: Oct 19, 1989
Reported: Oct 25, 1989

### SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte		Detection Limit µg/L		Sample Results  µg/L
o a Dinitrotol	uene	2.0	***************************************	N.D. N.D.
2,4-Director	uene	2.0	************************	N.D.
2,0-01111100	thalate	2.0		N.D.
DI-N-Octyl Pi	B	2.0	****************************	N.D.
Huoramnem		2.0	*************************	N.D.
Fluorene	penzene	2.0		N.D.
Hexachlorod	Senzene	2.0	{#40+£0-14-6#4405#44+++55#7+0+66444+P\$	N.D.
Hexachiorot	outadiene	2.0	4442404414444444444	
Hexachloro	cyclopentadiene	2.0	****************************	N.D.
Hexachioro	thane			N.D.
indeno(1,2,1	-cd)pyrene	0.0	************	N.D.
Isophorone		**************************************		3.4
Della Hymn	phthalene	- 0.0		N.D.
2 Methylpha	PDO:			4.8
2 28 7 PR TOP FOR	DATE:	**************************************	Accessor and particular processors and particular processors and particular p	5.6
Nerthbeles	C. C. C. C. C. C. C. C. C. C. C. C. C. C	40.0	***************************************	N.D.
2 Nitroanilis	•	100	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
2 Nitroanilis	18	10.0	******************************	N.D.
4 Nitrospilit	16			
4-MILIOAI WII	Te		************************	
NELOGETIZE	nol	. 2.0	***************************************	AL D
2-Nitrophei	10l	,. 10.0	*********************	. N.D.
4-Nitropne	101	. 2.0		N.D.
N-Nitrosod	iphenylamine	2.0		. N.D.
N-Nitroso-	Ji-N-propylamine	10.0	######################################	
Pentachior	ophenol	2.0	********************	. N.D.
Phenathre	ne	The second of th	**********************	28
Phenol	***************************************	0.0	*****************	N.D.
Direne				N.D.
4 2 A Trick	lorobenzene		******************	<b>N</b> .D.
2 4 5-Trich	lorophenol			N.D.
2,4,6-Trich	ilorophenol	2.0	***************************************	

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

SEQUOIA ANALYTICAL

Vickie Tague V Project Manager

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Woodward-Clyde Consultants 500 12th St., Suite 100 Oakland, CA 94607-4041 Attention: Lols Gruenberg Client Project ID: Method (units): Analyst(s): QC Sample #: #8910274A-ENV1 EPA 8270 (µg) T. Fowler SBLK100989

Q.C. Sample Dates

Analyzed: Oct 19, 1989 Reported: Oct 25, 1989

### QUALITY CONTROL DATA REPORT

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference
Phenol	N.D.	100	36	36	43	43	18
2-Chlorophenol	N.D.	100	75	75	89	89	17
1,4-Dichloro-	N.D.	50	41	82	37	74	10
benzene N-Nitroso-Di-N- propylamine	N.D.	50	45	90	47	94	4.3
1,2,4-Trichloro- benzene	N.D.	50	38	76	35	70	8.2
4-Chioro- 3-Methylphenol	N.D.	100	76	76	78	78	2.6
Acenaphthene	N.D.	50	44	88	41	82	7.1
4-Nitrophenoi	N.D.	100	39	39	35	35	11
2,4-Dinitro- toluene	N.D.	50	39	78	36	72	8.0
Pentachloro- phenol	N.D.	100	96	96	91	91	5.3
Pyrene	N.D.	50	36	72	35	70	2.8

SEQUOIA ANALYTICAL

Vickie Tague 0
Project Manager

% Recovery:	Conc. of M.S Conc. of Sample Spike Conc. Added	x 100	
Relative % Difference:	Conc. of M.S Conc. of M.S.D. (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100	

9100918.WOO <16>



### SEQUOIA ANALYTICAL

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

Analyst(s):

Woodward-Clyde Consultants 500 12th \$t., Suite 100 Oakland, CA 94607-4041 Attention: Lois Gruenberg Client Project ID: Method (units):

QC Sample #:

#8910274A-ENV1

EPA 8240 (µg/L purged) T. Fowler 910-0920 Q.C. Sample Dates

Analyzed: Oct 17, 1989 Reported: Oct 25, 1989

#### **QUALITY CONTROL DATA REPORT**

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference
1,1-Dichloro- ethene	N.D.	50	41	82	40	80	2.5
Trichloroethene	N.D.	50	47	94	44	88	6.6
Benzene	3.3	50	51	95	49	91	4.3
Toluene	N.D.	50	47	94	44	88	6.6
Chlorobenzene	N.D.	50	50	100	48	96	4.1

Laboratory blank contained the following analytes:

SEQUOIA ANALYTICAL

Vickie Tague Project Manager

None Detected

% Recovery: Conc. of M.S. - Conc. of Sample x 100
Spike Conc. Added

Relative % Difference: Conc. of M.S. - Conc. of M.S.D. x 100
(Conc. of M.S. + Conc. of M.S.D.) / 2

9100918.WOO <7>

PRELIMINARY GEOTECHNICAL EVALUATION

AND ENVIRONMENTAL SITE ASSESSMENT

CITY OF OAKLAND CONSOLIDATED SERVICES CENTER

ALTERNATIVE SITES A AND B

OAKLAND, CALIFORNIA

Prepared for

City of Oakland Office of the City Attorney 505 14th Street Oakland, California 94612 May 13, 1992

Prepared by

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

Engineering & sciences applied to the earth & its environment

May 13, 1992 91C0592A

City of Oakland Office of the City Attorney 505 14th Street Oakland, California 94612

Attention: Donnell Choy, Esq.

Subject:

Preliminary Geotechnical Evaluation and

Environmental Site Assessment, City of Oakland Consolidated Services Center,

Alternative Sites A and B, Oakland, California

Dear Mr. Choy:

We are pleased to present the following Preliminary Geotechnical Evaluation and Environmental Site Assessment of Alternative Sites A and B for Building No. 5 located at Edgewater Drive, Oakland, California. This report presents the results of our site history review, soil and groundwater exploration, and testing, and a discussion of possible remediation of contamination detected at the sites. Based upon previous studies, the report also contains a comparison of environmental and geotechnical conditions at Sites 1, 2, A and B. Mr. Mark Freitas performed the preliminary geotechnical evaluation.

Please call if you have any questions, or if we can provide additional assistance on this project.

Sincerely,

WOODWARD-CLYDE CONSULTANTS

Lois A. Gruenberg

Attachment:

Senior Staff Engineer

Albert P. Ridley, C.E.G.

MAP RIL

Senior Consultant

(05-07-92) COPY of QA91\2105.1(91C0592A)\1

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PRELIMINARY GEOTECHNICAL EVALUATION
AND ENVIRONMENTAL SITE ASSESSMENT
CITY OF OAKLAND CONSOLIDATED SERVICES CENTER
ALTERNATIVE SITES A AND B
OAKLAND, CALIFORNIA

Prepared for

City of Oakland Office of the City Attorney 505 14th Street Oakland, California 94612 May 13, 1992

Prepared by

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

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FIGURE 3	MONITORING WELL LOCATION PLAN
FIGURE 4	FUEL LEAK CASE LOCATION MAP

#### LIST OF APPENDIXES

APPENDIX A	EPA GENERATOR NUMBER
APPENDIX B	LOGS OF EXPLORATORY BORINGS
APPENDIX C	WATER QUALITY DATA
APPENDIX D	LABORATORY ANALYTICAL DATA

**EXECUTIVE SUMMARY** 

#### Soil and Groundwater Conditions

Analytical testing of soil and groundwater from monitoring wells installed at Sites A and B detected petroleum hydrocarbon contamination in soil and groundwater in MW-5, near three underground fuel tanks on the north side of Building No. 5, and in MW-6, near an unused underground fuel tank at the southwest corner of Building No. 5. Groundwater from MW-5 contained concentrations of benzene, ethylbenzene, and xylenes exceeding the California MCL (maximum contaminant level) for drinking water. Groundwater from MW-6 contained a concentration of benzene exceeding the California MCL.

Analysis of the groundwater sample from MW-5 detected concentrations of lead and copper exceeding the Federal MCL. The groundwater sample from MW-6 contained lead, nickel, and copper exceeding the Federal MCL. Groundwater from MW-7 contained nickel and copper exceeding the Federal MCL. Analysis of soil from MW-6 detected total lead at a concentration 10 times the STLC (soluble threshold limit concentration). There is a possibility that the soluble lead concentration may exceed the STLC, requiring disposal of excavated soil as a hazardous waste.

#### Geotechnical Evaluation

The subsurface geotechnical conditions at Sites A, B, 1, and 2 are similar and consist of fill overlying soft, compressible silty clay, known locally as Bay Mud. Exploratory borings drilled at the sites encountered about 10 to 15 feet of fill overlying Bay Mud. The bottom of the Bay Mud was consistently encountered at a depth of approximately 28 to 30 feet below the ground surface.

The proposed equipment building could be supported on driven piles at any of the sites and it is estimated that the piles would be similar in length at each of the sites. It is feasible to support the proposed building on shallow foundations; however, the building would need to be designed to tolerate expected large total and differential settlements.

The ground surface at Site 1 is at a lower grade than Sites 2, A, and B. If Site 1 is developed, it is anticipated that the site grade will be raised by placing fill which will lead to consolidation of the underlying Bay Mud and overall site settlement.

#### Environmental Comparison of Sites 1, 2, A, and B

A previous environmental assessment of Site 1 concluded that it is likely that Site 1 has not been environmentally impacted. However, it would be prudent to perform preconstruction monitoring of groundwater to document site conditions, followed by at least four quarters of monitoring. For this monitoring, the costs are estimated to be about \$50,000.

Low concentrations of petroleum hydrocarbons and volatile organics have been previously detected at Site 2. It is anticipated that groundwater monitoring will need to be initiated and continued for several years at this site. In addition, remediation of soil would likely be required during removal of existing underground fuel lines at this site. The groundwater monitoring (at least 4 quarters) and possible soil remediation costs (assumed 1000 cubic yards contaminated soil) at Site 2 could range from \$350,000 to \$500,000.

Higher concentrations of gasoline and volatile organics, exceeding the California MCL's for drinking water, have been detected in soil and groundwater at Site A near underground fuel tanks and pipes. Concentrations of metals have been detected in groundwater at Site A exceeding the Federal MCL's. It is anticipated that soil and groundwater contamination will require remediation. Assuming about 4,000 cubic yards of contaminated soil would need to be hauled off-site for proper disposal at about \$350 per cubic yard, and about \$20 per cubic yard for import fill, about \$1.4 million might be needed for soil remediation at Site A. Groundwater extraction and treatment might cost about \$450,000. The total cost of groundwater and soil remediation at Site A might cost between \$1.8 and \$2.0 million.

Assuming that the extent of soil and groundwater contamination at Site B is less than at Site A, the remediation costs would be less. Assuming about 2,000 cubic yards of contaminated soil needed to be hauled to a Class I or II Waste Management Facility, the cost would be about \$700,000. Groundwater extraction and treatment might cost about \$300,000. The total cost to remediate soil and groundwater at Site B might be \$1.0 million.

Because of uncertainties in the site conditions, these estimates are for comparison only. Actual remediation costs could be several times greater than estimated.

1.0 INTRODUCTION

In accordance with Amendment No. 2 to the Agreement dated September 4, 1991 between the City of Oakland and Woodward-Clyde Consultants (WCC), we have prepared this geotechnical and environmental study of Alternative Sites A and B. These sites are being considered for a replacement building (Building No. 7) for the existing equipment building (Building No. 5) at the City of Oakland Consolidated Services Center, 7101 Edgewater Drive, Oakland, California, as shown on Figure 1.

Based on the results of our field exploration and chemical laboratory testing, we have evaluated preliminary foundation requirements and evaluated the environmental contamination issues at Sites A and B for development of the proposed Building No. 7. Specifically, this report includes the following information:

- a description of the soil and groundwater conditions encountered in the exploratory borings and monitoring wells drilled at the alternative sites;
- · preliminary foundation requirements for the proposed structure;
- · a list of potential construction impacts;
- · a site historic review;
- a description of site environmental features;
- · soil and groundwater chemical analytical results; and
- an environmental comparison of the four (4) Alternative Sites 1, 2, A and B.

#### 1.1 PROJECT BACKGROUND

Building No. 5 has experienced extensive settlement and distress. WCC previously studied the settlement problem and the results and conclusions of this study were presented in a report entitled "Geotechnical Engineering Study, Equipment Building, Consolidated Services Center, Oakland, California," dated March 25, 1988. It is our understanding that the City will demolish Building No. 5 and replace it with a new structure to be located at one of the Alternative Sites 1, 2, A or B, (Figure 2). Alternative Sites A and B are located in the vicinity of the existing Building No. 5, southeast of Alternative Sites 1 and 2.

WCC conducted a preliminary environmental site assessment for Alternative Sites 1 and 2 and the results were presented in a report entitled "Environmental Site Assessment, Oakland Building No. 7, 7101 Edgewater Drive, Oakland, California," dated December 13, 1989. WCC also conducted a preliminary geotechnical evaluation of Alternative Sites 1 and 2 and the results were presented in a report entitled "Preliminary Geotechnical Evaluation, Proposed Equipment Building 7 Sites, Edgewater Road, Oakland, California," dated October 11, 1989.

#### 1.2 SCOPE OF WORK

The following tasks are included in this report: Task 1, Preliminary Geotechnical Evaluation; and Task 2, Environmental Assessment. The Preliminary Geotechnical Evaluation (Section 4.0) is to provide predesign information for evaluation of the proposed replacement Building No. 7 at Alternative Sites A and B, including preliminary remediation construction cost estimates. Specifically, the Task 1 includes the following:

- 1) a description of soil and groundwater conditions expected at the alternative sites;
- 2) preliminary foundation requirements for the proposed structures including preliminary pile design lengths and capacities; and
- 3) construction considerations or impacts.

The Environmental Assessment is to provide an evaluation of the potential for soil or groundwater contamination at Alternative Site A and B, and to assist in site selection. The following Subtasks are included:

Subtask 1) Update Site History Review (Section 2.0) -

Review available City, County, State and Federal information for spills or leaks in the site vicinity and known toxic cases, site activities involving storage, handling or releases of hazardous materials at Alternative Sites A and B.

Subtask 2) Site Reconnaissance (Section 2.0) -

Observe the existing surface conditions and current activities on Alternative Sites A and B, including interviews with facility employees and research of permits for storage of hazardous waste.

Subtask 3) Field Investigation (Section 3.0) -

Install and sample three (3) borings converted to groundwater monitoring wells;

Subtask 4) Laboratory Analyses (Section 5.0) -

Perform soil and groundwater analyses for total petroleum hydrocarbons (TPH) as gas with benzene, toluene, ethylbenzene, and xylenes (BTEX), Oil & Grease, volatile and semi-volatile organics, poly-chlorinated biphenyls (PCBs), and priority pollutant metals.

Subtask 5) Analysis and Report -

Review the results of Task 1 and present the combined environmental and geotechnical site conditions for Alternative Sites A and B; and provide the relative geotechnical suitability of these sites for the planned building, and the results of the environmental assessment for Alternative Sites A and B.

The conclusions of the environmental and geotechnical evaluation are discussed in Section 6.0. The conclusion include an environmental comparison of the Alternative Sites 1, 2, A and B. The recommendations are presented in Section 7.0, and include a discussion of possible additional site exploration. Recommendations for remediation activities include methods, possible extent and estimated potential costs.

2.0 SITE HISTORY

#### 2.1 SITE DESCRIPTION

The City of Oakland Consolidated Services Center located at 7101 Edgewater Drive, is zoned as light industrial/commercial. The Consolidated Services Center is surrounded by the Damon Slough on the north; an undeveloped parcel (Alternative Site 1) and Grand Auto on the east; the San Leandro Bay on the west; and light industrial/commercial properties on the south. The Consolidated Services Center consists of offices, including the Public Works Building, and warehouse structures, including Building No. 5 (Figure 3), located on approximately 17 acres. Areas not occupied by buildings are paved, except for the undeveloped parcel located northeast of the Consolidated Services Center, Alternative Site 1. The City of Oakland leases this property from the Port of Oakland.

#### 2.2 UPDATED RECORDS REVIEW

#### 2.2.1 Aerial Photographic Review

Aerial photographs of the Site taken in 1969, 1970, 1971 and 1988 were reviewed in the environmental site assessment for the Alternative sites 1 and 2 dated December 13, 1989. These photos showed the progressive development of the Consolidated Services Center. To update this review, aerial photographs taken in 1971, 1973, 1983 and 1990 were reviewed.

In the 1971 photograph the Consolidated Services Center was shown in the development stages. All buildings currently at the facility exist in this photo, but the facility is not yet paved. Building No. 5 is shown as under construction. The Grand Auto building exists on the south border of the undeveloped parcel (Alternative Site 1). The 1973 photo shows that the facility is paved, and the pump island has been installed southwest of Building No. 5. In the 1983 photo no significant changes are shown. However, there is a darker area, possibly staining, near the southwest corner of Building No. 5 at the location of the wash drain. The 1990 photograph also shows staining near the wash drain area.

#### 2.2.2 Agency Review

Federal, State and City regulatory listing of fuel and toxic waste sites were reviewed to identify site contamination cases within an approximate 2,000-foot radius of the site (Figure 4).

#### 2.2.2.1 Federal Agencies

The United States Environmental Protection Agency's (EPA) "National Priorities List, Final and Proposed Sites", February 11, 1991 update, was reviewed. No toxic waste sites were identified on the NPL list within an approximate 2,000-foot radius of the 7101 Edgewater Drive site.

The Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), July 29, 1991, Site/Event List was reviewed to update the February 1989 CERCLIS. These listings were reviewed to assess if surrounding properties contain hazardous waste, or if toxic substance activities in the area may impact the site.

Potential uncontrolled hazardous waste sites are contained in the EPA CERCLIS database. The CERCLIS system contains only those potential hazardous waste sites that have been brought to the attention of the EPA. The EPS CERCLIS database for July 1991 lists one (1) site within an approximate 2,000-foot radius of the site.

Type DS1 CAD983585548 Oakport Development Site

South of Oakport Street between Hassler Way
Oakland, CA 94621

This facility is also listed on the Alameda County Fuel Leak Case List, as shown in Section 2.2.2.2 and on Figure 4.

The facilities listed in the EPA Hazardous Waste Data Management System (HWDMS) database are regulated under the Resources Conservation and Recovery Act (RCRA) of 1976. The HWDMS database contains only those facilities regulated under RCRA that have notified EPA as hazardous waste generators, transporters (Trans) or treatment/storage/disposal

facilities (TSDF). The HWDMS database identifies sites which generate toxic wastes by type. Type 1 indicates that at least 1000 kg/month of non-acutely hazardous waste is generated (or 1 kg/month acutely hazardous waste); likewise, Type 2, 100 kg/mo but less than 1000 kg/mo non-acutely hazardous waste generated; and Type 3, less than 100 kg/month of non-acutely hazardous waste generated. The EPA HWDMS database for September 18, 1991 lists the following case sites within an approximate 2,000-foot radius of the site.

Type 2*	CAD981379902
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ACS Asbestos Management

7303 Edgewater Drive Oakland, CA 94621

Type 1 CAD980895205

PAC Bell

7300 Edgewater Drive Oakland, CA 94621

Type 2 CAD981970247

Glidden Company

5800 Coliseum Way Oakland, CA 94621

Type 3 CAD981652365

Grand Auto, Inc.

7200 Edgewater Drive Oakland, CA 94621

Type 2 CAD981370158

Novacor Medical Corp.

7799 Pardee Lane
Oakland, CA 94621

Type 3 CAD981424609

City of Oakland

7101 Edgewater Drive Oakland, CA 94621

Trans CAD009238981

System 99

8201 Edgewater Drive Oakland, CA 94621

Type 3 CA099958761

TAB Label Co.

7305 Edgewater Drive, Suite F
Oakland, CA 94621

\*(was listed as a Type 3 generator in 1989 list)

#### 2.2.2.2 State Agencies

The California Office of Planning and Research's "Hazardous Waste and Substances Site List", revised June 1989 (November 1990, update) lists the following sites:

City of Oakland 7101 Edgewater Drive Oakland, CA 94621 Problem: Tank Leak

Hooton Property
7301-F Edgewater Drive
Oakland, CA 94621
Problem: Tank Leak

Malibu Grand Prix 8000 S. Coliseum Way Oakland, CA 94621 Problem: Tank Leak

McGuire & Hester 796-66th Avenue Oakland, CA 94621 Problem: Tank Leak

The Hooton Property site is also listed on the fuel leak list of the regional Water Quality Control Board (RWQCB) for September 1, 1989 and the City of Oakland Fire Department underground storage tank activity permit files.

The California Department of Health Services (DHS) "Expenditure Plan for Hazardous Substances Cleanup Bond Act of 1984", Revision 4, January 1989 lists identified toxic waste sites for priority cleanup. No sites within an approximately 2000-foot radius are listed on the January 10, 1990 update.

The RWQCB Toxic Case List, dated September 18, 1991, and the Fuel Leak Case List, dated September 12, 1991 were reviewed for Alameda County. No toxics cases were found within a 2,000-foot radius of the site. However, five fuel leak cases were listed by RWQCB within an approximate 2,000-foot radius of the site.

McGuire & Hester 796-66th Avenue Oakland, CA 94621

Port of Oakland (UST permit list) 7101 Edgewater Drive Oakland, CA 94621

Hooton Property 7301-F Edgewater Drive Oakland, CA 94621

Malibu Grand Prix 8000 S. Coliseum Way Oakland, CA 94621

City of Oakland 7101 Edgewater Drive Oakland, CA 94621

#### 2.2.2.3 Local Agencies

Records were received from the City of Oakland Department of Fire Prevention for the years 1974-1989. The records of the years from 1920-1973 are no longer available. These records list the sites in which permits were issued for underground storage tank (UST) activity.

The following sites, within an approximately 2,000 foot radius of the site, were identified:

Date	Permit#	Address	Description
07/26/74	7868	7101 Edgewater Drive	Vapor recovery system
01/24/75	8018	7101 Edgewater Drive	Extend fuel lines
04/22/75	8058	7101 Edgewater Drive	Extend gas, diesel lines
09/16/78	8093	513 Independent Road	Install 1-5,000-gal. tank
12/04/75	8114	7101 Edgewater Drive	Repair fuel tank
10/03/78	8302	7200 Edgewater Drive	Install 1-10,000-gal. tank
05/31/79	8364	7200 Edgewater Drive	Install 1-10,000-gal. tank and 1-1,000-gal. waste oil
06/27/79	8370	7303 Edgewater Drive	Install 1-3,000-gal. tank
07/24/80	8464	8001 Oakport Street	Install 1-10,000-gal. tank
09/23/80	8473	7101 Edgewater Drive	Remove 1-8,000-gal. tank. Install 1-12,000-gal. tanks
02/07/84	8634	7101 Edgewater Drive	Install 2-20,000-gal., 1-12,000-gal. tanks
05/03/84	8649	7101 Edgewater Drive	Install 2-20,000-gal., 1-12,000-gal. tanks
12/17/86	8845	796-66th Avenue	Remove 1-1,000-, 1-5,000-, and 1-8,000-gal. tanks

Date	Permit#	Address	Description
07/01/87	9005	7200 Edgewater Drive	Remove 1-500-, 1-1,000-gal. tanks
11/19/87	9039	7200 Edgewater Drive	Remove 1-1,000-gal. tank
07/08/88	9130	7307-F Edgewater Drive	Remove 1-3,000-gal. tank
08/10/88	9140	575 Independent Road	Remove 2-500-gal. tanks
11/23/88	9180	845 66th Avenue	Repair
03/14/89	9222	7101 Edgewater Drive	Install 2-1,000 gal. tanks
06/13/89	9257	8501 Pardee Dr.	Remove 1-550 gal. tank
07/12/89	9268	845 66th Avenue	Install & remove 2-10,000 gal. tanks, 1-280 gal. tank
01/31/90	9345	8000 S. Coliseum Way	Remove 1-6,000 gal. tank
02/14/90	9352	7801 Oakport Street	Remove 1-3,000 gal. tank
06/05/90	9396	727 66th Avenue	Remove 1-1,000 gal. tank
06/13/90	9405	5601 Oakport	Install 2-1,000 gal. above ground tanks
09/04/90	9447	8000 S. Coliseum Way	Install 1-1,000 gal. above ground tanks
09/05/90	9450	814 69th Avenue	Remove 1-500 gal. tank
07/31/91	9471	701 66th Avenue	Remove 1-1,000 gal. tank

#### 2.3 SITE RECONNAISSANCE

Building No. 5 was constructed in 1971 and is approximately 49,000 square feet, as shown on Figure 3. Its primary use is for City vehicle repair and maintenance, including police cars, fire engines, construction equipment, small equipment, and many other types and sizes of machines and engines. The facility houses a paint and body shop, a welding shop, three (3) lube bays, a tire shop, a radio repair shop, a parts and supplies storage area, and office space.

The storage area is used for product storage and distribution of antifreeze, oils and lubricants, parts, and aerosols. Antifreeze is purchased in bulk and transferred to one-gallon containers at this facility. The lube bays are used as repositories of lubrication and other used oils from vehicle maintenance activities. Two (2) of the lube and waste oil repositories are located along the south wall, and are plumbed directly to the waste oil and lube tanks located on the outside of the south wall. One (1) is located near the northwest entrance. The above-ground tanks are pumped monthly to remove accumulated lubrication and waste oil. A copy of the EPA form 8700-12A Acknowledgement of Notification of Hazardous Waste Activity includes the generator ID number, and is presented in Appendix A.

Several underground storage tanks (USTs) are located around the perimeter of Building No. 5 (Figure 3). Two (2) 20,000-gallon and one (1) 5,000-gallon single-walled, fiberglass gasoline storage tanks were installed in 1986, and are operational. One of the 20,000-gallon tanks contains diesel fuel and the other two contain unleaded gasoline. Two (2) 1,000-gallon lube oil and two (2) 500-gallon waste oil tanks were abandoned in 1989, and replaced with the aforementioned above-ground tanks. A 12,000-gallon underground unleaded gasoline tank is located south of the southwest corner of Building No. 5. According to a City employee, this tank is not operational, although it is plumbed to the pump island located approximately 200 feet to the northwest. It was also reported that this tank still contains an unknown quantity of unleaded gasoline. An abandoned pressurized pipeline system is plumbed to the pump island located near the southwest corner of Building No. 5. The pipeline system remains within the subsurface along the western border of the property and in the northwest parking lot, as shown in Figure 3.

#### 2.4 SUMMARY OF PREVIOUS INVESTIGATION

WCC previously conducted an environmental assessment for Alternative Sites 1 and 2 (WCC 1989). Four monitoring wells were installed in borings drilled at Sites 1 and 2. During the field investigation fill material, generally consisting of sandy silts and clays, were encountered in each of the four monitoring well borings. On Alternative Site 2, borings MW-1 and MW-2 were located in the parking lots of the Public Works Building and encountered gravels and organic material. Monitoring well MW-1 is located within the area of the abandoned underground gas lines. Monitoring wells MW-3 and MW-4 are located on Alternative Site 1 (Figure 3).

During drilling, groundwater was encountered at a depth of approximately six feet beneath the ground surface in borings for monitoring wells MW-1 and MW-4. In borings for MW-2 and MW-3, groundwater was encountered at a depth of approximately 7 to 7½ feet beneath the ground surface.

The following contaminants were detected in the soil samples taken in monitoring well boring MW-1 at a depth of 5 to 6½ feet:

- Benzene
- Toluene
- Ethylbenzene
- Xylenes
- 2-Methylnapthalene
- Napthene
- · Phenol

Low to medium boiling point hydrocarbons were detected in soil at each monitoring well boring location. Low to medium boiling point hydrocarbons were detected at 6.4 parts per million (ppm) in soil at 6 to 7½ feet in MW-3, and 2.5 ppm in soil at 6 to 7½ feet in MW-4.

The following contaminants were detected in groundwater sampled from MW-1:

- Benzene
- Toluene
- Ethylbenzene
- Xylenes
- 2-Methylnapthalene
- 4-Methylnapthalene
- Napthene
- Phenol
- Low/Medium boiling point hydrocarbons

In addition, benzene was detected in MW-2 and acetone and carbon disulfide in MW-3. It is believed that the acetone and carbon disulfide detected were laboratory contaminants.

Laboratory analysis of groundwater samples from monitoring wells MW-1 and MW-2 indicated that groundwater at Alternative Site 2 was contaminated with volatile organic compounds. Analysis of soils samples from MW-1 showed detection of volatile organic compounds usually associated with petroleum products. The probable source of this contamination is the fuel lines extending throughout the Consolidated Services Center.

Laboratory analysis of groundwater samples from monitoring well MW-3 and MW-4 showed no detection of volatile organics or purgeable organic contaminants or petroleum hydrocarbons. The low concentrations of petroleum hydrocarbons in soil from MW-3 and MW-4 were below leaking underground storage tank (LUFT) program general guidelines. Under these current guidelines, it is unlikely that remediation of soil or groundwater would be required.

3.0 FIELD EXPLORATION

#### 3.1 GEOLOGIC SETTING

The site is located on an area of man-made fill overlying silty soft, compressible, holoceneage clay, locally known as Bay Mud. The Bay Mud deposits are underlain by alluvial and older bay deposits consisting of silty clay to clean sands. Bedrock is estimated to be over 800 feet below the ground surface.

Topographic maps show a gentle southwesterly slope (U.S. Geologic Survey, San Leandro Quadrangle and Oakland East Quadrangle, 7.5 minute series). In general, it is expected that the local groundwater gradient and flow direction is west, towards the Bay. However, due to the close proximity of the site to the Bay, it is possible that the local groundwater flow and elevation are influenced by tidal activity, as well.

#### 3.2 SOIL BORINGS AND SAMPLING

On December 5, 1991, WCC retained Aqua Science Engineers, Inc. to drill three soil borings and convert each to a groundwater monitoring well. The locations of these monitoring wells are shown in Figures 2 and 3. Monitoring Well MW-5 was installed north of the building about 20 feet east of three fiberglass underground storage tanks (two at 20,000 gallons and one at 5,000 gallons) for gasoline. Monitoring Well MW-6 was installed southwest of the building near gas pumps and about 60 feet downgradient from a 12,000 gallon fiberglass underground storage tank for fuel. Monitoring Well MW-7 was also installed south of the building, about 60 feet downgradient from two abandoned waste oil tanks (one 500 gallons, one 1000 gallons) at the southeast corner of the building. These tanks are about 10 feet deep, and were placed on a base of crushed rock and backfilled with soil.

The monitoring well borings were drilled to a maximum depth of 15 feet below grade. A log of each boring was prepared by a WCC engineer and is included in Appendix A. The boring logs contain descriptions of the materials encountered in each boring, well construction details, and field measurements of potential contaminants.

Groundwater Protection Ordinance Permit No. 91656 was obtained by WCC for monitoring well installation from the Alameda County Water Conservation and Flood Control District Zone 7. A copy of the permit is provided in Appendix B.

The monitoring well borings were completed in accordance with WCC and Alameda County Water Conservation and Flood Control District - Zone 7 specifications. The monitoring well borings were drilled with a truck-mounted drill rig, equipped with 8-inch outside diameter (O.D.), hollow-stem, continuous flight augers. Wells were constructed and soil samples collected under the direction of a WCC engineer. Samples were collected by advancing a 2-inch O.D. modified California sampler through the hollow stem of the augers. The sampler was driven 18 inches, using an 140 pound hammer with a 30-inch drop. The number of blows required to drive the sampler through each 6-inch portion of the 18-inch interval is shown on the boring logs in Appendix B.

The soil samples were retained in 6-inch long, 2-inch diameter brass liners contained within the sampler. One six-inch liner from the drive sampler was examined by the WCC engineer and the soil was visually classified using the Unified Soil Classification System. As one soil sample was being classified, another was placed inside of a plastic baggie where the headspace was analyzed using a calibrated photoionization detector. Of the three samples taken in each of the three borings, no organic vapors were detected. One sample taken near the top of the water table was analyzed for each boring.

To reduce the potential of cross-contamination, the drive sampler was decontaminated between sampling intervals in the following manner:

- 1) Alconox wash
- 2) tap water rinse
- 3) distilled water rinse

New and decontaminated brass liners and caps were used for each sample. To reduce the potential for cross-contamination between borings, separate sets of augers were used for each drilling location. All augers were steam cleaned by Aqua Science Engineers prior to being brought to the site. Drilling and sampling equipment was steam-cleaned on-site at the end of the day. Steam cleaning fluids, decontamination water and soil cuttings were collected in

4.0

#### PRELIMINARY GEOTECHNICAL EVALUATION

#### 4.1 SUBSURFACE CONDITIONS

The following interpretation of subsurface conditions is based on a review of the site history, subsurface data, boring logs and laboratory test results from the March 1988 Geotechnical Engineering Study conducted by WCC and the monitoring well borings drilled for the current environmental assessment. Actual subsurface conditions may vary from those described herein, particularly away from the locations of exploratory borings.

The existing equipment building site as well as the entire Consolidated Services Center was developed by filling and reclaiming the lowlands along San Francisco Bay in 1969 and 1970. Prior to development of the site a dike extended through the western portion of the Service Center Complex site protecting the onshore lowland area from the Bay. The location of this dike was evaluated in our 1988 study and is expected to traverse the western portion of Sites A and B.

Subsurface conditions at Alternative Sites A and B are expected to be similar. The borings drilled for the 1988 study in and around the existing equipment building encountered a 10-to 15-foot thick layer of heterogeneous fill that was predominated by clayey gravel and gravelly clays. The composition and consistency of the fill varied widely. It ranged from soft, highly plastic clays to dense clayey gravel and contained minor amounts of rock fragments, rubble, and debris.

Soft to medium stiff, highly plastic silty clay known locally as Bay Mud was encountered below the fill. The Bay Mud had low to moderate organic content and occasional pockets of peat and was weak and highly compressible. The thickness of the Bay Mud varied from about 15 feet on the east side of the sites, to 20 feet on the west. Below the Bay Mud, extending to the maximum depth explored, 41-1/2 feet, stiff to very stiff silty clay with occasional lenses of medium dense to dense sand was encountered.

Groundwater was encountered at a depth of 10 feet (about elevation 0) during the 1988 study and at a depth of about 7 feet (elevation +3 feet) in the monitoring wells drilled for the current environmental assessment. All elevations in this report are referenced to NGVD of 1929. Groundwater levels at the site are expected to fluctuate with the adjacent tidal levels.

#### 4.2 DISCUSSION

The subsurface conditions at Alternative Sites A and B are similar to and consistent with those encountered at Sites 1 and 2 in the October 1989 Geotechnical Engineering Study by WCC, with the following exceptions. The thickness of fill at Sites A and B varies significantly, mainly due to the pre-1970 dike which traverses these sites. Because of limited subsurface data, it is not known how much the thickness of fill varies at Sites 1 and 2. Much of Site A and a portion of Site B has been preloaded by surcharge fill and through the weight of the existing building. Thus, the compressibility of the Bay Mud underlying Site A should be less than at Sites B, 1 or 2.

The new equipment building could be supported on shallow spread footing foundations or deep foundations consisting of piles. If shallow foundations were used to support a new Equipment Building at Sites A or B, it is estimated that building settlements would vary between about 3 and 7 inches. Footings in the vicinity of the existing Equipment Building would settle significantly less than footings further away from the existing structure. Differential settlement between adjacent columns could be 3 inches or more. This scenario is based on the assumption that the new building would be situated completely to the east of the old dike that traverses the site. If the building spans the dike, differential settlements would be greater.

The estimated total settlement of the proposed Equipment Building if supported on shallow foundations, i.e., spread footings, at Sites 1 or 2 has been estimated to be about 4 inches due to structural loads, plus an additional amount if the site grade were to be raised (infer to the Preliminary Geotechnical Evaluation Report dated October 11, 1989). Differential settlement is expected to be at least half of the total settlement.

Assuming subsurface conditions below a depth of 41-1/2 feet at Sites A and B are similar to conditions below this depth at Sites 1 and 2, a deep foundation of driven piles relying on

skin-friction and/or end bearing could be used to support the proposed structure with minimal settlement.

#### 4.3 RECOMMENDATIONS

In order to reduce the total and differential settlements of the new equipment building, and the chance for architectural and structural distress, it is recommended that at Sites A or B, the proposed Equipment Building be supported on driven pile foundations. The piles should derive support through skin-friction and/or end bearing in the stiff to very stiff soil underlying the Bay Mud, below a depth of about 30 feet (elevation -20 feet). Prestressed, precast concrete piles with a minimum size of 12 inches square are suggested, but not to the exclusion of other pile types. The following allowable skin-friction values are recommended for preliminary design:

	below elevation
Dead load	500 psf
Dead plus live load	750 psf
All loads, including	
wind or seismic	1000 psf

Previous borings at Sites A and B only extended to a depth of about 41 feet. If the conditions below 41 feet are similar to those at Sites 1 and 2, it may not be possible to drive piles through the dense sands encountered in the borings at a depth of about 50 feet (elevation -40 feet) at Sites 1 and 2. Further exploration is necessary to determine the thickness and extent of this layer before its suitability for end-bearing or potential for pile driving refusal can be determined.

Settlement of the planned structure if supported on pile foundations as described herein is estimated to be less than 1/2 inch.

5.0 LABORATORY CHEMICAL ANALYSES

Soil and groundwater samples from monitoring wells MW-5, MW-6 and MW-7 were tested for total petroleum hydrocarbons with benzene, toluene, ethylbenzene, and xylenes, volatile and semivolatile organic compounds, polychlorinated biphenyls (PCBs) and priority pollutant metals. A list of the soil and groundwater samples taken and the analyses performed are provided in Table 1. During groundwater sampling a duplicate sample was taken of MW-5 and labeled MW-10, a trip blank was stored in the cooler along with the groundwater samples and was labeled MW-8, and an equipment blank was taken by passing nitrogen-purged water through a clean Teflon bailer and labeled MW-9. The soil and groundwater analyses were performed by Anametrix, Inc. of San Jose, a State-certified analytical laboratory. The results of the laboratory analyses are discussed in Sections 6.1 and 6.2 and summarized in Tables 2, 3 and 4. Laboratory reports are included in Appendix D.

6.0 RESULTS

### 6.1 FIELD EXPLORATION

The soils encountered were similar in each monitoring well boring. In boring MW-5 and MW-7, clayey silt and sand with interbedded gravels was encountered to approximately 13 to 14 feet below grade, and to approximately 8 feet below grade in boring MW-6. Groundwater was encountered at approximately 7 feet below grade in each boring. The boring logs are included in Appendix B.

As described in Section 3.2, all soil samples were analyzed in the field for organic vapors using a photoionization detector. Organic vapors were not detected in any samples. However, a strong petroleum odor was noted from soils in the 8- to 9½-foot sample of MW-5. An oily sheen was visible on the augers from 5 to 15 feet below ground after they were removed from boring MW-5. During development of monitoring well MW-5 an oily sheen was also observed on the water removed from the well. Sheen was not observed in the soil or water from monitoring wells MW-6 and MW-7.

#### 6.2 SOIL LABORATORY CHEMICAL ANALYSES

Of the volatile organics analyzed for (EPA Method 8240 and BTEX, EPA Method 5030/Modified 8015), elevated concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX) were detected in the soil sample from MW-5 at depth of 8 to 8.5 feet. Benzene and xylene were also detected, but at much lower concentrations, in MW-6 at a depth of 7.5 to 8 feet. No volatile organics were detected in the soil sample from MW-7 at a depth of 7 to 7.5 feet. The semivolatile organic compounds naphthalene and 2-methylnaphthalene were detected in the soil sample from MW-5 and fluoranthene, pyrene, chrysene, benzo(b)fluoranthene, and benzo(a)pyrene were detected in soil sample MW-6. No semivolatile organic compounds were detected in soil sample MW-7. Total petroleum hydrocarbons (TPH) quantified as gasoline were detected in soil sample MW-5, but not in soil sample MW-6 nor MW-7. TPH quantified as diesel was detected in all three soil

samples. The analytical laboratory attributed the detection of TPH as diesel to different substances for each sample, as listed below:

<u>Sample</u>	TPH as diesel (mg/kg)	Attributed to by Analytical Laboratory
MW-5 (8-8½)	280	Lighter petroleum product, possibly gasoline
MW-6 (7½ - 8)	140	Combination of diesel and a heavier petroleum product, possibly motor oil
MW-7 (7 - 7½)	48	Heavier petroleum product, possibly motor oil

Total Oil and Grease was detected in the soil samples from all three well borings, MW-5, MW-6 and MW-7, with the highest concentration detected in MW-6 at 1800 mg/kg. Polychlorinated biphenyls (PCBs) were not detected in either of the three soil samples. Of the priority pollutant metals analyzed for, total arsenic, total chromium, copper, nickel, lead and zinc were detected in the three soil samples and cadmium in soil sample MW-6 only. Total lead was detected in the MW-6 soil sample at 94 mg/kg, greater than 10 times the California Title 22, Soluble Threshold Limit Concentration (STLC) of 5.0 mg/l. It is possible that this soil could be considered a hazardous waste based on soluble lead concentrations if excavated. However, a Waste Extraction Test (WET) would need to be performed to evaluate if this soil would be classified a hazardous waste. The results of the soil laboratory chemical analyses are summarized in Table 2. Laboratory analytical reports are included in Appendix D.

### 6.3 GROUNDWATER LABORATORY CHEMICAL ANALYSES

The volatile organic compounds benzene, toluene, ethylbenzene and xylene (BTEX) and semivolatile organic compounds naphthalene and 2-methylnaphthalene were detected in groundwater sample MW-5. Benzene, toluene, and xylene were detected at much lower levels in groundwater sample MW-6. Semivolatile organic compounds were not detected in the MW-6 groundwater sample. TPH quantified as gas and as diesel were detected in groundwater sample MW-5 at 16,000 µg/L and 1900 µg/L, respectively. TPH as gas and as

diesel were detected in groundwater sample MW-6 at lower levels, 780 µg/L and 520 µg/L, respectively.

TPH as gas and as diesel, and volatile and semivolatile organics were not detected in the groundwater sample from MW-7. Neither total Oil and Grease nor PCBs were detected in groundwater from the three monitoring wells. The results of the groundwater laboratory chemical analyses are summarized in Table 3. Laboratory analytical reports are included in Appendix D.

### 6.4 QA/QC

During groundwater sampling a trip blank was carried in the cooler along with the groundwater samples and an equipment blank was taken by running nitrogen-purged water through a cleaned Teflon bailer. The results of the analyses of these samples are shown in Table 4. No compounds analyzed for were detected in both the trip and equipment blanks. Laboratory analytical reports are included in Appendix D.

7.0

### ENVIRONMENTAL ASSESSMENT CONCLUSIONS AND RECOMMENDATIONS

### 7.1 DISCUSSION

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The records review indicated that the City of Oakland Consolidated Services Center has been listed as a type 3 generator of less than 100 kg/month of non-acutely hazardous waste. The EPA generator number is included in Appendix A as shown on the EPA form 8700-12A, Acknowledgment of Notification of Hazardous Waste Activity. Hazardous waste generated at Building No. 5 is temporarily stored in two above-ground tanks for no longer than 90 days. In addition, a tank leak is reported for the Consolidated Services Center on the Office of Planning and Research, Hazardous Waste and Substances Site List and the RWQCB Fuel Leak Case List. Several tank leaks exist within a 2,000-foot radius of the Site, as shown on Figure 4. Two of the fuel leak cases are reported for the Consolidated Services Center, and were probably related to tank replacements performed prior to 1989, as described in Section 2.2.3.

From site history review and reconnaissance activities, several site features were identified as potential sources of soil and groundwater contamination at the Consolidated Services Center. These features include, but are not limited to, the following: the four (4) sumps for runoff collection from Building No. 5 interior drains; the operational underground fuel storage tank farm located near the northeast corner of Building No. 5; the non-operational underground fuel storage tank and associated pump island located near southwest corner of Building No. 5, and the associated pipeline system located along the western border of the Consolidated Services Center and in the northwest parking lot.

Chemical laboratory analyses of groundwater and soil samples and observations during drilling indicate that there is soil and groundwater contamination in the vicinity of Building No. 5. Petroleum hydrocarbon contamination detected in soil and groundwater samples from MW-5 indicate gasoline, diesel (or possibly weathered gasoline), and BTEX contamination in the vicinity of the tank farm area. The semi-volatile organic compounds detected in soil sample MW-6 are typically formed from the heating of a high-boiling-point petroleum product. This suggests the presence of used motor oil. As indicated by the presence of TPH

as diesel and Oil and Grease detected in soil sample MW-7, soil contamination extends into the parking area south of Building No. 5, though it may dissipate to a large extent.

The semi-volatile organic compounds and Oil and Grease were detected in soil sample MW-6 and not in groundwater sample MW-6. The TPH quantified as diesel in groundwater sample MW-6 is probably in fact weathered gasoline. This indicates a relatively old fuel leaks either from or in the vicinity of the non-operational fuel tank and the pump island. Soil and groundwater contamination from the environmental assessment performed for Alternative Sites 1 and 2 suggests a similar contamination scenario along the pipeline system. As described in Section 2.4, BTEX, polynuclear aromatics and TPH as gasoline were detected in soil and groundwater samples from MW-1. MW-1 is located with in the pipeline system located in the northwest parking lot of the Consolidated Services Center, and is associated with Alternative Site 2.

Regulatory criteria were exceeded in groundwater samples taken during this environmental assessment. Groundwater samples from MW-5 and MW-6 are contaminated with the dissolved fuel components benzene, ethylbenzene, and xylene, as well as lead and copper, at levels greater than federal and California Maximum Contaminant Levels (MCLs) set for drinking water quality. Benzene detected at 1800 µg/L in groundwater sample MW-5, and lead at 1040 µg/L in groundwater sample MW-6, exceed the MCL of 1 µg/L and 50 µg/L respectively, by the widest margin. In groundwater sample MW-6 nickel was also detected slightly over the proposed MCL. Hydrocarbon contamination of groundwater was not detected at MW-7, but levels of nickel and copper did exceed proposed MCLs. Background levels of copper may be high due to the local "hot spot" of copper contamination in San Leandro Bay sediments. The nickel concentration of 270 µg/L in MW-7 is higher than typical background values of 0.5 to 50 µg/L for nickel in seawater. (San Francisco Bay-Delta, 1987)

#### 7.2 RECOMMENDATIONS

Due to the presence of soil and groundwater petroleum and metals contamination within the vicinity of Building No. 5 and potentially along the fuel pipeline system, we recommend further remedial investigation of the potential sources and extent of contamination at the Consolidated Services Center to evaluate possible methods of remediation and costs. Prior to beginning such an investigation the detection of these contaminants in soil and

groundwater should be reported to the Alameda County Department of Environmental Health as a possible unauthorized fuel release. Further remedial investigation at Alternative Sites A and B would probably include the western border of the Consolidated Services Center where the pipeline system exists. The following are tasks that should be considered:

- 1) to evaluate of potential sources of leaks of fuel at the three USTs with at least three soil borings in the vicinity of the three USTs near MW-5;
- 2) one soil boring at each sump pit on the north and south sides of Building No. 5;
- a minimum of two additional, strategically placed, monitoring wells to evaluate the groundwater gradient and the extent of groundwater contamination;
- 4) a soil gas survey to explore the extent of petroleum fuel contamination.

In addition, we recommend that future field activities include verification groundwater monitoring of existing monitoring wells at Alternative Site 1.

We recommend that this report be provided to the City Attorney for guidance. It is likely that the Alameda County Department of Environmental Health will require submittal of a plan to explore the detected petroleum contamination.

8.0

#### ESTIMATED COSTS AND POTENTIAL CONSTRUCTION IMPACTS

Based on the information provided by environmental assessments and geotechnical investigations of the Alternative Sites, the several methods of soil and groundwater remediation were evaluated. For soil remediation, the following methods may be feasible:

- In-Situ Treatment
- · Excavation and Treatment or Disposal

#### 8.1 SOIL REMEDIATION

Methods of in-situ treatment include soil vapor extraction, steam injection and vacuum extraction, and bioremediation. In the event that petroleum contaminated soils are excavated, several treatment/disposal scenarios may be available. On-site aeration and/or bioremediation is a technologically proven method for reducing levels of volatile organic compounds. However, this method is not as effective for Oil and Grease and metals. The current best demonstrated and available technology for lead contaminated soil is stabilization prior to disposal at a Class I or II landfill.

#### 8.2 GROUNDWATER REMEDIATION

For groundwater remediation, extraction and treatment may be the most feasible method. Extraction and treatment involves the withdrawal of groundwater and subsequent treatment to remove or destroy the contaminants before discharge. Groundwater flow and the contaminant plume could be mitigated by the extraction process. This treatment process is selected on the basis of the quantity of water to be treated, the identity and concentrations of contaminants present, and the reduction in concentrations of contaminants to be achieved. After treatment, the water may be disposed either by discharge to surface waters, reinjection into the ground, or discharge to a sewer system (Publicly Owned Treatment Work [POTW]). Discharge to surface waters or reinjection requires a National Pollutant Discharge Elimination System (NPDES) Permit. The RWQCB may set effluent discharge concentrations. Likewise,

a discharge to a POTW requires negotiation with the EBMUD to select the extent of pretreatment required and requires a variance from EBMUD.

Based on what is known to date on the type and concentrations of contaminants in the groundwater, several types of treatment methods may be feasible. In general, volatile organic compounds, polynuclear aromatics and petroleum hydrocarbons can be treated using activated carbon filters and other techniques. However, it is possible that some or all of the extracted groundwater may be discharged directly to a POTW. A more detailed evaluation of site conditions would be needed to evaluate the feasibility and methods of site remediation.

The treatment technologies considered suitable for removal or destruction of volatile organic compounds in groundwater are:

- · Adsorption from the liquid onto Granular Activated Carbon (GAC);
- Ultra Violet (UV) light enhanced chemical oxidation;
- · Air stripping (with or without emission control); and
- · Bioremediation.

A more elaborate and more costly treatment system, involving ion-exchange or other chemical reaction, may be needed to treat groundwater containing elevated concentrations of metals, such as lead, copper, and nickel.

Using similar remediation scenarios at each site, we have estimated the relative cost as a comparison method for the four (4) alternative sites.

#### 8.3 ALTERNATIVE SITES 1 AND 2

Based on the preliminary information provided in the previous environmental assessment of Alternative Sites 1 and 2, it is likely that Alternative Site 1 has not been environmentally impacted. Installation of an additional monitoring well and verification monitoring in accordance with RWQCB regulations for at least four quarters may cost approximately \$50,000.

Soil and groundwater analyses of samples from monitoring wells MW-3 and MW-4 (Alternative Site 2) found volatile organics and TPH as gasoline at low concentrations. If Alternative Site 2 were chosen, it may likely require excavating approximately 1000 cubic yards (cy) of contaminated soils, pipeline removal and continued quarterly groundwater monitoring, in accordance with RWQCB regulations. This estimate assumes that the cost of hauling and disposal at a Class I or Class II waste management unit would be approximately \$350/cy; that importing and placing select fill would be approximately \$20/cy. The estimated cost of remediation at this site is potentially \$350,000 to \$500,000. This cost could be significantly higher a significantly larger volume of gasoline contaminated soil is found adjacent to the lines.

### 8.4 ALTERNATIVE SITES A AND B

The construction of Building No. 7 on either Alternative Site A or B would be impacted by the potential amounts of contaminated soil generated during excavation. Based on the results of the field exploration performed for this report, it is known that potentially extensive soil and groundwater contamination of volatile organic compounds exists on Alternative Site A and potentially to a lesser extent on Alternative Site B.

We estimate that the relative costs of remediation at Alternative Site A would be greater than Alternative Site B, due to the potential extent of contamination at Alternative Site A. If it is assumed that approximately 4,000 cy of contaminated soil were removed during construction, the estimated costs may be approximately \$1.4 million. This estimate assumes that the cost of hauling and disposal at a Class I or Class II waste management unit would be approximately \$350/cy; that importing and placing select fill would be approximately \$20/cy. Groundwater extraction and treatment for Alternative Site A may cost approximately \$450,000. This estimate includes the potential costs of design studies and reports, installation of extraction wells and the treatment system, and operations for two to three years. The cost for a typical treatment system might be about \$150,000 with a cost of about \$1 per gallon to treat about 100,000 gallons per year for three years, or about \$300,000. The total costs of soil and groundwater remediation at Alternative Site A is potentially \$1.8 to \$2.0 million.

The relative cost impact at Alternative Site B is estimated using similar methods of soil and groundwater remediation and the assumption that Alternative Site B has sustained a lesser environmental impact than Alternative Site A. If approximately 2,000 cubic yards of contaminated soil, the cost of hauling and disposal at a Class I or Class II waste management unit would be approximately \$700,000. Groundwater extraction and treatment may potentially cost approximately \$300,000 assuming \$150,000 for a treatment system and \$150,000 for pumping and operations. The total costs of soil and groundwater remediation at Alternative Site B is potentially \$1 million.

Because of uncertainties in the site conditions these estimates are for comparison only. Actual remediation costs could be several times greater than estimated.

9.0 LIMITATIONS

The scope of this investigation is limited by time constraints, expense, and practicality. A limited number of soil samples were taken at locations at the sites in the study area and a limited number of laboratory chemical analyses were performed for those samples. Professional opinions concerning the presence of hazardous substances were developed based on the resulting data. Assumptions were made about the potential extent of contamination at each site. These assumptions were used to provide relative estimates of costs of remediation. The costs are approximate and are intended for planning purposes only. For budgeting purposes, additional studies would be required. It would be prohibitively expensive and time consuming to sample all locations at the sites in the study area and analyze the samples for all substances which are now, or in the future might be considered hazardous. Therefore, WCC cannot be held responsible should the investigation fail to detect the presence or quantity of all hazardous substances at all locations.

The geotechnical evaluation presented in this report is preliminary and should be used for conceptual purposes only, not for budgeting or final design. It is based on assumptions and interpretations of subsurface conditions. A final geotechnical Engineering Study which includes additional field exploration, laboratory testing, and engineering analyses should be conducted prior to development of a final design.

10.0 REFERENCES

#### REFERENCES

- State of California, Leaking Underground Fuel Tank Field Manual, October 1989.
- San Francisco Bay-Delta Aquatic Habitat Institute, 1987. "Toxic Contaminants in the San Francisco Bay-Delta and Their Possible Biological Effects," August 26.
- Woodward-Clyde Consultants (WCC), 1988, Geotechnical Engineering Study, Equipment Building, Consolidated Services Center, Oakland, California," March 25.
- Woodward-Clyde Consultants (WCC), 1989, "Preliminary Geotechnical Evaluation, Proposed Equipment Building 7 Sites, Edgewater Road, Oakland, California," October 11.
- Woodward-Clyde Consultants (WCC), 1989, "Environmental Site Assessment, Oakland Building No. 7, 7101 Edgewater Drive, Oakland, California," December 13.

Table 1. SOIL AND GROUNDWATER ANALYSES 91C0592A - Oakland Building No. 5 January 10, 1992

	SOIL, 12/6/91				GROUN	DWATER, 1			
Analyses	MW-5 (8 - 8.5 ft)	MW-6 (7.5 - 8 ft)	MW-7 (7 - 7.5 ft)	MW-5	MW-5 DUP (MW-10)	MW-6	MW-7	Trip Blank (MW-8)	Equip Blank (MW-9)
TPH as low to med B.P. cmpds (as gas)	x	x	x	×	x	x	x	x	x
TPH as high B.P. cmpds (as diesel)	×	X	×	X		X	×		
BTEX	X	X	×	X	X	X	×	X	
Total Oil and Grease	×	X	X	X		X	X		
EPA Method 8240 - Volatiles	X	X	×	X	X	×	X		
EPA Method 8270 - Semivolatiles	X	X	x	X		, X	X		
EPA Methos 8080 - PCBs	×	X	x	X		, <b>X</b>	×		
Priority Poliutant Metals	X	X	х	X		X	Х	*	
			}						

Table 2. SOIL ANALYTICAL RESULTS 91C0592A - Oakland Building No. 5 January 10, 1992

Parameter	Units	MW-5 (8 - 8,5 feet) 12/5/91	MW-6 (7.5 - 8 feet) 12/5/91	MW-7 (7 - 7.5 feet) 12/5/91	Reporting (MW-5)	Limits (MW-6, MW-7)	CA STLC (e) (mg/L)	CA TTLC (e)
VOLATILE ORGANICS								
EPA Method 8240								
Benzene	mg/kg	2.6	0.02		1.3	0.005	NS	NS
Ethylbenzene	mg/kg	9,3	**		1.3	0.005	NS	NS
Xylene (total)	mg/kg	26	0.006		1,3	0.005	NS	NS
SEMIVOLATILE ORGANICS EPA Method 8270								
Naphthalene	mg/kg	4.2	• -	• •	0,330	0.330	NS	NS
2-Methylnaphthalene	mg/kg	3.7	• •		0.330	0.330	NS	NS
Fluoranthene	mg/kg		0.360	, .	0.330	0.330	NS	NS
Pyrene	mg/kg	• •	0.570		0.330	0.330	NS	NS
Chrysene	mg/kg		0,560	••	0.330	0.330	NS	NS
Benzo(b)fluoranthene	mg/kg	<del>.</del> -	0.660		0.330	0.330	NS	NS
Benzo(a)pyrene	mg/kg	• •	0.420		0.330	0.330	NS	NS
PETROLEUM HYDROCARBONS EPA Method 5030/Mod. 8015	s					·		
Low/Medium B.P. HCs (as gas)	mg/kg	830		• •	500	0.5	NS	NS
EPA Method 3550								
High B.P. HCs (as diesel)	mg/kg	280 (a)	140 (b)	48 (c)	50	10	NS	NS
BTEX								
EPA Method 5030/Mod. 8020								
Benzene	mg/kg	• •	0.030		5	0.005	NS	NS
Toluene	mg/kg	5.1			5	0.005	NS	NS
Ethylbenzene	mg/kg	17	, ••	<del></del>	- 5	0.005	NS	NS
Xylene (total)	mg/kg	37	• •		5	0.005	NS	NS

Table 2. SOIL ANALYTICAL RESULTS (continued) 91C0592A - Oakland Building No. 5 January 10, 1992

Parameter	Units	MW-5 (8 - 8.5 feel) 12/5/91	MW-6 (7.5 - 8 feet) 12/5/91	MW-7 (7 - 7.5 feet) 12/5/91	Reporting (MW-5)	Limits (MW-6, MW-7)	CA STLC (e) (mg/L)	CA TTLC (e)
PCBs					1	•		
EPA Method 8080	mg/kg	• •	• •	• •	0.080, 0.160 (f)	0.080, 0.160 (f)	5.0	50
TOTAL OIL & GREASE								
Standard Method 5520E&F	mg/kg	80	1800	93	30	30	NS	NS
PRIORITY POLLUTANT MET	ALS							
EPA Method 6010/7000								
Arsenic	mg/kg	1,5	2.1	1.4	0.50	0.50	5.0	500
Cadmium	mg/kg	• •	0.29		0.62	0.25,0.62 (d)	1.0	100
Total Chromium	mg/kg	28.1	43.4	30.2	1.2	0.5,1.2 (d)	560	2500
Copper	mg/kg	89.4	26.3	81.5	3.1	1.25, 3.1 (d)	25	2500
Nickel	mg/kg	37.8	43.4	35.9	5.0	2.0, 5.0 (d)	20	2000
Lead	mg/kg	7.9	94.0	7.3	0.75	2.0, 0.75 (d)	5.0	1000
Zinc	mg/kg	92.7	79.5	104	2.5	1.0, 2.5 (d)	250	5000

NS = No standard

<sup>- - =</sup> Not detected at or above reporting limit

<sup>(</sup>a) The concentration reported as diesel for sample MW-5 (8-8.5) is primarily due to the presence of a lighter petroleum product, possibly gasoline.

<sup>(</sup>b) The concentration reported as diesel for sample MW-6 (7.5-8) is due to the presence of a combination of diesel and a heavier petroleum product, possibly motor oil

<sup>(</sup>c) The concentration reported as diesel for sample MW-7 (7-7.5) is primarily due to the presence of a heavier petroleum product, possibly motor oil

<sup>(</sup>d) Reporting limits for Priority Pollutant Metals are shown for MW-6 (7.5-8) followed by MW-7 (7-7.5)

<sup>(</sup>e) California Soluble Threshold Limit Concentrations (STLC) and Total Threshold Limit Concentrations (TTLC) are taken from California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 (May 31, 1991)

<sup>(</sup>f) Two reporting limts were used for the scan of PCB compounds analyzed. Refer to laboratory data sheets.

Table 3. GROUNDWATER ANALYTICAL RESULTS 91C0592A - Oakland Building No. 5
January 10, 1992

		MW-5 Dup				Reporting	Limits		
Parameter	Units	MW-5	(MW-10)	MW-6	MW-7	(MW-5,	(MW-6,	California	Federal
		12/13/91	12/13/91	12/13/91	12/13/91	MW-5 Dup)	MW-7)	MCL (a)	MCL (b)
VOLATILE ORGANICS									
EPA Method 8240									
Benzene	μg/L	1800	1600	95	••	250	5	1	5
Toluene	μg/L		••	5	••	250	5	100 (g)	1000
Ethylbenzene	μg/L	1000	980		• •	250	5	680	700
Xylene (total)	μg/L	3800	3500	• •		250	5	1750	10000
SEMIVOLATILE ORGANICS	i								
EPA Method 8270									
Naphthalene	μg/L	54	NA	• •		11	11	NS	NS
2-Methylnaphthalene	μg/L	16	NA	- •		11	11	NS	NS
PETROLEUM HYDROCARBONS									
EPA Method 5030/Mod. 8015						1			
Low/Medium B.P. HCs (as gas)	μg/L	13000	16000	780		5000/12500 (d)	250/50 (e)	NS	NS
EPA Method 3550									
High B.P. HCs (as diesel)	μg/L	1900 (c)	NA	520		100	50	NS	NS
BTEX									
EPA Method 5030/Mod. 8020	1								
Benzene	μg/L	1500	1400	110		50/125 (d)	2.5/0.5 (e)	1	<b>5</b> (
Toluene	μg/L	190	180	2.7	••	50/125 (d)	2.5/0.5 (e)	NS	1000
Ethylbenzene	μg/L	970	870	••		50/125 (d)	2.5/0.5 (e)	680	700
Xylene (total)	μg/L	2500	2500	5.5		50/125 (d)	2.5/0.5 (e)	1750	10000

Table 3. GROUNDWATER ANALYTICAL RESULTS (continued) 91C0592A - Oakland Building No. 5
January 10, 1992

l l		MW-5 Dup		•	Reporting	Limits		
Units	MW-5 12/13/91	(MW-10) 12/13/91	MW-6 12/13/91	MW-7 12/13/91	(MW-5, MW-5 Dup)	(MW-6, MW-7)	California MCL (c)	Federal MCL (d)
μg/L		NA	• •	<del>.</del> .	0.50, 1.0 (f)	0.50, 1.0 (f)	NS	0.5
μg/L		NA	• •		5	5	NS	NS
LS								
μg/L		NA	14.3		10.0	10.0	50	50**
	22.6	NA	42.2	10.6	10.0	10.0	50	100
	56.2	NA	94.2	35.1	25.0	25.0	NS	1.3*
4		NA	126	270	40.0	40.0	NS	100*
	173	NA	1040	11.4	3.0	40.0, 3.0 (e)	50	5*
· · · · · · · · · · · · · · · · · · ·	201	NA	837	101	20.0	20.0	NS	NS
	μg/L	µg/L  µg/L  µg/L  µg/L 22.6  µg/L 56.2  µg/L  µg/L 173	Units MW-5 (MW-10) 12/13/91 12/13/91  μg/L NA  μg/L NA  μg/L NA  μg/L NA  μg/L 22.6 NA  μg/L 26.2 NA  μg/L NA  μg/L NA  μg/L 76.2 NA  μg/L NA	Units MW-5 (MW-10) MW-6 12/13/91 12/13/91 12/13/91  μg/L NA μg/L NA 14.3 μg/L 22.6 NA 42.2 μg/L 256.2 NA 94.2 μg/L NA 126 μg/L μg/L 173 NA 1040	Units MW-5 (MW-10) MW-6 MW-7 12/13/91 12/13/91 12/13/91 12/13/91  μg/L NA  μg/L NA 14.3 μg/L 22.6 NA 42.2 10.6 μg/L 56.2 NA 94.2 35.1 μg/L NA 126 270 μg/L 173 NA 1040 11.4	Units MW-5 (MW-10) MW-6 MW-7 (MW-5, 12/13/91 12/13/91 12/13/91 12/13/91 MW-5 Dup)  μg/L NA 0.50, 1.0 (f)  μg/L NA 14.3 10.0 μg/L 22.6 NA 42.2 10.6 10.0 μg/L 56.2 NA 94.2 35.1 25.0 μg/L μg/L NA 126 270 40.0 μg/L μg/L 173 NA 1040 11.4 3.0	Units MW-5 (MW-10) MW-6 MW-7 (MW-5, (MW-6, 12/13/91 12/13/91 12/13/91 12/13/91 MW-5 Dup) MW-7)  μg/L NA 5 5  ΔLS  μg/L NA 14.3 10.0 10.0 μg/L 22.6 NA 42.2 10.6 10.0 10.0 μg/L μg/L 56.2 NA 94.2 35.1 25.0 25.0 μg/L μg/L NA 126 270 40.0 40.0 μg/L μg/L 173 NA 1040 11.4 3.0 40.0, 3.0 (e)	Units         MW-5 (MW-10) 12/13/91         MW-6 MW-7 (MW-5, MW-5, MW-7)         (MW-6, MW-7)         California MCL (c)           μg/L          NA           0.50, 1.0 (f)         0.50, 1.0 (f)         NS           μg/L          NA           5         5         NS           LS         μg/L μg/L 22.6 NA 42.2 10.6 10.0 10.0 50 μg/L 56.2 NA 94.2 35.1 25.0 25.0 NS μg/L         NA 126 270 40.0 40.0 NS μg/L 173 NA 1040 11.4 3.0 40.0, 3.0 (e) 50

<sup>-- =</sup> Not detected at or above reporting limit

NA = Not analyzed

NS = No standard

- (a) California Maximum Contaminant Levels (MCLs) from the California Code of Regulations. Title 22, Articles 4 and 5.5, June 21, 1991
- (b) Federal Maximum Contaminant Levels (MCLs) from U.S. EPA Office of Water, "Drinking Water Regulations and Health Advisories", April 1991
- (c) The concentration reported as diesel for sample MW-5 is primarily due to the presence of a lighter petroleum product, possibly gasoline.
- (d) The reporting limits shown are for MW-5 followed by MW-5 Dup.
- (e) The reporting limits shown are for MW-6 followed by MW-7.
- (f) Two reporting limts were used for the scan of PCB compounds analyzed. Refer to laboratory data sheets.
- (g) State of California Department of Toxic Substances Control "Action Level".

<sup>\*</sup> Proposed

<sup>\*\*</sup> Under Review

Table 4. EQUIPMENT AND TRIP BLANK ANALYTICAL RESULTS 91C0592A - Oakland Building No. 5
January 10, 1992

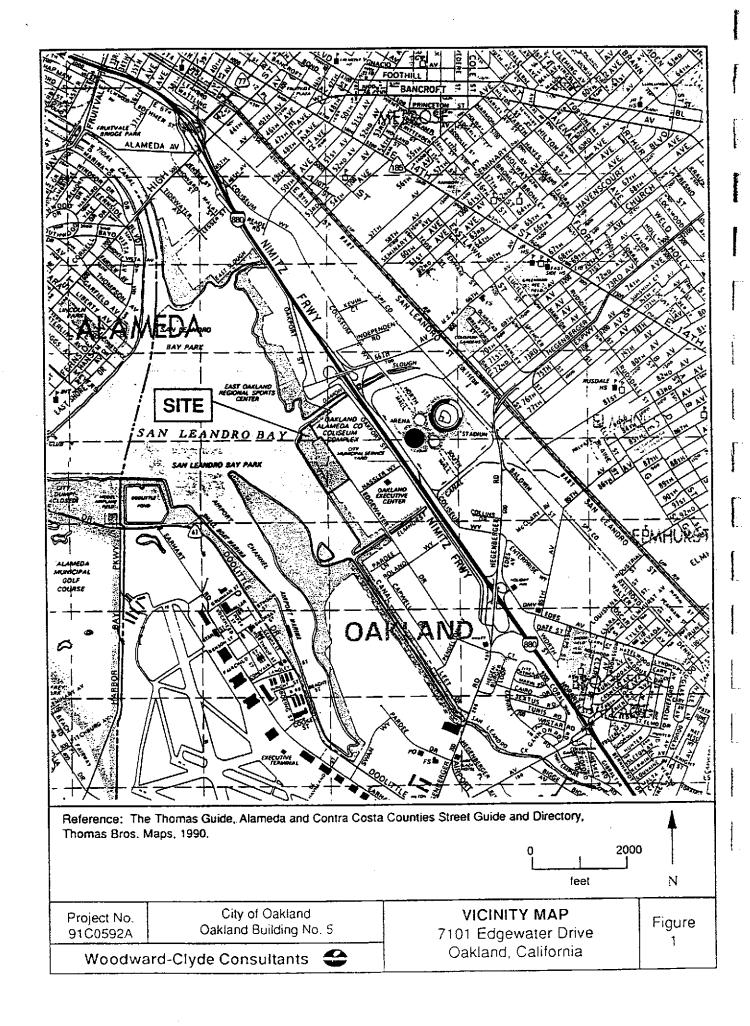
Parameter	Units	Trip Blank (MW-8) 12/13/91	Equip. Blank (MW-9) 12/13/91	Reporting Limit	California MCL (a)	Federal MCL (b)
PETROLEUM HYDROCARBONS						
EPA Method 5030/Mod. 8015						
Low/Medium B.P. HCs (as gas)	μg/L	••		50	NS	NS
BTEX						
EPA Method 5030/Mod. 8020						
Benzene	μg/L	* *	NA	0.5	1	5
Toluene	μg/L		NA	0.5	NS	1000
Ethylbenzene	μg/L		NA	0.5	680	700
Xylene (total)	μg/L		NA	0.5	1750	10000

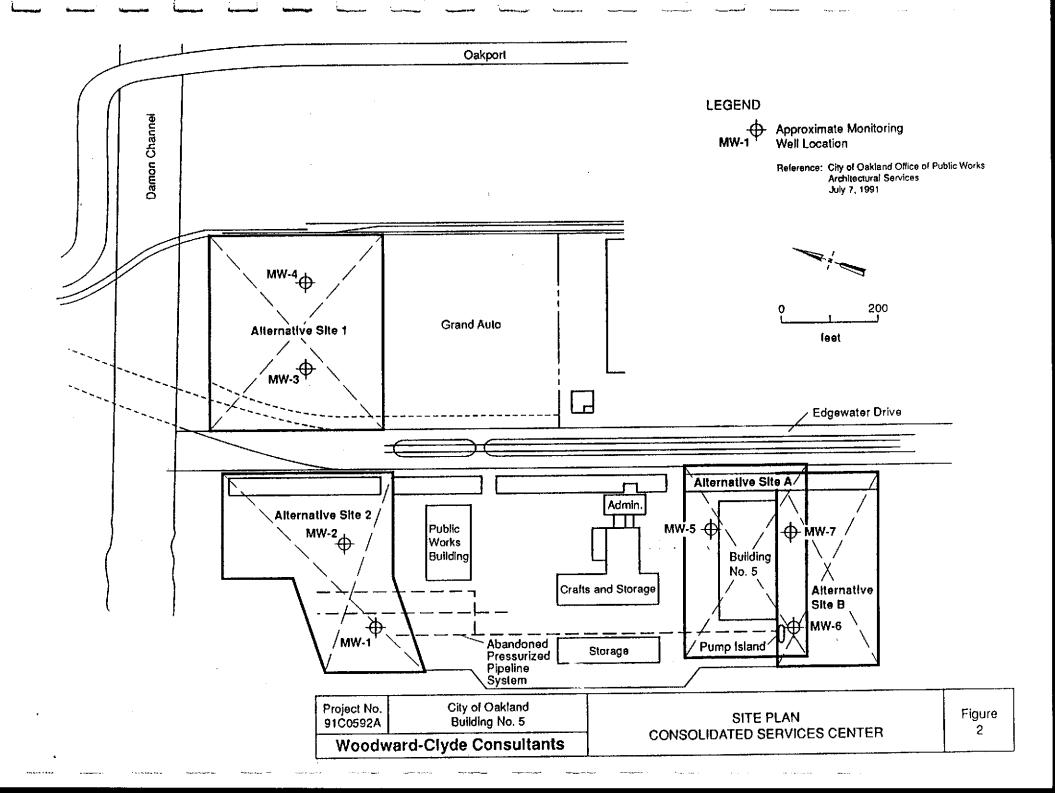
NA = Not analyzed

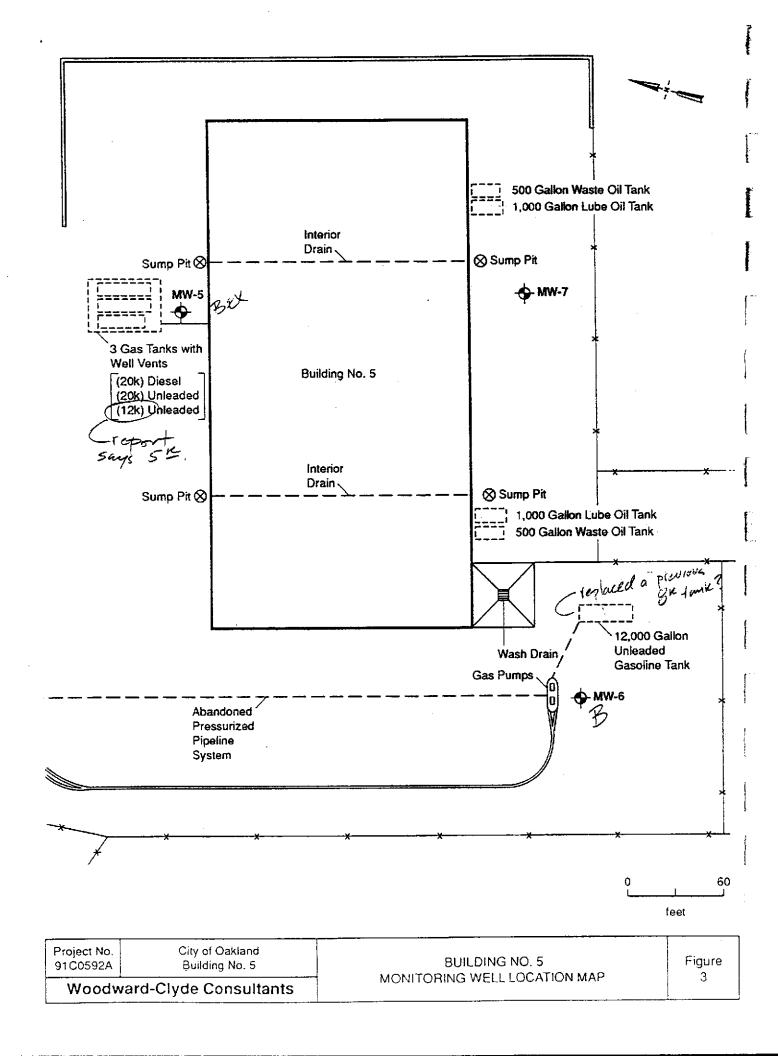
<sup>-- =</sup> Not detected at or above reporting limit

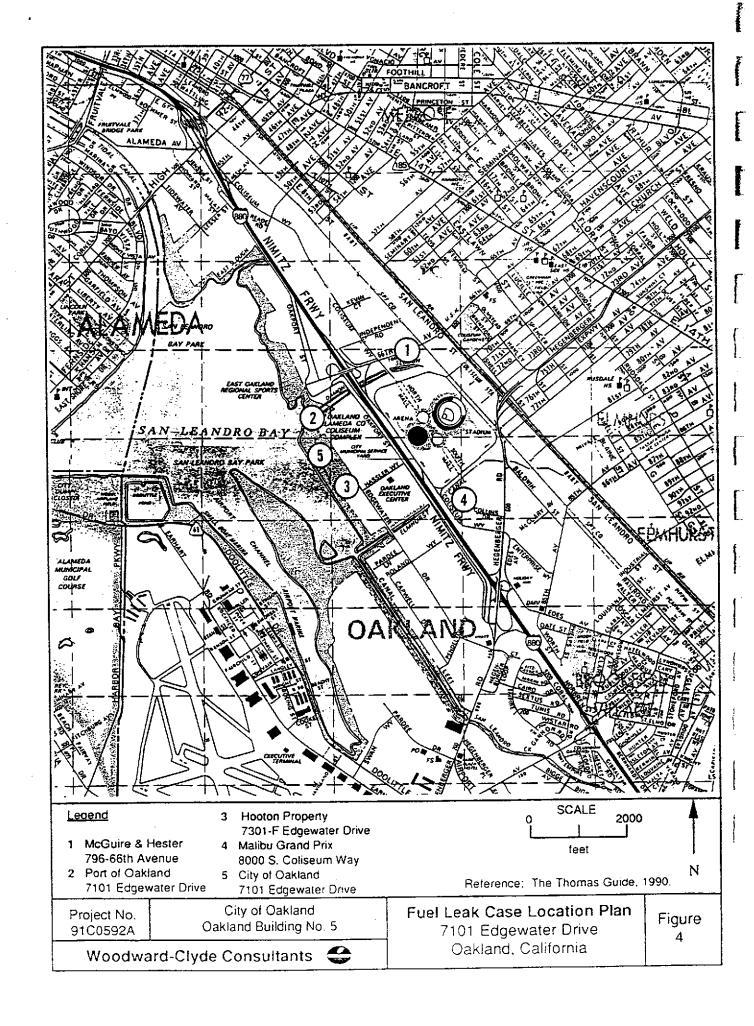
<sup>(</sup>a) California Maximum Contaminant Levels (MCLs) from the California Code of Regulations. Title 22, Articles 4 and 5.5, June 21, 1991

<sup>(</sup>b) Federal Maximum Contaminant Levels (MCLs) from U.S. EPA Office of Water, "Drinking Water Regulations and Health Advisories", April 1991









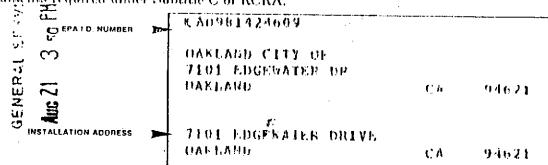


### ACKNOWLEDGEMENT OF NOTIFICATION OF HAZARDOUS WASTE ACTIVITY

CC: Bill Wes

This is to acknowledge that you have filed a Notification of Hazardous Waste Activity for the installation located at the address shown in the box below to comply with Section 3010 of the Resource Conservation and Recovery Act(RCRA). Your EPA Identification Number for that installation appears in the box below. The EPA Identification Number must be included on all shipping manifests for transporting hazardous wastes; on all Annual Reports that generators of hazardous waste, and owners and operators of hazardous waste treatment, storage and disposal facilities must file with EPA; on all applications for a Federal Imaged under Subtitle C of RCRA.

8/21/86



EPA Form 8700-12A (4-80)

Project: Oakland Bidg. #5 City of Oakland	Well No. MW-5 North: East:					
Date Started: 12/5/91	Total Depth: 15 ft	Casing Elev:		GW A	TD: 7 ft	
Date Completed: 12/5/91	Perforation: .010" Slot			om 4	to 14 ft	
Logged By: J. Hyman Checked By: L. G.	Pack: #2/12 Lonest	ar Sand		om 3	to 15 ft	
Drilling Co: ASE Drilling Driller: Randy/Bill	Seal: Cement			om 1,	· · · · · · · · · · · · · · · · · · ·	
Drilling Method: Hollow Stern Auger	Bentonite Pell	ets		om 2	to 3 ft r: 8"	
Drilling Equipment: B-61	Casing: 2" PVC Sampler: Split Spoon		Orill Bit C	lamete	r. <b>6</b>	
	Sampler: Spill Spoots		0)	e		
LITHOLOGIC DESCRIPT	ION	LITH. CONSTRUCT	Samp (e	Blous Per 6"	REMARKS	
CLAY Yellowish brown to dark brown, some sus and, trace angular gravel up to 1° in dia yellowish brown and gray silt, moist, stiff  GRAVEL Dark gray, brittle, stiff, trace of clay  SILTY CLAY Dark gray  BOTTOM OF BORING AT 15 FEET.	meter, trace	G G G		9 10 5 6 10 8 9 4	HNu=0 ppm HNu=0 ppm Strong Petroleum Odor Sample Saturated  Drilling still slow	
Project: 91C0592A Woodwar	rd-Clyde Consulta	ants			Page 1 of 1	

.

	dand Bldg. #5 of Oakland	Well No. MW-6 North: East:					
Date Started:	12/5/91	Total Depth: 15 ft	Casin	g Elev:		GW A	ATD: 7 ft
Date Complete	nd: 12/5/91	Perforation: .010" Slo	ts		Fro	m 4	to 14 ft
Logged By: J.	. Hyman Checked By: L. G.	Pack: #2/12 Lonest	ar San	d 🔯	Fro	m 3	
Drilling Co: AS		Seal: Cement		7/7	Fro		/2 to 2 ft
<u> </u>	: Hollow Stem Auger	Bentonite Pell	ets	<u> </u>		m 2	
<del></del>	<del>-</del>	Casing: 2" PVC		Drill	Bit Di	amete	n 8"
Drilling Equipm	nent: 6-61	Sampler: Split Spoon		I I	9	<u></u> =	
Depth (feet)	LITHOLOGIC DESCRIPT	ION	LITH.	WELL CONSTRUCTION	Sample	Blows Per 6"	
	phalt		SM				HNu=0 ppm
	LTY SAND Yellowish brown		CL		-		, and to ppin
- CL	AY Bluish gray, little assorted coarse sand a gravel, various colors, up to 3/4" in diam yellowish brown silt at 4', dark brown cla trace organics, moist, medium firm	neter, trace			X	3 4. 7	HNu≖0 ppm
SII	LTY CLAY		CL		abla	9	Water
	Dark gray, trace gravel up to 1 1/2" in di	ameter, wet, stiff		▓≣▓	XI	11 13	HNu=0 ppm No Odor
15	LT  Dark greenish gray, with spots of white, brown, little fine sand, little clay, little ass to 2" in diameter, saturated, medium firm	sorted gravels up	ML		X	3 4 5	Slow drilling encountered HNu=0 ppm
20 —	91C0592A <b>Woodwa</b>	rd-Clyde Consult	ants				Page 1 of 1
Project:	3100332A WUUUWA	id-Ciyde Collabit	41113				

Project	e Oakland Bidg. #5 City of Oakland	Well No. MW-7 North: East:				
Date Sta	arted: 12/5/91	Total Depth: 15 ft	Casing Elev:	GW ATD: 7 ft		
Date Co	ompleted: 12/5/91	Perforation: .010" Slo		From 4 to 14		
Logged	By: J. Hyman Checked by: L. G.	Pack: #2/12 Lonest	ar Sand	From 3 to 15		
	Co: ASE Drilling Driller: Randy/Bill	Seal: Cement		From 1/2 to 2		
	Method: Hollow Stem Auger	Bentonite Pel		From 2 to 3		
		Casing: 2" PVC		Drill Bit Diameter: 8"		
	Equipment: B-61	Sampler: S	Split Spoon	<u> </u>		
Depth (feet)	LITHOLOGIC DESCRIPT	ION	LITH. CONSTRUCT			
	Asphalt		CL	·		
5 1 10	CLAY Mottled brown to dark gray, some gray sand and angular gravel up to 1" in diamorganics, moist to wet, stiff  SILTY CLAY Brown, some angular gravel up to 2" in oblack clay 1" thick, wet, stiff	diameter, pocket	F	3 HNu = 0 ppm 8 4 8 Water 6 No Odor 6 HNu = 0 ppm		
15	very soft SILTY CLAY Dark gray, some organics, wet, soft		CH SSSSS	2		
	BOTTOM OF BORING AT 15 FEET.					
P	Project: 91C0592A Woodwa	rd-Clyde Consul	tants	Page 1 of 1		



### ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE

PLEASANTON, CALIFORNIA 94566

(415) 484-2600

### GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE
t MATION OF PROJECT Consolidated Services Center 7 01 Edgewater Drive
Oakland, Califonria
C ENT Name City of Oakland, Architectural Services Address City Hall Phone C y Oakland, CA Zip 94612
APPLICANT
Lois Gruenberg
Woodward-Clyde Consultants   Address   500   12th   St.   No.100Phone   (510)   874-1765   C'   y   Oakland,   CA     Zip   94607-4014
TIPE OF PROJECT
Well Construction Geotechnical Investigation
athodic Protection General
later Supply Contemination
Monitoring X Well Destruction
P POSED WATER SUPPLY WELL USE  Domestic Industrial Other environmental  Menicipal Irrigation
DIVILLING METHOD:
Mud Rotary Air Rotary Auger X C le Other
DRILLER'S LICENSE NO. 487000
W L PROJECTS  Drill Hole Diameter 8 in. Maximum  Casing Diameter 2 in. Depth 15 ft.  Surface Seal Depth 5 ft. Number 3
Number of Borings Maximum Hole Diameter in. Depth ft.
EN IMATED STARTING DATE EL IMATED COMPLETION DATE  November 21, 1991  November 26, 1991
I hereby agree to comply with all requirements of this paint and Alameda County Ordinance No. 73-68.
S NATURE US Check bill Date 16/18/91

#### FOR OFFICE USE

PERMIT NUMBER 91656
LOCATION NUMBER

#### PERMIT CONDITIONS

Circled Permit Requirements Apply

- A. GENERAL
  - A permit application should be submitted so as to arrive at the Zone 7 office five days prior proposed starting date.
  - 2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report equivalent for well projects, or drilling log and location sketch for geotechnical projects.
  - Permit is void if project not begun within days of approval date.
- (B.) WATER WELLS, INCLUDING PIEZOMETERS
  - Minimum surface seal thickness is two inches of cement grout placed by tremie.
  - 2. Minimum seal depth is 50 feet for municipal all industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth specially approved. Minimum seal depth filmonitoring wells is the maximum depth practicable or 20 feet.
- C. GEOTECHNICAL. Backfill bore hole with compacted cutings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremled cement grout shall be used place of compacted cuttings.
- D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.
- E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 20 Nov 91

12198!

W	ATE	RSA	MPL	E LOG		Sample No.						
	: <u>91</u>			Buildin	49 No	Date:	12/1	1/9/				
Sample Loc												
Sample Location: MW-5 N. of Bldg 5  Well Description: W-ELL Development												
	Weather Conditions: Cool Clean											
Observations / Comments:												
Quality Assurance Sampling Method:												
Pump Lines	: <u></u>	Mew ,	/ Cleaner		Bailer Lines		· ·	/ Cleaned				
	fearing Pum			enox +H		0,	Di	H 0 2 4.00 7.00 = 7.00				
Specific Cor	nductance Me	eter Na.:	13	749		(	Calibrates					
Comments:	GAST	edh_	7500	ppm up	n_qp-4	ومنعة		0 470 LEL				
1	n to		) pp=	ر دن	minut	c - !	Sheed	n on bailed water				
			7			~						
Sampl Measu	ing irement	s		nvel (below MP) : ng Point (MP):								
Time	Discharge (gallons)	ρН	Temp, (°C)	Specific Conductance (jumhos / cm)	Turbidity	Color	Geor Octor	Comments				
2:55	4	6.65	20.2	11,500	with	Breen	105	very silty				
3:10	8	6.60	20.1	12,100	11	•	11	-				
3:15	12	<del></del>		12,400	14	••	16	<b>1</b> 4				
3:25	16		20.2	12,800	14	Is.	·``	rsualled 4				
3:40	20	6.57	M-8	12,800	11	14	",	u				
3:50	24	6.48	20./	12,800	- 4	.1	4	ч				
3:55	28	6.42	14.8	12,800	High	-	"					
4:05	32	6.52	20.0	12,900	''	(E	"	"				
Total Disch	arge: _3	2 0	als.		ssing Volum	es Remo	ved:	- 28				
l	disposal ol d d size ol san	•	_	<u>55- ga</u>	<u>برلم . ا</u>	un						
	Woodward-Clyde Consultants											
Collected b	Collected by: 500 12th Street, Suite 100, Calviand, CA 94607-4014 (415) 893-3600											

WA	WATER SAMPLE LOG Sample No.									
Project No.: 91 CO 692A Date: 12-10-91 Project Name: Oakland Bldg #5										
	Project Name: Oak land Starf # 5  Sample Location: MW-6 near gas pumps									
Well Description	Well Development									
	Weather Conditions: Clear Sunny warm									
Observations /	Comments	-	pM	<del></del> _		<del></del>			_	
									=-	
Quality	Quality Assurance Sampling Method:									
Pump Lines:		(m) /	Cleaned		ailer Lines:					
3				10x + 4x0	<u>, H-D</u>	<u>. DI</u>	<u> </u>	1.00 = 4.00	_	
pH Meter No.:	21	725	137	49			ibrated	100 = 7.0		
Specific Cond	uctance Met	er No.: _		vest . 1	stech			PM 7100	<i>LEL</i>	
Petr- S	Comments: Upon opening well, gastech 7 500 ppu, 7100 LEL Petr. smell on expands-cop bottom									
	TD = 14.0 ft									
7.52										
	Sampling  Water Level (Delow MP) at Start: 1.32 End:  Measurements  Measuring Point (MP): TOC, N Line									
			1	Specific		<u> </u>				
Time	Discharge (gallons)	ρΗ	Temp. (°C)	Conductance (µnhos/cm)	Turbidity	Color	Pet.	Comments	36, 4	
1:35	3	7.47	20.0	5000	tiol.	Dkomy		Deth. silty	32 0	
2:05	6	, ·	22.5	5000	^		None		3.11	
2:20	10	7.81	19.5	5200	"	17	**	4	<del></del>	
2:55	14	7.86		5200	**			Less Si	11	
3:15	18	7.89		6100	4	40	(1)	11		
3:30	22	7.70	<del></del>	7600	11	14	1,	*		
3:40		7.8	1 -	9100	n	10	^			
4:00	33	7.89	7.0	99.00	1 31	Gray	-1		ver-	
Total Disch		<del>                                     </del>	<del>(s</del> -		asing Volu	nes Remo	wed: _ <u>-</u>	38		
	disposal of			<u>55.9</u>	<u>دلا. يا</u>	114 M				
Number an	d size of sa	mpie con	tainers filled	± <u>~</u>						
				<del></del>	Was	dward	-Clvd	e Consulta	ents	
	l	14	man		500 13	2th Street,	Suite 100, (415) 89	Caktand, CA 94607-	4014	
Collected	<u>. د که</u>		<del></del>		ı					

	ple No.	_					
	-				·· <del></del>	<u></u> .	
		-					
							<del></del>
				•		···	<del></del>
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	· · · · · ·						<del></del>
<u>.</u>					· · ·		<del></del>
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					<u> </u>		<del></del>
				· <del></del>	<del> </del>		<del></del>
		· · · · ·					
							<u> </u>
4:10	1860 36			10,000	Hisk	Brown	<del>- 100</del>
		went to	, mu-7			Brown grav Dark	
5:00	40	New to 1.71		9900	"	Dark gru	1-No
5 :00 12   11	40 9(: ∀	went to	, mu-7	9900		Dark gru	
:00 12/11/	40 9(: ∀	Went to 7.71 = 8.01	, mu-7	<b>9900</b>	"	Dark gray	N6
5 :00 12   11	40 9(: ∀	Went to 7.71 = 8.01	, mu-7	<b>9900</b>	"	Dark gray	N6
5:00 12/11/	40 9(: ∀	Went to 7.71 = 8.01	, mu-7	<b>9900</b>	"	Dark gray	N6
5:00 12/11/	40 9(: ∀	Went to 7.71 = 8.01	, mu-7	<b>9900</b>	"	Dark gray	N6
5:00 12/11/	40 9(: ∀	Went to 7.71 = 8.01	, mu-7	<b>9900</b>	"	Dark gray	N6
	40 9(: ∀	Went to 7.71 = 8.01	, mu-7	<b>9900</b>	"	Dark gray	N6
5:00 12 11	40 9(: ∀	Went to 7.71 = 8.01	, mu-7	<b>9900</b>	"	Dark gray	N6

	W	ATE	R SA	MPL	E LOG		Sam	ole N	o.
	Project No.			C6 59	ZA-	5	Daiel _	10 9	1
	Sample Loc				1-3 100	<u> </u>		<del></del>	
	Well Descrip	ptioni: <u>U</u>	العز	Dev	elopme	nt			
	Weather Co					sun s		•	
					Yecovi	eted.	after	24	· his.
	5842	dm	ATTE		<del>. '</del>				
	Quality	y Assur	ance		g Method:				
	<u> </u>				to Measure Wat			_	1
	Pump Lines:			/ Gleaner		Bailer Lines			
	pH Meter No	Meaning Pum a.: <4	A MA	n-P Hite	nek + H <sub>2</sub> 0	<del>, H,</del> 0	•	alibrated	1
	Specific Con							Calibrate	
	Comments:	(ras)	نطع	Upon	maning	nel			0pm 57. LEL
	To=	14.00							
	Sampli Measu	ing rement	ls		evel (below MP) : ng Point (MP):		_		/II / 11: 7.49 End:
	Time	Discharge (gallons)	рН	Temp,	Specific Conductance (jumhos / cm)	Turbidity	Color	Odor	Comments.
	4:36	4	6.13	22	31400	dyl	Yelow	14 N	MACK SECUL
	4:50	5	6.23			Had.	11	10	Well hat recharging
	5:15	05						ļ <u>.</u>	mail stoll hat you
1467	4:45	_8_	5.97	21.1	26,22	14.54	u	No	her reasons
		<u> </u>					ļ		72 /1
	-						<del> </del>		
		<u> </u>		0.	1			L <u>.</u>	<u>-</u>
	Total Discha		<b>9</b> 9	ľ		sing Votum	es Remo	ved:	~ /
	Method of o		_		55 - ga	den	<u> </u>	2.45	4.1 KW-7
						Wood	ward	Clyd	e Consultants
	Collected by	»: <u>او</u>	nn f	tyman			h Street, Su		Dakland, CA 94607-4014

441	ATER	SA	MPLE	LOG		Sampl	e No.		
Project No.: 91C0592A Date: 12/13/91  Project Name: 0016(and 8 dy +5  Sample Location: MW-5									
Well Descript									
Weather Con-	ditions:	<u> </u>	ب دار	? <b>~</b> /					
Observations	/ Comment	s:			··-				
			<del></del>						
Quality	Assura	ince		Method:				30 under	
Pump Lines:		- /	Cleaned	в	ailer Lines	: <b>C</b>	New .	Cleaned	
Method of cle		/ Bailer:		· · · · · · · · · · · · · · · · · · ·					
pH Meter No.	<u> </u>	<del>}</del>	54	e Rw		Ca	iibrated		
Specific Cond						с	alibrated		
Comments:	لزناك		heen	m We	yer_				
			<del>.</del>	<u>.</u>					
Sampling Measurements  Water Level (below MP) at Start: 7.07  Measurements  Measuring Point (MP): N. Rim To C									
11.0000	rement	<u>s</u>	Measurin	g Point (MP);	<u>N. 1</u>	<u>Lim</u>	TO C		
Time	Discharge (gallons)	ρH	Measurin Temp. (°C)	Specific Conductance (umhos/cm)	N. Turbidity	Color	Toc	Comments	
	Discharge (gallons)	ρΗ	Temp.	Specific Conductance (µmhos / cm)	Turbidity	Lim	Toc		
Time	Discharge (gallons)	<sub>рн</sub> 6.59	Temp. (°C)	Specific Conductance (jumhos/cm)	Turbidity	Color Brown	Toc	Comments Si/fy	
Time 2:30	Discharge (gallons)	рН 6.59 6.55	Temp. (°C)	Specific Conductance (µmhos/cm)	Turbidity  High	Color Bra-n	To C	Comments	
7ime 2:30 2:35 2:40 2:45	Discharge (gallons)  1.5  3.0  4.5	рН 6.59 6.55 6.53	Temp. (°C) 20.2 20.2 20.1 19.9	Specific Conductance (umhos/cm)  14, 200  13, 000  12, 500  12, 200	Turbidity  High	Color  Brown  Crawy	To C	Comments Si/fy	
7ime 2:30 2:35 2:40	Discharge (gallons)  1.5  3.0  4.5	рН 6.59 6.55 6.53	Temp. (°C) 20.2 20.2 20.7	Specific Conductance (umhos/cm)  14, 200  13, 000  12, 500  12, 200	Turbidity  High	Color Brown Gray	Yes "	Comments Siffy	
7ime 2:30 2:35 2:40 2:45	Discharge (gallons)  1.5  3.0  4.5	рн 6.59 6.55 6.53 6.51	Temp. (°C) 20.2 20.2 20.1 19.9	Specific Conductance (umhos/cm)  14, 200  13, 000  12, 500  12, 200	Turbidity  High  11	Color  Brown  Censy  11	To C	Comments  Siffy  V  In	
7ime 2:30 2:35 2:40 2:45	Discharge (gallons)  1.5  3.0  4.5	рн 6.59 6.55 6.53 6.51	Temp. (°C) 20.2 20.2 20.1 19.9	Specific Conductance (umhos/cm)  14, 200  13, 000  12, 500  12, 200	Turbidity  High  11	Color  Brown  Censy  11	To C	Comments  Siffy  V  In	
7ime 2:30 2:35 2:40 2:45	Discharge (gallons)  1.5  3.0  4.5	рн 6.59 6.55 6.53 6.51	Temp. (°C) 20.2 20.2 20.1 19.9	Specific Conductance (umhos/cm)  14, 200  13, 000  12, 500  12, 200	Turbidity  High  11	Color  Brown  Censy  11	To C	Comments  Siffy  V  In	
7ime 2:30 2:35 2:40 2:45	Discharge (gallons)  1.5  3.0  4.5  6	рн 6.59 6.55 6.53 6.51	Temp. (°C) 20.2 20.2 20.1 19.9	Specific Conductance (umhos/cm)  14 200  13,000  12,500  12,200  12,200	Turbidity  High  11	Color  Brown Gray  11	To C	Comments  Siffy  V  In	
Time  2:30 2:35 2:40 2:45 2:50	Discharge (gallons)  1.5  3.0  4.5  6	6.59 6.55 6.53 6.51 6.53	Temp. (°C) 20.2 20.2 20.1 19.9 20.3	Specific Conductance (umhos/cm)  14 200  13,000  12,500  12,200  12,200	Turbidity  High  4  11  11	Color  Brown Gray  11	To C	Comments  Siffy  V  In	<b>43</b> .
Time  2:30 2:35 2:40 2:45 2:50  Total Dischi	Discharge (gallons)  1.5 3.0 4.5 6 8 arge:	6.59 6.55 6.53 6.51 6.53	Temp. (°C) 20.2 20.2 20.1 19.9 20.3 d water:	Specific Conductance (umhos/cm)  14 200  13,000  12,500  12,200  12,200	Turbidity  High  H  H  R  H  H  S  T  S  T	Color  Bre-m Gray  11  11  11  11  11  11  11  11  11	To C	Comments  Silfy  P	<i>l</i> 3.
Time  2:30 2:35 2:40 2:45 2:50  Total Dischi	Discharge (gaßons)  1.5 3.0 4.5 6 8 arge:	6.59 6.55 6.53 6.51 6.53	Temp. (°C) 20.2 20.2 20.1 19.9 20.3 d water:	Specific Conductance (umhos/cm)  14 200  13,000  12,500  12,200  12,200  12,200  12,200  13,000  14,200	Turbidity High H H H H H H H H H H H H H H H H H H H	Color  Brown  Cray  11  11  11  12  The property of the proper	Yes  ' '  '  Bay	N. Side of 80 TEX, Z. G.A.  e Consultants Dakland, CA 94607-4014	/3.

A SO: 3 VOAS - TPHS + BTEY , 2 VOAS 8240 : MW - (0)

W	ATER	SAI	MPLE	E LOG		Sampl	e No	
Project No. :	Dale	land	Blo	tz #5		_		13 /9/
Sample Local	ion:	(W-	•	<u> </u>	(BYPL	4	81	3 5
Well Descript		<u>va</u>	<u> </u>	45				
Observations	/ Comments	::2	e tr.	Stains	m	6(= 4	-/vp	man well.
Truc	ks p	en lee		nby				
Quality	Assura	псе		Method:				Sounder
Pump Lines:	1	New /	Cleaned	B	lailer Lines	: <b>&lt;</b>	NG	/ Cleaned
Method of cla				7	<del></del>			
								•
Comments:								
	···			,	<u>-</u>			<u> </u>
					<del></del>	0 4		
Sampli Measu	ng rement:	s		evel (below MP) : ng Point (MP):				End:
Time	Discharge (gallons)	рН	Temp. (°C)	Specific Conductance (µmhos / cm)	Turbidity	Color	Pet. Odor	Comments
11:45			19.9	6500	Y.H.3+	Jray		<b>3</b> 47
11:55	2.5		19.8	5500	et et	h d	No	
12:00	6.5		19.8	5600	//	**		
12.07	0. 7	1.00		7.850				
		ļ	<u> </u>		-			
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>	1	<u></u>		1
Total Disch	arge:	<u>~ /8</u>	0 201		asing Volu	mes Remo	wed: _	
1	disposal of d	_		55 3	allon TO	<u> </u>	DTE	4 2 64 TO
Number an	_ •	noie com	ainers tilled	: 3voA		عوم	<u> </u>	, c - c - j - c
		<b>ハルル</b>	. 7	GA .87	סד.	7. <del>(-</del>	<b>41</b> – 1	ROKO I <i>di</i> es
PPH	) <del>-</del> (	<u> </u>	-, 2	6-A -87	Woo	2.6 dward	-Clyd	BOSO, L ems ie Consultants Oakland, CA 94607-4014

MW-9: Equip Blank : 3 VOAs - TPH9

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Project No.: 91 CO 592 A  Project Name: Jakknod Blds #5  Sample Location: MW -7 SE corns # 6113  Well Description: Near galest - from frefice  Weather Conditions: Gol Clear breezy  Observations / Comments:  Cuality Assurance  Sampling Method: Bailer Lines: New / Cleaned  Method of cleaning Pump / Bailer:  PH Meter No.: 217256 Calibrated (100 = 7.00)  Specific Conductance Meter No.: Calibrated (200 = 4.00)  Specific Conductance Meter No.: Calibrated (200 = 7.00)  Measuring Point (MP): N - Cim To C  Time Discharge (gaßons) PH Temp. Conductance (100 ph 1)  1/1: /5 3 5:2/ 21. 4 27,000 /ft // 11 // 11
Weather Conditions:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  New / Cleaned  Bailer Lines:  New / Cleaned  Bailer Lines:  New / Cleaned  Bailer Lines:  Calibrated  Calibrated  Calibrated  Comments:  Comments:  Water Level (below MP) at Start:  Comments:  Time  Conductance Meter No.:  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  Turbidity  Color  Comments  (conductance  (galons)  PH  Temp.  Conductance  (galons)  Turbidity  Color  Comments
Weather Conditions:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  New / Cleaned  Bailer Lines:  New / Cleaned  Bailer Lines:  New / Cleaned  Bailer Lines:  Calibrated  Calibrated  Calibrated  Comments:  Comments:  Water Level (below MP) at Start:  Comments:  Time  Conductance Meter No.:  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  PH  Temp.  Conductance  (galons)  Turbidity  Color  Comments  (conductance  (galons)  PH  Temp.  Conductance  (galons)  Turbidity  Color  Comments
Weather Conditions:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  Coservations / Comments:  New / Cleaned  Bailer Lines:  New / Cleaned  Bailer Lines:  New / Cleaned  Bailer Lines:  Calibrated  Calibrated  Calibrated  Comments:  Comments:  Water Level (below MP) at Start:  Comments:  Comments:  Conductance Meter No.:  Conductance (gallons)  PH Temp. (Conductance (gallons) PH Temp. (CO) (gunhos / cm) Turbidity Color Odor Comments  (1:10 2 5.88 21.5 24 000 High Temp. Mo
Observations / Comments:   Color   Clean   Breezy
Creatity Assurance  Sampling Method: Bailer (Teflon)  Method to Measure Water Level: So Linst Sounder  Pump Lines: New / Cleaned Bailer Lines: New / Cleaned  Method of cleaning Pump / Bailer:  ph Meter No.: 217256 Calibrated  Specific Conductance Meter No.: Calibrated  Comments:    Calibrated   Calibrat
Pump Lines: New / Cleaned Bailer Lines: New / Cleaned  Method of cleaning Pump / Bailer:  ph Meter No.: 211256 Calibrated 1.00 = 7.40  Specific Conductance Meter No.: Calibrated  Comments:  Sampling Water Level (below MP) at Start: 7.99 End:  Measurements Measuring Point (MP): N - Cim To C  Time Discharge (gaifons) ph Temp. Conductance (gumbos / cm) Turbidity Color Odor Comments  1/1:10 2 5.88 21.5 24, 000 High Temp. No
Pump Lines: New / Cleaned Bailer Lines: New / Cleaned  Method of cleaning Pump / Bailer:  ph Meter No.: 211256 Calibrated 1.00 = 7.00  Specific Conductance Meter No.: Calibrated  Comments:  Sampling Water Level (below MP) at Start: 7.99 End:  Measurements Measuring Point (MP): N - Cim Toc  Time Discharge (galfons) ph Temp. Conductance (gumbos / cm) Turbidity Color Odor Comments  1/1:10 2 5.88 21.5 24, 000 High Temp. No
Pump Lines: New / Cleaned Bailer Lines: New / Cleaned  Method of cleaning Pump / Bailer:  ph Meter No.: 217256 Calibrated  Specific Conductance Meter No.: Calibrated  Comments:  Sampling Water Level (below MP) at Start: 7.99 End:  Measurements Measuring Point (MP): N - Kim Toc  Time Discharge (gallons) ph Temp. Conductance (jumbos / cm) Turbidity Color Odor Comments  //:// 2 5.88 21.5 24, 000 High Team No
Method of cleaning Pump / Bailer:  pH Meter No.:
Specific Conductance Meter No.:  Comments:  Sampling Measurements  Water Level (below MP) at Start: 7.99  End: Measurements  Measuring Point (MP): N - Kim Toc  Time  Discharge (galons) pH  Temp. (CD) Specific Conductance (jumbos / cm)  It is to be the conductance (jumbos / cm)
Sampling Measurements  Water Level (below MP) at Start: 7.99  End: Measuring Point (MP): N - Kim Toc  Time Discharge (gallons) pH Temp. Specific Conductance (gumbos / cm) Turbidity Color Odor Comments  1/1:10 2 5.88 21.5 24 000 High Temp. No
Sampling Measurements  Water Level (below MP) at Start: 7.79 End:  Measuring Point (MP): N - Cim ToC  Time Discharge (galons) pH Temp. Conductance (gumbos / cm) Turbidity Color Odor Comments  (1:10 2 5.88 21.5 24, 000 High Temp. No
Measurements  Measuring Point (MP): N - Kin Toc  Time Discharge (gallons) pH Temp. Conductance (umhos / cm) Turbidity Color Odor Comments  (1:10 2 5.88 21.5 24 000 High Free No
Measurements  Measuring Point (MP): N - Kin Toc  Time Discharge (gallons) pH Temp. Conductance (umhos / cm) Turbidity Color Odor Comments  (1:10 2 5.88 21.5 24 000 High Free No
Measurements  Measuring Point (MP): N - Kin Toc  Time Discharge (gallons) pH Temp. Conductance (umhos / cm) Turbidity Color Odor Comments  (1:10 2 5.88 21.5 24 000 High Free No
Measurements  Measuring Point (MP): N - Kim Toc  Time Discharge (galons) pH Temp. (C) Specific Conductance (umhos/cm) Turbidity Color Odor Comments  (/:/0 2 5.88 21.5 24, 000 High From No
Time Discharge (gallons) pH Temp. Conductance (gumbos/cm) Turbidity Color Odor Comments  1/1:10 2 5.88 21.5 24, 000 High Temp. 15
Time Discharge (gallons) pH Temp. Conductance (jumbos/cm) Turbidity Color Odor Comments  //:/0 2 5.88 21.5 24, 000 High Press No
11:15 3 5.91 21.4 27,000 " " "
11:25 4 5.99 21.8 245, 100 " " "
1:55 5 6.14 21.8 25,508 Hed. " "
2:00 6 6.03 21.8 24,900 " "
4:20 7 6.60621.524,100 2 4
Total Discharge: ~ 9 Casing Volumes Removed:
Method of disposal of discharged water: 55 Jellon Line and SE side
Number and size of sample containers filled: 3 VOAS - TENS + BTEX 2 6A TPH d
71011001 000 000 0 000 0 000 0 000 0 000 0 000 0

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### ANAMETRIX INC

Environmental & Analytical Chemistry 1961 Concourse Drive Suite El San Jose, CA 98131 (408) 432-8192 - Fax (408) 432-5198



MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014

Workorder # : 9112047 Date Received: 12/05/91 Project ID : 91C0592A

Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis:

ANAMETRIX ID	CLIENT SAMPLE ID
9112047- 1	MW-5(8-8.5)
9112047- 2	MW-6(7.5-8)
9112047- 3	MW-6(8-8.5)
9112047- 4	MW-7(7-7.5)
9112047- 5	MW-7(7.5-8)

This report consists of 42 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.

Laboratory Manager

## ANAMETRIX REPORT DESCRIPTION GCMS

#### Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anametrix ID number.

#### Tentatively Identified Compounds (TICs)

TIC forms contain tabulated results for non-target compounds detected in GC/MS analyses. TICs must be requested at the time samples are submitted at Anametrix. TIC forms immediately follow the OADS form for each sample. If TICs are requested but not found, then TIC forms will not be included with the report.

#### Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method,  $\underline{if}$  the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "\*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

#### Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "\*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

#### Qualifiers

Anametrix uses several data qualifiers (Q) in it's report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

- U Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.
- B Indicates that the compound was detected in the associated method blank.
- J Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.
- E Indicates that the amount reported exceeded the linear range of the instrument calibration.
- D Indicates that the compound was detected in an analysis performed at a secondary dilution.
- A Indicates that the tentatively identified compound is a suspected aldol condensation product. This is common in EPA Method 8270 soil analyses.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

#### REPORTING CONVENTIONS

- Due to a size limitation in our data processing step, only the first eight (8) characters of your project
   ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.
- Amounts reported are gross values, i.e., not corrected for method blank contamination.

PG/3274

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

MS. LOIS GRUENBERG

WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014

Workorder **#** : 9112047 Date Received: 12/05/91 Project ID: 91C0592A Purchase Order: N/A

Department : GCMS Sub-Department: GCMS

#### SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9112047- 1	MW-5(8-8.5)	SOIL	12/05/91	8240
9112047- 2	MW-6(7.5-8)	SOIL	12/05/91	8240
9112047- 4	MW-7 (7-7.5)	SOIL	12/05/91	8240
9112047- 1	MW-5(8-8.5)	SOIL	12/05/91	8270
9112047- 2	MW-6(7.5-8)	SOIL	12/05/91	8270
9112047- 4	MW-7(7-7.5)	SOIL	12/05/91	8270

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

MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014

Workorder # : 9112047 Date Received: 12/05/91 Project ID : 91C0592A Purchase Order: N/A Department : GCMS Sub-Department: GCMS

#### QA/QC SUMMARY :

- Percent recovery of chlorobenzene is outside established limits in the EPA Method 8240 matrix spike and matrix spike duplicate analysis of sample MW-7(7-7.5).

- A surrogate recovery is outside established limits in the EPA Method

8270 analysis of sample BLANK.

- A surrogate recovery is outside established limits in the EPA Method 8270 analysis of samples MW-5(8-8.5), MW-7(7-7.5), MW-6(7.5-8).

Department Supervisor

roject ID : 91C0592A : MW-5(8-8 Jample ID : SOIL Matrix

:12/ 5/91 :12/12/91 : MSD2

ate Analyzed Instrument ID

ate Sampled

: 9112047-01 Anametrix ID

Analyst :30 : W Supervisor

250.00 Dilution Factor :

: ug/Kg Conc. Units

				I
CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
		2500.	 ND	U I
74-87-3	Chloromethane	2500.	ND	ען ו
75-01-4	Chloromethane Vinyl chloride	2500.	ND	ا ت
74-83-9	Bromomethane	2500.	ND	ا ت
75-00-3	Chloroethane		ND	ΰ
75-69-4	Trichlorofluoromethane	1300.	ND	ប៊
75-35-4	1 1-Dichloroethene i	1300.	ND ND	บั
76-13-1	Trichlorotrifluoroethane	1300.		ט
67-64-1	Acetone	5000	ND	υ
75-15-0	Carbon disulfide	1300.	ИD	บั
75-09-2	Methylene chloride	1300.	ND	Ü
	Trans-1,2-dichloroethene	1300.	ND	
156-60-5	1,1-Dichloroethane	1300.	ND	ū
75-34-3	Cis-1,2-dichloroethene	1300.	ND	U
156-59-2	2-Butanone	5000.	ND	ַ
78-93-3	Chloroform	1300.	ИD	U
€ / <del>-</del> 66 <del>-</del> 3	1 1 1-Trichloroethane	1300.	ND	U
71-55-6	1,1,1-TrichloroethaneCarbon tetrachloride	1300.	ND	U
56-23-5	Carpon tetrachioride	2500.	ND	U
108-05-4	Vinyl acetate	1300.	2600.	
71-43-2	Benzene		ND	ַ ט
107-06-2	1,2-Dichloroethane	1300.	ND	U
79-01-6	Trichloroethene	1300.	ND	U
78-87-5	1,2-Dichloropropane	1300.	ND	ប
75-27-4	Bromodichloromethane	i .	ND	ט
110-75-8	2-Chloroethylvinyl ether	1	ND	U
10061-01-5	Cis-1,3-dichloropropene	2500.	ND	U
108-10-1	4-Methyl-2-pentanone	1300.	ND	Ū
108-88-3	Toluene		ND	Ū
10061-02-6	Trans-1,3-dichloropropene 1,1,2-Trichloroethane	1300.	ND	Ū
79-00-5	1,1,2-Trichloroethane	1300.	ND	ΰ
127-18-4	Tetrachloroethene	1300.	ND	ΰ
591-78-6	2-Hexanone	2500.	ND	Ü
124-48-1	Dibromochloromethane	1300.	1	Ü
108-90-7	Chlorobenzene Ethylbenzene Xylene (Total)	1300.	ND	١٥
100-41-4	Ethylbenzene	1300.	9300.	
1330-20-7	Xvlene (Total)	1300	26000.	1,,
	Styrene	1300.	ND	Ü
100-42-5	Bromoform	1300.	ND	U
75-25-2	1,1,2,2-Tetrachloroethane	1300.	ND	Ü
79-34-5	1,3-Dichlorobenzene	1300.	ND	U
541-73-1			ND	U
106-46-7	1,4-Dichlorobenzene 1,2-Dichlorobenzene	1300.	ND	U
95-50-1	T'S-Alcuioropeuseue	<del>-</del> [	1	}

Project ID Sample ID

: 91C0592A

Anametrix ID Analyst

: 9112047-02

Matrix

: MW-6(7.5 : SOIL

: Mu Supervisor \* iM

Date Sampled :12/5/91
Date Analyzed :12/12/91
Instrument ID : MSD2

Dilution Factor : 1 Conc. Units : ug/Kg

roject ID : 91C0592A : MW-7(7-7 : SOIL

Matrix late Sampled :12/5/91
late Analyzed :12/10/91
Instrument ID : MSD2

: 9112047-04 Anametrix ID

: Df Analyst : W Supervisor

Dilution Factor : Conc. Units : ug/Kg 1.00

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
	Chloromethane	10.	ND	บ
74-87-3	Chioromethane	10.	ND	U
75-01-4	Vinyl chloride	10.	ND	U
74-83-9	Bromomethane	10.	ND	ט
75-00-3	Chloroethane Trichlorofluoromethane	5.	ND	U
75-69-4	Trichioroff dotomechane	5.	ND	U
75-35-4	1,1-Dichloroethene Trichlorotrifluoroethane	5.	ND	U
76-13-1		20.	ND	U
67-64-1	Acetone	5.	ND	U
75 <del>-</del> 15-0	Carbon disulfide	5.	ND	ט
75-09-2	Methylene chloride	5.	ND	บ
156-60-5	Trans-1,2-dichloroethene	5.	ND	ប
75-34-3	1,1-Dichloroethane	5.	ND	U
156-59-2	Cis-1,2-dichloroethene	20.	ND	ប
78-93 <del>-</del> 3	2-Butanone	5.	ND	U
67-66-3	Chloroform	5.	ND	U
71-55-6	1,1,1-Trichloroethane	5.	ND	U
56-23-5	Carbon tetrachloride	10.	ND	U
108-05-4	Vinyl acetate	5.	ND	U
71-43-2	Benzene		ND	U
107-06-2	1,2-Dichloroethane	5.	ND	U
79-01-6	Trichloroethene	5.	ND	U
78-87-5	1,2-Dichloropropane	5.	ND	U
75-27-4	Bromodichloromethane	5.	ND	Įυ
110-75-8	2-Chloroethylvinyl ether	.1	ND	טן
10061-01-5	Cis-1,3-dichloropropene	10.	ND	U
108-10-1	4-Methyl-2-pentanone	5.	ND	שׁן
108-88-3	Toluene	.	ND	Ū
10061-02-6	Trans-1,3-dichloropropene	. i -	ND	U
79-00-5	1,1,2-Trichloroethane	.1	ND	ט
127-18-4	Tetrachloroethene	10.	ND	ט
591-78-6	2-Hexanone	.i –	ND	Ū
124-48-1	Dibromochloromethane	5.	ND	Ū
108-90-7	Chlorobenzene	5.	ND	Ū
100-41-4	Ethylbenzene	- 5.	ND	Ū
1330-20-7	Xylene (TotaI)	- 5.	ND	Ū
100-42-5	Styrene	- 5.	ND	Ū
75-25-2	Bromoform	- 5.	ND	Ū
79-34-5	1,1,2,2-Tetrachloroethane	- 5.	ND	Ŭ
541-73-1	1.3-Dichlorobenzene	5.	ND	ϋ
106-46-7	1 4-Dichlorobenzene	- 5.	ND	Ιŭ
95-50-1	1,2-Dichlorobenzene	٦ .	1 "	-

roject ID sample ID

: 91C059

: 1210B002 Anametrix ID

: BLANK

: 23 Analyst Supervisor

Matrix SOIL
ate Sampled : 0/ 0/ 0
ate Analyzed :12/10/91
instrument ID : MSD2

Dilution Factor : 1.00 Conc. Units : ug/Kg

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
	Chloromethane	10.	ND	U
74-87-3	Vinyl chloride	10.	ND	U
75-01-4	Bromomethane	10.	ND	U
74-83-9	Chloroethane	10.	ND	U
75-00-3	Trichlorofluoromethane	5.	ND	U
75-69-4	1,1-Dichloroethene	5.	ND	U
75-35-4	Trichlorotrifluoroethane	5.	ND	ן ט
76-13-1	<del>-</del> ·	20.	12.	J
67-64-1	Acetone Carbon disulfide	5.	ND	U
75-15-0	Methylene chloride	5.	ND	U
75-09-2	Trans-1,2-dichloroethene	5.	ND	U
156-60-5	1,1-Dichloroethane	) .	ND	U
75-34-3	Cis-1,2-dichloroethene	5.	ИD	\U
156-59-2	CIS-1, 2-dichiologunano	20.	9.	J
78-93-3	2-ButanoneChloroform	5.	ND	U
67-66-3	Chlorotoim	5.	ND	U
71-55- <u>6</u>	1,1,1-Trichloroethane Carbon tetrachloride	5.	ND	ַט
56-23-5	Carbon tetrachiotide	10.	ND	U
108-05-4	Vinyl acetate	5.	ND	บ
71-43-2	Benzene 1.2-Dichloroethane	۔ ا	ND	U
107-06-2		·\ 5.	ND	U
79-01-6	Trichloroethene 1,2-Dichloropropane	·\ 5.	ИD	บ
78-87 <del>-</del> 5	Bromodichloromethane	5.	ND	U
75-27-4	Bromodichioromethal	5.	ND	U
110-75-8	2-Chloroethylvinyl ether Cis-1,3-dichloropropene	5.	ND	ט
10061-01-5	4-Methyl-2-pentanone	10.	ND	ט
108-10-1	4-Metny1-2-pencanone	·\ 5.	ND	U
108-88-3	Toluene Trans-1,3-dichloropropene	_	ND	U
10061-02-6	1.1.2-Trichloroethane	-\ 5.	ND	U
79-00-5	1,1,2-Trichioroechane	-\ 5.	ND	U
127-18-4	Tetrachloroethene	10.	ND	U
591-78-6	2-Hexanone Dibromochloromethane	_	ND	ប
124-48-1		-1 =	ND	U
108-90-7	Chlorobenzene	-l 5.	ND	U
100-41-4	Ethylbenzene	- 5.	ND	U
1330-20-7	Ethylbenzene Xylene (Total)	5.	ND	ט
100-42-5	Statelle	- 5.	ND	U
75-25-2	Bromoform		ND	U
79-34 <del>-</del> 5	1,1,2,2-Tetrachloroethane	- 5.	ND	ט
541-73-1	1,3-Dichlorobenzene	- 5.	ND	ט
106-46-7	1,4-Dichlorobenzene	- 5.	ND	U
95-50-1	1,2-Dichlorobenzene	<b>–</b> I	1	1

Project ID sample ID satrix

: 91C059

Anametrix ID

: 1212B002

: 24

: BLANK : SOIL

Analyst Supervisor

Date Sampled Date Analyzed

: 0/ 0/ 0 :12/12/91 : MSD2

Dilution Factor :

1.00

instrument ID

Conc. Units : ug/Kg

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	Chloromethane	10.	ND	บ
75-01-4	Vinyl chloride	10.	ND	U
74-83-9	Bromomethane	10.	ND	U
75-00-3	Chloroethane	10.	ND	ט
75-69-4	Trichlorofluoromethane	5.	ND	ט
75-35-4	1,1-Dichloroethene	5.	ND	U
76-13-1	Trichlorotrifluoroethane	5.	ND	U
67-64-1	Acetone	20.	12.	J
75-15-0	Carbon disulfide	5.	ND	U
75-09-2	Methylene chloride	5.	ND	U
156-60-5	Trans-1,2-dichloroethene	5.	ND	U
75-34-3	1,1-Dichloroethane	5.	ND	U
156-59-2	Cis-1,2-dichloroethene	5.	ND	U
78-93-3	2-Butanone	20.	ND	ប
67-66-3	Chloroform	5.	ND	U
71-55-6	1,1,1-Trichloroethane	5.	ND	U
56-23-5	Carbon tetrachloride	5.	ND	U
108-05-4	Vinyl acetate	10.	ND	U
71-43-2	Benzene	ˈ\ 5.	ND	U
107-06-2	1,2-Dichloroethane	5.	ND	ប
79-01-6	Trichloroethene	5.	ND	U
78-87-5	1,2-Dichloropropane	' 5.	ND	ט
75-27-4	Bromodichloromethane	5.	ND	.U
110-75-8	2-Chloroethylvinyl ether	' 5 <b>.</b>	ND	U
10061-01-5	Cis-1,3-dichloropropene	5.	ND	U
108-10-1	4-Methyl-2-pentanone	10.	ND	U
108-10-1	Toluene	5.	ND	U.
10061-02-6	Trans-1,3-dichloropropene	5.	ND	[ บ.
79-00-5	1,1,2-Trichloroethane	5.	ND	U
127-18-4	Tetrachloroethene	5.	ND	Ū
591-78-6	2-Hexanone	10.	ND	U
124-48-1	Dibromochloromethane		ND	U
108-90-7		5.	ND	U
108-90-7		1	ND	U
_	Ethylbenzene Xylene (Total)	5.	סא	บ
1330-20-7	Styrene	5.	ND	U
100-42-5	Styrene Bromoform	5.	ND	ט
75-25-2	1,1,2,2-Tetrachloroethane	- 5.	ND	U
79-34-5	1,1,2,2-letrachioroethane	5.	ND	ប
541-73-1	1,4-Dichlorobenzene	5.	מא	U
106-46-7	1,4-Dichlorobenzene	5.	ND	U
95-50-1	r :	1	1	

# SURROGATE RECOVERY SUMMARY -- EPA METHOD 624/8240 ANAMETRIX, INC. (408)432-8192

Project ID : 91C0592A Matrix : SOLID Anametrix ID: 9112047

Analyst :of Supervisor :M

	SAMPLE ID	SUl	SU2	su3	TOTAL
1 2	BLANK MW-7 (7-7	100	100 98	101 96 96	0 0
3 4 5	MW-7 (MS MW-7 (MSD	94 96	100 100	97	ŏ
6					
1 2 3 4 5 6 7 8 9 10					
11 12 13					
14 15					
16 17 18					
19 20					
21 22 23 24 25 26					
25 26					
27 28 29					
30					

## QC LIMITS

SU1 = 1,2-Dichloroethane-d4 (73-130) SU2 = Toluene-d8 (74-121) SU3 = 1,4-Bromofluorobenzene (70-124)

\* Values outside of Anametrix QC limits

## SURROGATE RECOVERY SUMMARY -- EPA METHOD 624/8240 ANAMETRIX, INC. (408)432-8192

Project ID : 91C0592A Matrix : SOLID

Anametrix ID : 9112047 : 28

Analyst

Supervisor : W

SAMPLE ID	suı	SU2	SU3	TOTAL
BLANK MW-6(7.5 MW-5(8-8	99 100 100	100 100 102	102 95 101	0
	BLANK	BLANK 99	BLANK 99 100	BLANK 99 100 102

			QC LIMITS
CIIO	_	1,2-Dichloroethane-d4 Toluene-d8 1,4-Bromofluorobenzene	(73-130) (74-121) (70-124)

<sup>\*</sup> Values outside of Anametrix QC limits

### MATRIX SPIKE RECOVERY FORM -- EPA METHOD 624/8240 ANAMETRIX, INC. (408)432-8192

Project ID

: 91C0592A : MW-7(7-7

Anametrix ID : 9112047-04

Sample ID

Analyst Supervisor

: જાિ : !

: SOIL

fatrix : SOIL
Jate Sampled :12/5/91
Date Analyzed :12/10/91
Instrument ID : MSD2

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC =====	%REC LIMITS
1,1-Dichloroethene Trichlorotrifluoroethan Methylene chloride Chloroform 1,1,1-Trichloroethane Benzene 1,2-Dichloroethane Trichloroethene 4-Methyl-2-pentanone Toluene Tetrachloroethene Chlorobenzene 1,2-Dichlorobenzene	50.0 50.0 50.0 50.0 50.0 50.0 50.0 50.0	.0	29.6 28.5 34.0 38.0 35.1 37.5 32.5 40.1 36.0 38.0 42.2 39.2 31.2	59 57 68 70 75 65 80 72 76 84 78 *	54-150 44-130 60-158 48-152 70-134 64-126 58-146 50-130 76-132 64-148 86-124 56-146

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD =====	RPD LIMITS	%REC LIMITS
1,1-Dichloroethene Trichlorotrifluoroethan Methylene chloride Chloroform 1,1,1-Trichloroethane Benzene 1,2-Dichloroethane Trichloroethene 4-Methyl-2-pentanone Toluene Tetrachloroethene Chlorobenzene 1,2-Dichlorobenzene	50.0 50.0 50.0 50.0 50.0 50.0 50.0 50.0	29.6 27.6 36.2 40.3 36.0 39.1 35.2 41.3 42.2 38.8 40.4 39.3 33.3	59 55 72 81 72 78 70 83 84 78 81 79 *	0 3 6 2 4 8 3 16 2 4 0 7	30 30 30 30 30 30 30 30 30 30 30	54-150 44-180 60-158 48-152 70-134 64-126 58-146 50-130 76-132 64-148 86-124 56-146

<sup>\*</sup> Value is outside of Anametrix QC limits

RPD: 0 out of 13 outside limits Spike Recovery: 2 out of 26 outside limits

Anametrix ID : 9112047-01

: 91C0592A : MW-5(8-8 Project ID Sample ID : 111 Analyst : 14 Matrix Supervisor : SOIL

Date Sampled :12/5/91
Date Extracted :12/12/91 Amount Extracted: 30.0 g

Dilution Factor: 1.00 Date Analyzed :12/17/91 Instrument ID : F2 Conc. Units : ug/Kg

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
	717707	330.	ND	U
108-95-2	PHENOL SUL OPOSETHYL ) FTHEP	330.	ND	ט
111-44-4	BIS (2-CHLOROETHYL) ETHER	330.	ND	ט
95-57-8	2-CHLOROPHENOL	330.	ND	ט
541-73-1	1,3-DICHLOROBENZENE	330.	ND	lu l
106-46-7	1,4-DICHLOROBENZENE	330.	ND	U
100-51-6	BENZYL ALCOHOL	330.	ND	ן ט
95-50-1	1,2-DICHLOROBENZENE	330.	ND	ប
95-48-7	2-METHYLPHENOL	330.	ND	ប
108-60-1	BIS (2-CHLOROIS OPROPYL) ETHER	330.	ND	บ
106-44-5	4-METHYLPHENOL	330.	ND	ไป
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	330.	ND	U
67-72-1	HEXACHLOROETHANE	330.	ND	Ū
98-95-3	NITROBENZENE	330.	ND	Ū
78-59-1	ISOPHORONE	1	ND	ŭ
88-75-5	2-NITROPHENOL	330.	ND	Ŭ
105-67-9	2,4-DIMETHYLPHENOL	330.	?	บั
65-85-0	RENZOIC ACID	1700.	ND ND	บั
111-91-1	BIS(2-CHLOROETHOXY) METHANE	330.	1	ΰ
120-83-2	2 4-DICHLOROPHENOL	330.	ND	۳۱
120-82-1	1,2,4-TRICHLOROBENZENE	330.	ND	١٥
91-20-3	NAPHTHALENE	330.	4200.	U
106-47-8	4-CHLOROANILINE	330.	ND	ט
87-68-3	HEXACHLOROBUTADI ENE	330.	ND	l n
59-50-7	4-CHLORO-3-METHYLPHENOL	330.	ND	ļυ
91-57-6	2-METHYLNAPHTHALENE	330.	3700.	1
77-47-4	HEXACHLOROCYCLOPENTADIENE	330.	ND	ប្រ
88-06-2	2,4,6-TRICHLOROPHENOL	330.	ND	U
	2,4,5-TRICHLOROPHENOL	1700.	ND	U
95-95-4	2-CHLORONAPHTHALENE	330.	ND	U
91-58-7	2-CHLOROMAPHTHADENS 2-NITROANILINE	1700.	ND	บ
88-74-4	DIMETHYLPHTHALATE	330.	ND	U
131-11-3	ACENAPHTHYLENE	330.	ND	טן
208-96-8 606-20-2	2,6-DINITROTOLUENE	330.	ND	U -

 Project ID
 : 91C0592A
 Anametrix ID
 : 9112047-01

 Sample ID
 : MW-5(8-8)
 Analyst
 : W

Matrix : SOIL Supervisor : M Date Sampled :12/5/91 Date Extracted :12/12/91

Amount Extracted: 30.0 g
Date Analyzed: 12/17/91
Dilution Factor: 1.00
Instrument ID: F2
Conc. Units: ug/Kg

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	1700.	ND	ט
83-32-9	ACENAPHTHENE	330.	ND	ַ
51-28-5	2,4-DINITROPHENOL	1700	ND	U
100-02-7	4-NITROPHENOL	1700.	ND	ַ ט
132-64-9	DIBENZOFURAN	330.	ND	U
121-14-2	2,4-DINITROTOLUENE	330.	ND	U
84-66-2	DIETHYLPHTHALATE	330.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	330.	ND	Įΰ
86-73-7	FLUORENE	330.	ND	ן ט
100-01-6	4-NITROANILINE	1700.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	1700.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	330.	ND	ប
101-55-3	4-BROMOPHENYL-PHENYLETHER	330.	ND .	ט
118-74-1	HEXACHLOROBENZENE	330.	ND	U
87-86-5	PENTACHLOROPHENOL	1700.	ND	U
85-01-8	PHENANTHRENE	330.	מא	U
120-12-7	ANTHRACENE	330.	ND	U
84-74-2	DI-N-BUTYLPHTHALATE	330.	ND	U
206-44-0	FLUORANTHENE	330.	ND	U
129-00-0	PYRENE	330.	ND.	U
85-68-7	BUTYLBENZYLPHTHALATE	330.	DИD	שׁ
91-94-1	3,3'-DICHLOROBENZIDINE	670.	ND	U
56-55-3	BENZO(A) ANTHRACENE	330.	ND	U
218-01-9	CHRYSENE	330.	ND	ן ט
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	330.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	330.	ND	U
205-99-2	BENZO (B) FLUOROANTHENE	330.	ND	U
207-08-9	BENZO(K) FLUOROANTHENE	330.	ND	ไซ
50-32-8	BENZO(A) PYRENE	330.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	330.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	330.	ND	lυ
191-24-2	BENZO(G,H,I) PERYLENE	330.	ND	Ū
62-75-9	N-NITROSODIMETHYLAMINE	330.	ND	Ū
4165-61-1	ANILINE	330.	ND	Ū
103-33-3	AZOBENZENE	330.	ND	Ū
92-87-5	BENZIDINE	1700.	ND	Ū
)2 U, J				

Project\_ID : 91C0592A : MW-6(7.5 Sample ID : SOIL Matrix

:12/ 5/91 Date Sampled Date Extracted :12/12/91

Amount Extracted: 30.0 g Date Analyzed :12/17/91
Instrument ID : F2

: 9112047-02 Anametrix ID

: W Analyst : M Supervisor

Dilution Factor : 1.00 Conc. Units : ug/Kg

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q 
108-95-2	PHENOL	330.	ND	U
111-44-4	BIS (2-CHLOROETHYL) ETHER	330.	ND	<u>ע</u>
95-57-8	2-CHLOROPHENOL	330.	ND	U
541-73-1	1.3-DICHLOROBENZENE	330.	ND	ן ט
106-46 <del>-</del> 7	1,4-DICHLOROBENZENE	330.	סמ	ן ט
100-40-7	BENZYL ALCOHOL	330.	ND	ַ
95-50-1	1,2-DICHLOROBENZENE	330.	ND	U
95-30-1 95-48-7	2-METHYLPHENOL	330.	ND	U
108-60-1	BIS (2-CHLOROIS OPROPYL) ETHER	330.	ND	ប
108-60-1	4-METHYLPHENOL	330.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	330.	ND	U
67-72-1	HEXACHLOROETHANE	330.	ИD	U
98-95-3	NITROBENZENE	330.	ND .	ט
78-59-1	ISOPHORONE	330.	ND	U
88-75-5	2-NITROPHENOL	330.	ND	ט
105-67-9	2.4-DIMETHYLPHENOL	330.	ND	U
65-85-0	BENZOIC ACID	1700.	ND	ט
,	BIS (2-CHLOROETHOXY) METHANE	330.	ND.	U
111-91-1	2.4-DICHLOROPHENOL	330.	ND	U
120-83-2	1,2,4-TRICHLOROBENZENE	330.	ND	ប
120-82-1	NAPHTHALENE	330.	ND	U
91-20-3	4-CHLOROANILINE	330.	ND	U
106-47-8	HEXACHLOROBUTADIENE	330.	ND	ប
87-68-3	4-CHLORO-3-METHYLPHENOL	330.	ND	ט
59-50-7	2-METHYLNAPHTHALENE	330.	ND	U
91-57-6	HEXACHLOROCYCLOPENTADIENE	330.	ND	U
77-47-4	2,4,6-TRICHLOROPHENOL	330.	ND	ប
88-06-2	2,4,5-TRICHLOROPHENOL	1700.	ND	U
95-95-4	2-CHLORONAPHTHALENE	330.	ND	U
91-58-7	2-CHLORONAPHTHALLINE 2-NITROANILINE	1700.	ND	U
88-74-4	DIMETHYLPHTHALATE	330.	ND	ប
131-11-3	ACENAPHTHYLENE	330.	NĐ	U
208-96-8	2,6-DINITROTOLUENE	330.	ND	Ū
606-20-2	7'P-DINTIKOTOPOPNE	·1	1	1

: 91C0592A Project ID : MW-6(7.5)Sample ID : SOIL

Matrix :12/ 5/91 Date Sampled Date Extracted :12/12/91

Amount Extracted: 30.0 g Date Analyzed :12/17/91 Instrument ID : F2

: 9112047-02 Anametrix ID

:w Analyst Supervisor

Dilution Factor: 1.00 Conc. Units : ug/Kg

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	1700. 330.	ND ND	ט
83-32-9	ACENAPHTHENE	1700.	ND	U I
51-28-5	2,4-DINITROPHENOL	1700.	ND	ן ט
100-02-7	4-NITROPHENOL	330.	ND	U
132-64-9	DIBENZOFURAN	330.	ND	ן ט
121-14-2	2,4-DINITROTOLUENE	330.	ND	ן ט
84-66-2	DIETHYLPHTHALATE	330.	ND	ן ט
7005-72-3	4-CHLOROPHENYL-PHENYLETHER_	330.	ND	ן מ
86-73-7	FLUORENE	1700.	ND	ט
100-01-6	4-NITROANILINE	1700.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL_	330.	ND	Ū
86-30-6	N-NITROSODIPHENYLAMINE (1)	330.	ND	١ <del>٠</del>
101-55-3	4-BROMOPHENYL-PHENYLETHER	330.	ND	Ŭ
118-74-1	HEXACHLOROBENZENE	1700.	ND	Ŭ
87-86-5	PENTACHLOROPHENOL	330.	ND	اق
85-01-8	PHENANTHRENE	330.	ND	Ū
120-12-7	ANTHRACENE	330.	ОИ	ŭ
84-74-2	DI-N-BUTYLPHTHALATE		360.	"
206-44-0	FLUORANTHENE	330.	570.	1
129-00-0	PYRENE	330.		บ
85-68-7	BUTYLBENZYLPHTHALATE	330.	ND	ϋ
91-94-1	3.3'-DICHLOROBENZIDINE	670.	ND	lü
56-55-3	BENZO (A) ANTHRACENE	330.	ND	١٥
218-01-9	CHRYSENE	330.	560.	υ
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	330.	ND	υ
117-84-0	DI-N-OCTYLPHTHALATE	330.	ND	10
205-99-2	BENZO (B) FLUOROANTHENE	330.	660.	ט
207-08-9	BENZO (K) FLUOROANTHENE	330.	ND	١٠
50-32-8	BENZO(A) PYRENE	330.	420.	1,,
193-39-5	INDENO(1,2,3-CD)PYRENE	330.	ND	U
53-70-3	DIBENZ[A, H] ANTHRACENE	330.	ND	Ü
191-24-2	BENZO (G, H, I) PERYLENE	330.	ND	Ü
62-75-9	N-NITROSODIMETHYLAMINE	330.	ND	Ü
4165-61-1	ANILINE	330.	ND	ŭ
103-33-3	AZOBENZENE	330.	ND	<u>n</u>
92-87-5	BENZIDINE	1700.	ND	U
34-0/-3		•	1	

: 91C0592A : MW-7(7-7 Project ID Sample ID Matrix

: SOIL

Date Sampled :12/5/91
Date Extracted :12/12/91 Amount Extracted: 30.0 g

Date Analyzed :12/17/91 Instrument ID : F2

Anametrix ID : 9112047-04

Analyst Supervisor

: w

: iM

Dilution Factor : Conc. Units : ug/Kg

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2	PHENOL	330.	ND	บ
111-44-4	BIS (2-CHLOROETHYL) ETHER	330.	ND	ט
95-57-8	2-CHLOROPHENOL	330.	ND	ַ
541-73-1	1,3-DICHLOROBENZENE	330.	ND	U
106-46-7	1,4-DICHLOROBENZENE	330.	ND	U
100-51-6	BENZYL ALCOHOL	330.	ND	ַ
95-50-1	1,2-DICHLOROBENZENE	330.	ND	ַ
95-48-7	2-METHYLPHENOL	330.	ND	U
108-60-1	BIS (2-CHLOROIS OPROPYL) ETHER	330.	ND	ַ
106-44-5	4-METHYLPHENOL	330.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	330.	ND	Ū
67-72-1	HEXACHLOROETHANE	330.	ND	U
98-95-3	NITROBENZENE	330.	ND	ט
78-59-1	ISOPHORONE	330.	ND	U
88-75-5	2-NITROPHENOL	330.	ND	ט
105-67-9	2.4-DIMETHYLPHENOL	330.	ND	U
65-85-0	BENZOIC ACID	1700.	ND	U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	330.	ND	U
120-83-2	2.4-DICHLOROPHENOL	330.	ND	ប
120-82-1	1,2,4-TRICHLOROBENZENE	330.	ND	ט
91-20-3	NAPHTHALENE	330.	ND	U
106-47-8	4-CHLOROANILINE	330.	ND	U
87-68-3	HEXACHLOROBUTADIENE	330.	ND	U
59-50-7	4-CHLORO-3-METHYLPHENOL	330.	ND	U
91-57-6	2-METHYLNAPHTHALENE	330.	ND	บ
77-47-4	HEXACHLOROCYCLOPENTADIENE	330.	ND	U
88-06-2	2,4,6-TRICHLOROPHENOL	330.	ND	U
95-95-4	2,4,5-TRICHLOROPHENOL	1700.	ND	U
91-58-7	2-CHLORONAPHTHALENE	330.	ND	ט
88-74-4	2-CHEORONAPHILADERS	1700.	ND	U
131-11-3	DIMETHYLPHTHALATE	330.	ND	บ
208-96-8	ACENAPHTHYLENE	330.	ND	Ū
606-20-2	2,6-DINITROTOLUENE	330.	ND	Ū
000-20-2	2,0 DINITAOLODOMA			.

Project ID Sample ID : 91C0592A : MW-7(7-7 Matrix

: SOIL

Date Sampled :12/5/91
Date Extracted :12/12/91
Amount Extracted : 30.0 g
Date Analyzed :12/17/91
Instrument ID : F2 Date Sampled

Anametrix ID : 9112047-04 Analyst : W

Supervisor : W

Dilution Factor: 1.00

Conc. Units : ug/Kg

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	1700.	ND	ַ
83-32-9	ACENAPHTHENE	330.	ND	U
51-28-5	2.4-DINITROPHENOL	1700.	ND	U
100-02-7	4-NITROPHENOL	1700.	ND	U
132-64-9	DIBENZOFURAN	330.	ND	U
121-14-2	2,4-DINITROTOLUENE	330.	ND	U
84-66-2	DIETHYLPHTHALATE	330.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	330.	ND	U
86-73-7	FLUORENE	330.	ND	Ū
100-01-6	4-NITROANILINE	1700.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL_	1700.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	330.	ND	ט
101-55-3	4-BROMOPHENYL-PHENYLETHER	330.	ND	U
118-74-1	HEXACHLOROBENZENE	330.	ND	U
87-86-5	PENTACHLOROPHENOL	1700.	ND	U
85-01-8	PHENANTHRENE	330.	ND	U
120-12-7	ANTHRACENE	330.	ND	U
84-74-2	DI-N-BUTYLPHTHALATE	330.	ND	ט
206-44-0	FLUORANTHENE	330.	ИD	ប
129-00-0	PYRENE	330.	ND	ប
85-68-7	BUTYLBENZYLPHTHALATE	330.	ND	U
	3.3'-DICHLOROBENZIDINE	670.	ND	ט
91-94-1 56-55-3	BENZO (A) ANTHRACENE	330.	ND	ַט
218-01-9	CHRYSENE	330.	ND	U
	BIS(2-ETHYLHEXYL) PHTHALATE	330.	ND	ប
117-81-7	DI-N-OCTYLPHTHALATE	330.	ND	ט
117-84-0	BENZO (B) FLUOROANTHENE	330.	ND	Ū
205-99-2	BENZO (K) FLUOROANTHENE	330.	ND	บ
207-08-9	BENZO(A) PYRENE	330.	ND	U
50-32-8	INDENO(1,2,3-CD) PYRENE	330.	ND	ט
193-39-5	DIBENZ[A, H] ANTHRACENE	330.	ND	U
53-70-3	DIBENZ(A, I) ANTIKACENE	330.	ND	υ
191-24-2	BENZO (Ğ, H, İ) PERYLENE N-NITROSODIMETHYLAMINE	330.	ND	U
62-75-9		330.	ND	U
4165-61-1	ANILINE	330.	ND	U
103-33-3	AZOBENZENE	1700.	ND	U
92-87-5	BENZIDINE	-1 -7,55.	1	1

: 1212B002 Anametrix ID : 91C0592A Analyst : iw

Project ID Sample ID : BLANK : W Supervisor : SOIL Matrix

Date Sampled : 0/0/0
Date Extracted :12/12/91 Amount Extracted: 30.0 g Dilution Factor :

Date Analyzed :12/17/91 Instrument ID : F2 Conc. Units : UG/KG

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
CAS NO.  108-95-2 111-44-4 95-57-8 541-73-1 106-46-7 100-51-6 95-50-1 95-48-7 108-50-1 106-44-5 621-64-7 67-72-1 98-95-3 78-59-1 88-75-5 105-67-9 65-85-0	PHENOL  BIS (2-CHLOROETHYL) ETHER  2-CHLOROPHENOL  1,3-DICHLOROBENZENE  1,4-DICHLOROBENZENE  BENZYL ALCOHOL  1,2-DICHLOROBENZENE  2-METHYLPHENOL  BIS (2-CHLOROISOPROPYL) ETHER  4-METHYLPHENOL  N-NITROSO-DI-N-PROPYLAMINE  HEXACHLOROETHANE  NITROBENZENE  ISOPHORONE  2-NITROPHENOL  2,4-DIMETHYLPHENOL  BENZOIC ACID	330. 330. 330. 330. 330. 330. 330. 330.	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ם מם מם מם מם מם מם מם
111-91-1 120-83-2 120-82-1 91-20-3 106-47-8 87-68-3 59-50-7 91-57-6 77-47-4 88-06-2 95-95-4 91-58-7 88-74-4 131-11-3 208-96-8 606-20-2	BIS (2-CHLOROETHOXY) METHANE  2,4-DICHLOROPHENOL  1,2,4-TRICHLOROBENZENE  NAPHTHALENE  4-CHLOROANILINE  HEXACHLOROBUTADIENE  4-CHLORO-3-METHYLPHENOL  2-METHYLNAPHTHALENE  HEXACHLOROCYCLOPENTADIENE  2,4,6-TRICHLOROPHENOL  2,4,5-TRICHLOROPHENOL  2-CHLORONAPHTHALENE  2-NITROANILINE  DIMETHYLPHTHALATE  ACENAPHTHYLENE  2,6-DINITROTOLUENE	330. 330. 330. 330. 330. 330. 330. 330. 330. 330. 330. 330. 330. 330. 330.	ND ND ND ND ND ND ND ND ND ND ND ND ND N	מטטטטטטטטטטטטטטטט

Anametrix ID : 1212B002

Project ID : 91C0592A
Sample ID : BLANK
Matrix : SOIL Analyst : w Supervisor : W : SOIL Matrix

Date Sampled : 0/ 0/ 0
Date Extracted :12/12/91 Amount Extracted: 30.0 g

53-70-3

191-24-2

4165-61-1

103-33-3

92-87-5

62-75-9

Date Analyzed :12/17/91 Instrument ID : F2 Dilution Factor: 1.00 Conc. Units : UG/KG

AMOUNT REPORTING 0 DETECTED COMPOUND NAME LIMIT CAS NO. U ND 1700. 99-09-2 3-NITROANILINE U ND 330. 83-32-9 ACENAPHTHENE U 2,4-DINITROPHENOL 1700. ND 51-28-5 U ND 4-NITROPHENOL \_\_\_\_ 1700. 100-02-7 U ND 330. DIBENZOFURAN 132-64-9 U 2,4-DINITROTOLUENE 330. ND 121-14-2 U DIETHYLPHTHALATE 330. ND 84-66-2 U 4-CHLOROPHENYL-PHENYLETHER ND 330. 7005-72-3 U ND 330. FLUORENE 86-73-7 U ND 4-NITROANILINE 1700. 100-01-6 U ND 4,6-DINITRO-2-METHYLPHENOL\_\_\_ 1700. 534-52-1 N-NITROSODIPHENYLAMINE (1) 4-BROMOPHENYL-PHENYLETHER ND U 330. 86-30-6 ND U 330. 101-55-3 U ND 330. 118-74-1 HEXACHLOROBENZENE U 1700. ND PENTACHLOROPHENOL 87-86-5 U 330. ND 85-01-8 PHENANTHRENE U 330. ND ANTHRACENE 120-12-7 U 330. ND DI-N-BUTYLPHTHALATE 84-74-2 U 330. ND FLUORANTHENE 206-44-0 U 330. ND 129-00-0 U 330. ND BUTYLBENZYLPHTHALATE 85-68-7 IJ 3,3'-DICHLOROBENZIDINE ND 670. 91-94-1 U 330. ND 56-55-3 BENZO (A) ANTHRACENE U ND 330. CHRYSENE 218-01-9 BIS (2-ETHYLHEXYL) PHTHALATE U ND 330. 117-81-7 ND U DI-N-OCTYLPHTHALATE 330. 117-84-0 U ND 330. BENZO (B) FLUOROANTHENE 205-99-2 U BENZO (K) FLUOROANTHENE 330. ND 207-08-9 U 330. ND 50-32-8 BENZO (A) PYRENE U ND INDENO(1,2,3-CD)PYRENE 330. 193-39-5 U ND DIBENZ[A,H]ANTHRACENE 330.

BENZO(G,H,I)PERYLENE

ANILINE

BENZIDINE

N-NITROSODIMETHYLAMINE

AZOBENZENE

U

U

U

U

U

330.

330.

330.

330.

1700.

ND

ND

ND

ND

ND

#### SURROGATE RECOVERY SUMMARY -- EPA METHOD 625/8270 ANAMETRIX, INC. (408)432-8192

Project ID : 91C0592A Matrix : SOLID

Anametrix ID : 9112047

Analyst : [iw Supervisor : [i/

	SAMPLE ID	SU1	SU2	SU3	SU4	SU5	SU6	TOTAL OUT
1	BLANK	70	48	73	76	65	81 *	1 1 1 1
2	MW-5(8-8	69	52	82	87	52	87 *	1
2 3	MW-7 (7-7	78	57	83	91	71	92 *	1
4	MW-5(8-8 MW-7(7-7 MW-6(7.5	81	57	89	93	72	106 *	1
5	<b>54</b>				İ			
6								
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8				<del></del>				
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20		·					<del></del>	
26 27		.						
2/		-						
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29		. ]		<u> </u>			<del></del>	<del></del>
30	l	_	l	l	l	l	l	l i

		OC LIMITS
SU1 =	2-FLUOROPHENOL	(14-118)
	PHENOL-D5	(20-122)
SU3 =	: NITROBENZENE-D5	(11-101)
SU4 =	2-FLUOROBIPHENYL	(17-102)
SU5 =	2,4,6-TRIBROMOPHENOL	(14-151)
SU6 =	TERPHENYL-D14	(10- 74)

<sup>\*</sup> Values outside of Anametrix QC limits

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

MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014 Workorder # : 9112047
Date Received : 12/05/91
Project ID : 91C0592A
Purchase Order: N/A

Purchase Order: N/A
Department : GC
Sub-Department: PEST

## SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9112047- 1	MW-5(8-8.5)	SOIL	12/05/91	8080 PCB
	MW-6(7.5-8)	SOIL.	12/05/91	8080 PCB
9112047- 2		SOIL	12/05/91	8080 PCB
9112047- 4	MW-7 (7-7.5)	3022		<u> </u>

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

MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014 Workorder # : 9112047
Date Received : 12/05/91
Project ID : 91C0592A
Purchase Order: N/A
Department : GC

Sub-Department: PEST

#### QA/QC SUMMARY :

- Due to the software limitations the "MW-" part of the sample I.D was not included in the final report.

Strates Diwww 12-19-91
Department Supervisor Date

Sulet Ofware 12-19-91
Chemist Date

roject ID : 91C0592A Sample ID : 5(8-8.5)

Anametrix ID : 9112047-1
) Analyst 50
Supervisor : 50

Matrix : SOIL
Date Sampled : 12/5/91
Date Extracted : 12/10/91
Amount Extracted : 10.0 g

Date Analyzed : 12/11/91 Dilution Factor : 1.00 Instrument ID : HP16 Conc. Units : UG/KG

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	80. 80. 80. 80. 80. 160.	ND ND ND ND ND ND ND	ט ט ט ט ט

GC/PEST - PAGE 3

: 9112047-2 :50 Anametrix ID : 91C0592A

roject ID Sample ID Analyst : 6(7.5-8)Supervisor

Matrix : SOIL ate Sampled : 12/5/91 ate Extracted : 12/10/91

Amount Extracted: 10.0 g Dilution Factor: 1.00 Tate Analyzed : 12/11/91 nstrument ID : HP16 Conc. Units : UG/KG

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	80. 80. 80. 80. 80. 160.	ND ND ND ND ND ND ND	ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט

GC/PEST - PAGE 4

roject ID sample ID Matrix : 91C0592A Matrix : SOIL
late Sampled : 12/5/91
late Extracted : 12/10/91
Amount Extracted : 10.0 g
Pate Analyzed : 12/11/91
Instrument ID : HP16 : 7(7-7.5)

Anametrix ID

: 9112047-4

Analyst Supervisor

:00 : SD

Dilution Factor: 1.00

Conc. Units : UG/KG

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	80. 80. 80. 80. 80. 160.	ND ND ND ND ND ND	מממממ

\_roject ID Sample ID : 91C059 Anametrix ID

: PSBLK121091 :40

: BLANK

Analyst Supervisor

ate Sampled

:5h

atrix : SOIL
ate Sampled : 0/0/0
ate Extracted : 12/10/91
amount Extracted : 10.0 g

Dilution Factor: 1.00

ate Analyzed : 12/11/91 nstrument ID : HP16

Conc. Units : UG/KG

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	80. 80. 80. 80. 80. 160.	ND ND ND ND ND ND ND	บ บ บ บ บ บ

### SURROGATE RECOVERY SUMMARY -- EPA METHOD 608/8080 ANAMETRIX, INC. (408)432-8192

Project ID: 91C0592A Matrix : SOLID

Anametrix ID : 9112047 Analyst : :

Supervisor : SD

- 1			TOTAL
	SAMPLE ID	SU1	OUT
ا ۽	BLANK	109	<del></del>
<u> </u>			
- 2	5(8-8.5)	94	0
3	6(7.5-8) 7(7-7.5)	82	0
4	7(7-7.5)	76	0
5			
1 2 3 4 5 6 7 8 9			
7		1	
8			
9			
10			
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28			
29			l
30			l

QC LIMITS (37-149)

SU1 = DBC

\* Values outside of Anametrix QC limits

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

MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014 Workorder # : 9112047 Date Received : 12/05/91 Project ID : 91C0592A

Purchase Order: N/A
Department : GC
Sub-Department: TPH

#### SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9112047- 1	MW-5(8-8.5)	SOIL	12/05/91	TPHd
9112047- 2	MW-6(7.5-8)	SOIL	12/05/91	TPHd
9112047- 4	MW-7(7-7.5)	SOIL	12/05/91	TPHd
9112047- 1	MW-5(8-8.5)	SOIL	12/05/91	TPHg/BTEX
9112047- 2	MW-6(7.5-8)	SOIL	12/05/91	TPHg/BTEX
9112047- 4	MW-7(7-7.5)	SOIL	12/05/91	TPHg/BTEX

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

MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014 Workorder # : 9112047 Date Received : 12/05/91 Project ID : 91C0592A

Purchase Order: N/A
Department : GC
Sub-Department: TPH

#### QA/QC SUMMARY :

1

- The concentration reported as diesel for sample MW5(8-8.5) is primarily due to the presence of a lighter petroleum product, possibly

gasoline.

- The concentration reported as diesel for sample MW-6(7.5-8) is due to the presence of a combination of diesel and a heavier petroleum product, possibly motor oil.

The concentration reported as diesel for sample MW-7(7-7.5) is primarily due to the presence of a heavier petroleum product, possibly motor oil.

Charles Burner Date

Department Supervisor Date

Chemist Date

#### ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS (GASOLINE WITH BTEX) ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9112047 Matrix : SOIL

Date Sampled : 12/05/91

Project Number: 91C0592A Daté Released : 12/13/91

	Reporting Limit	Sample I.D.# MW-5 (8-8.5)	Sample I.D.# MW-6 (7.5-8)	Sample I.D.# MW-7 (7-7.5)	Sample I.D.# 08B1209A	
COMPOUNDS	(mg/Kg)	-01	-02	-04	BLANK	
Benzene Toluene Ethylbenzene Total Xylenes TPH as Gasolin		ND 5.1 17 37 830	0.030 ND ND ND	ND ND ND ND	ND ND ND ND	
<pre>% Surrogate Re Instrument I Date Analyze RLMF</pre>	.D.	92% HP8 12/09/91 1000	88% HP8 12/09/91 1	72% HP8 12/09/91 1	96% HP8 12/09/91	

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

TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.

BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.

RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

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

## ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9112047

Project Number: 91C0592A Date Released: 12/13/91

Matrix : SOIL
Date Sampled : 12/05/91
Date Extracted: 12/10/91

Instrument I.D.: HP23

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)
9112047-01	MW-5(8-8.5)	12/12/91	50	280
9112047-02	MW-6(7.5-8)	12/12/91	10	140
9112047-04	MW-7(7-7.5)	12/12/91	10	48
DSBL121091	METHOD BLANK	12/12/91	10	ND

Note: Reporting limit is obtained by multiplying the dilution factor times 10 mg/Kg.

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

TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following sample extraction by EPA Method 3550.

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

Analyst Sher 12/20/91

Analyst Date

Supervisor

Date

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

MS. LOIS GRUENBERG

WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014

Workorder **#** : 9112047 Date Received: 12/05/91 Project ID: 91C0592A Purchase Order: N/A

Department : PREP Sub-Department: PREP

#### SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9112047- 1	MW-5(8-8.5)	SOIL	12/05/91	5520EF
9112047- 2	MW-6(7.5-8)	SOIL	12/05/91	5520EF
9112047- 4	MW-7(7-7.5)	SOIL	12/05/91	5520EF

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

MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100

OAKLAND, CA 94607-4014

Workorder # : 9112047
Date Received : 12/05/91
Project ID : 91C0592A

Purchase Order: N/A
Department : PREP
Sub-Department: PREP

QA/QC SUMMARY :

- No QA/QC problems encountered for samples.

Department Supervisor

12-19-91

Date

Chemist Chemist

Date

PREP/PREP - PAGE 2

# ANALYSIS DATA SHEET - TOTAL OIL AND GREASE ANAMETRIX, INC. (408) 432-8192

Project # : 91C0592A : SOIL Matrix

Anametrix I.D. : 9112047 Analyst Supervisor

Date sampled : 12/05/91
Date ext. TOG : 12/11/91
Date anl. TOG : 12/11/91

e cy Date released : 12/18/91

   Workorder #	Sample I.D.	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)
9112047-01	MW-5(8-8.5)	30	80
9112047-02	MW-6(7.5-8)	30	1800
9112047-04	MW-7 (7-7.5)	30	93
GSBL121191	METHOD BLANK	30	ND

Not detected at or above the practical quantitation limit for the method. - Total Oil & Grease is determined by Standard Method 5520E&F. TOG

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

#### TOTAL OIL AND GREASE MATRIX SPIKE REPORT STANDARD METHOD 5520EF ANAMETRIX, INC. (408) 432-8192

: 91C0592A MW-5(8-8.5) Sample I.D.

Anametrix I.D. : 9112047-01

Matrix

: SOIL

| Date sampled : 12/05/91

: 57 Analyst Supervisor

Date extracted: 12/11/91 Date analyzed : 12/11/91

Date Released : 12/18/91

COMPOUND	SPIKE AMT. (mg/Kg)	MS (mg/Kg)	%REC MS	MSD (mg/Kg)	*REC MSD	*RPD	%REC LIMITS
Motor Oil	300	290	70%	290	70%	0%	48-114%

\* Quality control limits established by Anametrix, Inc.

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

MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014 Workorder # : 9112047
Date Received : 12/05/91
Project ID : 91C0592A
Purchase Order: N/A

Purchase Order: N/A
Department : METALS
Sub-Department: METALS

#### SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9112047- 1	MW-5(8-8.5)	SOIL	12/05/91	PP-MET
9112047- 2	MW-6(7.5-8)	SOIL	12/05/91	PP-MET
9112047- 4	MW-7(7-7.5)	SOIL	12/05/91	PP-MET

Project ID : 90C0592A Sample ID : MW-6 Matrix : WATER

Anametrix ID : 9112144-02 Analyst : W Supervisor : W

Matrix : WATER
Date Sampled :12/13/91
Date Extracted :12/17/91
Amount Extracted : 950.0 mL

Dilution Factor: 1.00

Date Analyzed :12/19/91 Instrument ID : F3

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2	PHENOL	11.	ND	ับ
111-44-4	BIS(2-CHLOROETHYL)ETHER	11.	ND.	υ.
95-57-8	2-CHLOROPHENOL	11.	ND	U
541-73-1	1,3-DICHLOROBENZENE	11.	ND	U
106-46-7	1,4-DICHLOROBENZENE	11.	ND	U
100-51-6	BENZYL ALCOHOL	11.	ИD	บ
95-50-1	1,2-DICHLOROBENZENE	11.	ND	U
95-48-7	2-METHYLPHENOL	11.	ND	U
108-60-1	BIS(2-CHLOROISOPROPYL) ETHER	11.	ND	U
106-44-5	4-METHYLPHENOL	11.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	11.	ND	U
67-72-1	HEXACHLOROETHANE	11.	ND	U
98-95-3	NITROBENZENE	11.	ND	U
78-59-1	ISOPHORONE	11.	ND	U
88-75-5	2-NITROPHENOL	11.	ND	U
105-67-9	2,4-DIMETHYLPHENOL	11.	ND	U
65-85-0	BENZOIC ACID	53.	ND	Ū
111-91-1	BIS(2-CHLOROETHOXY)METHANE	11.	ND	U
120-83-2	2,4-DICHLOROPHENOL	11.	ND	U
120-82-1	1,2,4-TRICHLOROBENZENE	11.	ND	U
91-20-3	NAPHTHALENE	11.	ND	U
106-47-8	4-CHLOROANILINE	11.	ND	U
87-68-3	HEXACHLOROBUTADIENE	11.	ND	U
59-50-7	4-CHLORO-3-METHYLPHENOL	11.	ND	U
91-57-6	2-METHYLNAPHTHALENE	11.	ND	U
77-47-4	HEXACHLOROCYCLOPENTADIENE	11.	ND	U
88-06-2	2.4.6-TRICHLOROPHENOL	l ii.	ND	U
95-95-4	2,4,5-TRICHLOROPHENOL	53.	ND	ט
91-58-7	2-CHLORONAPHTHALENE	11.	ND	ប
88-74-4	2-CHLORONAPHTHALENE 2-NITROANILINE	53.	ND	U
	DIMETHYLPHTHALATE	11.	ND	Ū
131-11-3	ACENAPHTHYLENE	11.	ND	Ū ·
208-96-8 606-20-2	2,6-DINITROTOLUENE	11.	ND	Ū

Project ID : 90C0592A Sample ID : MW-6 : WATER

: MW-6 Analyst : W : WATER Supervisor : W

Anametrix ID : 9112144-02

Matrix : WATER
Date Sampled :12/13/91
Date Extracted :12/17/91
Amount Extracted : 950.0 mL

Date Analyzed :12/19/91 Dilution Factor : 1.00 Instrument ID : F3 Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	53.	ND	บ
83-32-9	ACENAPHTHENE	11.	ND	ט
51-28-5	2,4-DINITROPHENOL	53.	ND	ן ט
100-02-7	4-NITROPHENOL	53.	ND	U
132-64-9	DIBENZOFURAN	11.	ND	U
121-14-2	2,4-DINITROTOLUENE	11.	ND	ט
84-66-2	DIETHYLPHTHALATE	11.	ND	ַ
7005-72-3	4-CHLOROPHENYL-PHENYLETHER_	11.	ND	ַ
86-73-7	FLUORENE	11.	ND	U
100-01-6	4-NITROANILINE	53.	ND	ַ
534-52-1	4,6-DINITRO-2-METHYLPHENOL	53.	ИD	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	11.	ND	U
101-55-3	4-BROMOPHENYL-PHENYLETHER	11.	ND	U
118-74-1	HEXACHLOROBENZENE	11.	ND	U
87-86-5	PENTACHLOROPHENOL	53.	ND	U
85-01-8	PHENANTHRENE	11.	ND	ប
120-12-7	ANTHRACENE	11.	ND	ט
84-74-2	DI-N-BUTYLPHTHALATE	11.	ND	U
206-44-0	FLUORANTHENE	11.	ND	ט
129-00-0	PYRENE	11.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	11.	ND	ט
91-94-1	3,3'-DICHLOROBENZIDINE	21.	ND	U
56-55-3	BENZO(A) ANTHRACENE	11.	ИD	U
218-01-9	CHRYSENE	11.	ND	Ū
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	11.	ND	ט
117-84-0	DI-N-OCTYLPHTHALATE	11.	ND	บ
205-99-2	BENZO(B) FLUOROANTHENE	11.	ND	U
207-08-9	BENZO(K) FLUOROANTHENE	11.	ND	U
50-32-8	BENZO(A) PYRENE	11.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	11.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	11.	ND	U
191-24-2	BENZO (G, H, I) PERYLENE	11.	ND	U
62-75-9	N-NITROSODIMETHYLAMINE	11.	ND .	U
4165-61-1	ANILINE	11.	ND	U
103-33-3	AZOBENZENE	11.	ND	U
92-87-5	BENZIDINE	53.	ND	U
				.

Anametrix ID Project ID Sample ID : 90C0592A

: 14 Analyst : MW-7 Supervisor : W : WATER

: 9112144-03

Date Sampled :12/13/91 Date Extracted :12/17/91 Amount Extracted: 950.0 mL

Matrix

Dilution Factor : 1.00 Conc. Units : ug/L Date Analyzed :12/19/91 Instrument ID : F3

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2	PHENOL	11.	ND	บ
111-44-4	BIS (2-CHLOROETHYL) ETHER	11.	ND	U
95-57-8	2-CHLOROPHENOL	11.	ND	U
541-73-1	1.3-DICHLOROBENZENE	11.	ND	U
106-46-7	1,4-DICHLOROBENZENE	11.	ND	טן
100-51-6	BENZYL ALCOHOL	11.	ND	U
95-50-1	1,2-DICHLOROBENZENE	11.	ND	U
95-48-7	2-METHYLPHENOL	11.	ND	U
108-60-1	BIS (2-CHLOROIS OPROPYL) ETHER	11.	ND	U
106-44-5	4-METHYLPHENOL	11.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	11.	ND	U
67-72-1	HEXACHLOROETHANE	11.	ND	U
98-95-3	NITROBENZENE	11.	ND	U
78-59-1	ISOPHORONE	11.	ND	U
88-75-5	2-NITROPHENOL	11.	ND	Ū
105-67-9	2,4-DIMETHYLPHENOL	11.	ND	υ
65-85-0	BENZOIC ACID	53.	ND	Ū
111-91-1	BIS (2-CHLOROETHOXY) METHANE	11.	ND	U
120-83-2	2,4-DICHLOROPHENOL	11.	ND	U
120-82-1	1,2,4-TRICHLOROBENZENE	11.	ND	U
91-20-3	NAPHTHALENE	11.	ND	ַט
106-47-8	4-CHLOROANILINE	11.	סא	U
87-68-3	HEXACHLOROBUTADIENE	11.	ND	ט
59-50-7	4-CHLORO-3-METHYLPHENOL	11.	ND	U
91-57-6	2-METHYLNAPHTHALENE	11.	ND	U
77-47-4	HEXACHLOROCYCLOPENTADIENE	11.	ND	U
88-06-2	2,4,6-TRICHLOROPHENOL	11.	ND	U
95-95-4	2,4,5-TRICHLOROPHENOL	53.	ND	U
91-58-7	2-CHLORONAPHTHALENE	11.	ND	U
88-74-4	2-NITROANILINE	53.	ND	U
131-11-3	DIMETHYLPHTHALATE	11.	ND	U
208-96-8	ACENAPHTHYLENE	11.	ND	U
606-20-2	2,6-DINITROTOLUENE	11.	ND	U

Project ID Sample ID : 90C0592A : MW-7 : WATER

Date Sampled :12/13/91
Date Extracted :12/17/91
Amount Extracted : 950.0 mL

Matrix

Date Analyzed :12/19/91 Instrument ID : F3

Anametrix ID

: 9112144-03

Analyst Supervisor

: W ' : 4

Dilution Factor: 1.00

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	53.	ND	U
83-32-9	ACENAPHTHENE	11.	ND	U
51-28-5	2,4-DINITROPHENOL	53.	ND	U
100-02-7	4-NITROPHENOL	53.	ND	บ
132-64-9	DIBENZOFURAN	11.	ND	U
121-14-2	2,4-DINITROTOLUENE	11.	ND	U
84-66-2	DIETHYLPHTHALATE	11.	ND	ט
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	11.	ND	U
86 <del>-</del> 73-7	FLUORENE	11.	ND	U
100-01-6	4-NITROANILINE	53.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	53.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	11.	ND	U
101-55-3	4-BROMOPHENYL-PHENYLETHER	11.	ИD	U
118-74-1	HEXACHLOROBENZENE	11.	ND	U
87-86-5	PENTACHLOROPHENOL	53.	ND	U
85-01-8	PHENANTHRENE	11.	ND	U
120-12-7	ANTHRACENE	11.	ND	U
84-74-2	DI-N-BUTYLPHTHALATE	11.	ND	U
206-44-0	FLUORANTHENE	11.	ND	U
129-00-0	PYRENE	11.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	11.	ND	U
91-94-1	3,3'-DICHLOROBENZIDINE	21.	ND	ប
56-55-3	BENZO (A) ANTHRACENE	11.	ИD	U
218-01-9	CHRYSENE	11.	ND	U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE_	11.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	11.	ND	U
205-99-2	BENZO (B) FLUOROANTHENE	11.	ND	U
207-08-9	BENZO(K) FLUOROANTHENE	11.	ND	U
50-32-8	BENZO (A) PYRENE	11.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	11.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	11.	ND	U
191-24-2	BENZO (G, H, I) PERYLENE	11.	ND	U
62-75-9	N-NITROSODIMETHYLAMINE	11.	ND	U
4165-61-1	ANILINE	11.	ND	U
103-33-3	AZOBENZENE	11.	ND	U
92-87-5	BENZIDINE	53.	ND	U

Project ID : Anametrix ID : 1217B001

Sample ID : BLANK Analyst : WATER Supervisor : WATER

Date Sampled : 0/ 0/ 0
Date Extracted : 12/17/91
Amount Extracted : 1000.0 mL

Date Analyzed :12/19/91 Dilution Factor : 1.00 Instrument ID : F3 Conc. Units : ug/L

AMOUNT REPORTING Q DETECTED CAS NO. COMPOUND NAME LIMIT U ND 10. 108-95-2 PHENOL U BIS(2-CHLOROETHYL)ETHER 10. ND 111-44-4 U 10. ND 95-57-8 2-CHLOROPHENOL IJ 1,3-DICHLOROBENZENE ND 10. 541-73-1 U 10. ND 1,4-DICHLOROBENZENE 106-46-7 U ND 10. BENZYL ALCOHOL 100-51-6 U ND 95-50-1 1,2-DICHLOROBENZENE 10. U ND 95-48-7 10. 2-METHYLPHENOL U 10. ND BIS (2-CHLOROIS OPROPYL) ETHER 108-60-1 U ND 10. 106-44-5 4-METHYLPHENOL N-NITROSO-DI-N-PROPYLAMINE ND U 10. 621-64-7 10. ND U HEXACHLOROETHANE 67-72-1 U 10. ND NITROBENZENE 98-95-3 U ND 10. 78-59-1 ISOPHORONE U 10. ND 2-NITROPHENOL 88-75-5 U ND 10. 105-67-9 2,4-DIMETHYLPHENOL U 50. ND BENZOIC ACID 65-85-0 U BIS (2-CHLOROETHOXY) METHANE 10. ND 111-91-1 U ND 10. 120-83-2 2,4-DICHLOROPHENOL U 10. ND 1,2,4-TRICHLOROBENZENE 120-82-1 U 10. ND 91-20-3 NAPHTHALENE U 10. ND 4-CHLOROANILINE 106-47-8 U 10. ND HEXACHLOROBUTADI ENE 87-68-3 U 10. ND 4-CHLORO-3-METHYLPHENOL 59-50-7 U 10. ND 2-METHYLNAPHTHALENE 91-57-6 HEXACHLOROCYCLOPENTADIENE \_\_\_ U 10. ND 77-47-4 U 88-06-2 2,4,6-TRICHLOROPHENOL 10. ND U 50. ND 2,4,5-TRICHLOROPHENOL 95-95-4 U ND 10. 91-58-7 2-CHLORONAPHTHALENE U 50. ND 2-NITROANILINE 88-74-4 U 10. ND 131-11-3 DIMETHYLPHTHALATE ND U 10. 208-96-8 ACENAPHTHYLENE U 10. ND 606-20-2 2.6-DINITROTOLUENE

Project ID Sample ID

Anametrix ID

: 1217B001

: BLANK

Analyst

Matrix

: WATER

Supervisor

Date Sampled : 0/ 0/ 0 Date Extracted :12/17/91

Amount Extracted: 1000.0 mL

Date Analyzed :12/19/91 Instrument ID : F3

Dilution Factor: 1.00

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	50.	ND	U
83-32-9	ACENAPHTHENE	10.	ND	U
51-28-5	2,4-DINITROPHENOL	50.	ND	U
100-02-7	4-NITROPHENOL	50.	ND	U
132-64-9	DIBENZOFURAN	10.	ND	U
121-14-2	2,4-DINITROTOLUENE	10.	ND	U
84-66-2	DIETHYLPHTHALATE	10.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10.	ND	ן ט
86-73-7	FLUORENE	10.	ND	U
100-01-6	4-NITROANILINE	50.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	50.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	10.	ИD	U
101-55-3	4-BROMOPHENYL-PHENYLETHÈR	10.	ND	U
118-74-1	HEXACHLOROBENZENE -	10.	ND	U
87-86-5	PENTACHLOROPHENOL	50.	ND	U
85-01-8	PHENANTHRENE	10.	ND	U
120-12-7	ANTHRACENE	10.	ND	U
24-74-2	DI-N-BUTYLPHTHALATE	10.	ND	U
206-44-0	FLUORANTHENE	10.	ND	U
129-00-0	PYRENE	10.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	10.	ND	ប
91-94-1	3,3'-DICHLOROBENZIDINE	20.	ND	U
56-55-3	BENZO(A) ANTHRACENE	10.	ND	U
218-01-9	CHRYSENE	10.	ND	U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	10.	ND	U
205-99-2	BENZO(B) FLUOROANTHENE	10.	ND	ַ ט
207-08-9	BENZO(K) FLUOROANTHENE	10.	ND	ַ ט
50-32-8	BENZO(A) PYRENE	10.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	10.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	10.	ND	U
191-24-2	BENZO(G,H,I)PERYLENE	10.	ND	U
62-75-9	N-NITROSODIMETHYLAMINE	10.	ND	U
4165-61-1	ANILINE	10.	ND	U
103-33-3	AZOBENZENE	10.	ND	U
92-87-5	BENZIDINE	50.	ND	U

# SURROGATE RECOVERY SUMMARY -- EPA METHOD 625/8270 ANAMETRIX, INC. (408)432-8192

Project ID : 91C0592A Matrix : LIQUID Anametrix ID : 9112144

Analyst : w Supervisor : W

SAMPLE ID	SU1	SU2	SU3	SU4	SU5	SU6	TOTAL
SAMPLE ID	301	302	303	504	333		
1 BLANK	42	21	56	55	43	74	0
2 MW-5	42	21	58	63	47	74	0 0
3 MW-6	37	19	59	61 61	46 41	72 76	0
4 MW-7 5 MW-7 MS	34 40	18 20	63 61	62	42	75	Ö
6 MW-7 MSD	32	16	46	48	40	72	Ö
7 MW-7 MSD	32		40				
8							
8 9							
10							
11 12 13							
12	_			· <del></del>	<del></del>		
14	_   ,						<u>-</u>
15	·						<del></del>
15 16 17	-						
17							
18							
18 19 20 21 22 23							
20		1					
21	_ -						
22						<del></del>	
23	<u> </u>						
25		·					
24 25 26							
27	_						
27 28 29							
29							
30			l		1	l	l

	QC LIMITS
SU1 = 2-FLUOROPHENOL	(10- 82)
SU2 = PHENOL-D5	(10- 72)
SU3 = NITROBENZENE-D5	(10-100)
SU4 = 2-FLUOROBIPHENYL	(10- 92)
SU5 = 2,4,6-TRIBROMOPHENOL	(15-13 <del>9</del> )
SU6 = TERPHENYL-D14	(10-110)

<sup>\*</sup> Values outside of Anametrix QC limits

#### MATRIX SPIKE RECOVERY FORM -- EPA METHOD 625/8270 ANAMETRIX, INC. (408)432-8192

Project ID Sample ID

: 90C0592A

Anametrix ID

: 9112144-03

: MW-7

Analyst

اللها :

Matrix

: WATER

Supervisor

= W

Date Sampled

:12/13/91

Date Extracted

:12/17/91

Date Analyzed :12/19/91

Instrument ID

: F3

COMPOUND	SPIKE ADDED (ug/L )	SAMPLE CONCENTRATION (ug/L )	MS CONCENTRATION (ug/L )	MS % REC	%REC LIMITS
PHENOL 2-CHLOROPHENOL 1,4-DICHLOROBENZENE N-NITROSO-DI-N-PROP.(1) 1,2,4-TRICHLOROBENZENE 4-CHLORO-3-METHYLPHENOL ACENAPHTHENE 4-NITROPHENOL 2,4-DINITROTOLUENE PENTACHLOROPHENOL PYRENE	100. 100. 50. 50. 100. 50. 100. 50.	0. 0. 0. 0. 0. 0. 0.	32. 50. 29. 36. 29. 57. 31. 32. 34. 52.	32 50 57 71 59 57 62 32 67 52 70	10- 82 27-114 21- 86 29-139 14-104 36-121 38-108 10- 58 44-121 10-137 44-125

COMPOUND	SPIKE ADDED (ug/L )	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	RPD LIMITS	%REC LIMITS
PHENOL 2-CHLOROPHENOL 1,4-DICHLOROBENZENE	100. 100. 50.	28. 42. 22.	28 42 44	13 16 26	42 40 28	10- 82 27-114 21- 86
n-NITROSO-DI-N-PROP. (1) 1,2,4-TRICHLOROBENZENE 4-CHLORO-3-METHYLPHENOL	50. 50. 100.	30. 23. 55.	60 46 55	18 24 4	38 28 42	29-139 14-104 36-121
ACENAPHTHENE 4-NITROPHENOL	50. 100.	27. 35.	54 35 66	13 8 2	31 50 38	38-108 10- 58 44-121
2,4-DINITROTOLUENE PENTACHLOROPHENOL PYRENE	50. 100. 50.	33. 54. 35.	54 71	3 1	50 31	10-137 44-125

#### \* Value is outside of Anametrix QC limits

RPD:

0 out of

11 outside limits

Spike Recovery: 0 out of 22 outside limits

MS. LOIS GRUENBERG

WOODWARD-CLYDE CONSULTANTS

500 12TH STREET, SUITE 100

OAKLAND, CA 94607-4014

Workorder # : 9112144

Date Received: 12/16/91 Project ID: 91C0592A-4000

Purchase Order: N/A Department : GC

Sub-Department: PEST

#### SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9112144- 1	MW-5	WATER	12/13/91	8080 PCB
9112144- 2	MW-6	WATER	12/13/91	8080 PCB
9112144- 3	MW-7	WATER	12/13/91	8080 PCB

MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014 Workorder # : 9112144
Date Received : 12/16/91

Project ID : 91C0592A-4000

Purchase Order: N/A
Department : GC
Sub-Department: PEST

#### QA/QC SUMMARY :

- The surrogate recoveries of all the analyzed extracts were outside of Anametrix control limits due to the acid cleanup necessary for this method.

Strates Dinvov 12-23-11

Department Supervisor Date

Chemist Ofware 12-23-91

Chemist Date

Anametrix ID : 9112144-1

:क्ष Analyst : 5) Supervisor

roject ID : 91C0592A

sample ID : MW-5

Matrix : WATER

ate Sampled : 12/13/91

ate Extracted : 12/18/91

Amount Extracted : 500.0 mL

Pate Analyzed : 12/20/91

nstrument ID : HP16

Dilution Factor : 1.00 Conc. Units : UG/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2	Aroclor-1016	.50	ND	U
11104-28-2 11141-16-5	Aroclor-1221 Aroclor-1232	.50	ND ND	ָם ע
53469-21-9 12672-29-6	Aroclor-1242 Aroclor-1248	.50	ND ND	Ü
11097-69-1 11096-82-5	Aroclor-1254 Aroclor-1260	1.0	ND ND	ט

GC/PEST - PAGE 3

: 91C0592A

Anametrix ID : 9112144-2

roject ID Sample ID : MW-6 atrix : WATER

:Juo Analyst Supervisor : 5D

atrix : WATER ate Sampled : 12/13/91 ate Extracted : 12/18/91 Amount Extracted: 500.0 mL

Dilution Factor: 1.00

ate Analyzed : 12/20/91 nstrument ID : HP16

Conc. Units : UG/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2	Aroclor-1016	.50	ND ND	U
11104-28-2 11141-16-5	Aroclor-1221 Aroclor-1232	.50	ND	Ü
53469-21 <del>-</del> 9 12672-29-6	Aroclor-1242 Aroclor-1248	.50	ND ND	ָ [
11097-69-1	Aroclor-1254	1.0	ND	Ü
11096-82-5	Aroclor-1260	1.0	ND	υ

: 91C0592A roject ID

: 9112144-3 Anametrix ID

Sample ID : MW-7 : WATER atrix

die: Analyst Supervisor : 5D

ate Sampled : 12/13/91 Late Extracted : 12/18/91 ite Sampled Amount Extracted: 500.0 mL

Dilution Factor : 1.00 Conc. Units : UG/L

ate Analyzed : 12/20/91 astrument ID : HP16

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
12674-11-2	Aroclor-1016	.50	ND	U
11104-28-2	Aroclor-1221		ND	U
.1141-16-5 53469-21-9 .2672-29-6	Aroclor-1232 Aroclor-1242 Aroclor-1248	.50 .50 .50	ND ND ND	ם ח
11097 <del>-</del> 69-1	Aroclor-1254	1.0	ND	U
11096-82-5	Aroclor-1260		ND	U

: 91C059 : BLANK roject ID

Anametrix ID : PCBWBLK12189
Analyst : C Analyst

Sample ID :59 Supervisor atrix : WATER

ate Sampled : 0/0/0
ate Extracted : 12/18/91 Amount Extracted: 500.0 mL

'ate Analyzed: 12/20/91

nstrument ID: HP16

Dilution Factor : 1.00 Conc. Units : UG/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
2674-11-2	Aroclor-1016	.50	ND	U
1104-28-2	Aroclor-1221	.50	ND	U
11141-16-5	Aroclor-1232	.50	ND	U
53469-21-9	Aroclor-1242	.50	ND	U
L2672-29-6	Aroclor-1248	.50	ND	U
11097-69-1	Aroclor-1254	1.0	ND	U
11096-82-5	Aroclor-1260	<u> </u>	ND	U

### SURROGATE RECOVERY SUMMARY -- EPA METHOD 608/8080 ANAMETRIX, INC. (408)432-8192

Project ID : 91C0592A Matrix : LIQUID Anametrix ID: 9112144

Analyst :50
Supervisor :50

	SAMPLE ID	SU1	TOTAL OUT
12345678910112314567	SAMPLE ID  BLANK MW-5 MW-6 MW-7	SU1  35 * 30 * 28 * 36 *	TOTAL OUT
17 18 19 20 21			
22 23 24 25			
26 27 28 29 30			

QC LIMITS SU1 = DBC (43-146)

\* Values outside of Anametrix QC limits

MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100

OAKLAND, CA 94607-4014

Workorder # : 9112144
Date Received : 12/16/91
Project ID : 91C0592A-

Purchase Order: N/A
Department : GC
Sub-Department: TPH

#### SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9112144- 1	MW-5	WATER	12/13/91	TPHd
9112144- 2	MW-6	WATER	12/13/91	TPHd
9112144- 3	MW-7	WATER	12/13/91	TPHd
9112144- 5	MW-9	WATER	12/13/91	ТРНд
9112144- 1	MW-5	WATER	12/13/91	TPHg/BTEX
9112144- 2	MW-6	WATER	12/13/91	TPHg/BTEX
9112144- 3	MW-7	WATER	12/13/91	TPHg/BTEX
' 9112144- 4	MW-8	WATER	12/13/91	TPHg/BTEX
9112144- 6	MW-10	WATER	12/13/91	TPHg/BTEX

MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014

Workorder # : 9112144
Date Received : 12/16/91
Project ID : 91C0592A-4000

Purchase Order: N/A Department : GC Sub-Department: TPH

QA/QC SUMMARY :

- The concentration reported as diesel for sample MW-5 is primarily due to the presence of a lighter petroleum product, possibly gasoline.

12.26 91 Date Department Supervisor

Acres 200 - 22691 Date Chemist

# ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS (GASOLINE WITH BTEX) ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9112144

Project Number: 91C0592A-4000

Matrix : WATER
Date Sampled : 12/13/91

Date Released : 12/26/91

	Reporting Limit	Sample I.D.# MW-5	Sample I.D.# MW-6	Sample I.D.# MW-7	Sample I.D.# MW-8	Sample I.D.# MW-9
COMPOUNDS	(ug/L)	-01	-02	-03	-04 	-05 
Benzene Toluene Ethylbenzene Total Xylenes TPH as Gasoline	0.5 0.5 0.5 0.5 = 50	1500 190 970 2500 13000	110 2.7 ND 5.5 780	ND ND ND ND	ND ND ND ND	- - - ND
<pre>% Surrogate Rec Instrument I Dati Analyzec RLMF</pre>	.D.	92% HP12 12/20/91 100	90% HP12 12/18/91 5	114% HP12 12/18/91 1	123% HP12 12/19/91	111% HP12 12/18/91

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

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

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

Analyst Date

Supervisor Date

TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.

BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.

RLMF - Reporting Limit Multiplication Factor.

#### ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS (GASOLINE WITH BTEX) ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9112144

Project Number: 91C0592A-4000

Matrix

: WATER

Date Released : 12/26/91

Date Sampled : 12/13/91

L'Lothisa Ocsple?

	Reporting Limit	Sample I.D.# MW-10	Sample I.D.# 12B1218A	Sample I.D.# 12B1219A	Sample I.D.# 21B1219A	Sample I.D.# 12B1220B
COMPOUNDS	(ug/L)	-06	BLANK	BLANK	BLANK	BLANK
Benzene Toluene Ethylbenzene Total Xylenes TPH as Gasoline	0.5 0.5 0.5 0.5	1400 180 870 2500 16000	ND ND ND ND	ND ND ND ND	ND ND ND ND	ND ND ND ND
<pre>% Surrogate Rec Instrument I Date Analyzec RLMF</pre>	.D.	105% HP21 12/19/91 250	106% HP12 12/18/91	108% HP12 12/19/91	100% HP21 12/19/91	108% HP12 12/20/91 1

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

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

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

Analyst

TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.

BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.

RLMF - Reporting Limit Multiplication Factor.

#### ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9112144

Project Number: 91C0592A-4000 Date Released: 12/26/91 Instrument I.D.: HP23

: WATER Matrix

Date Sampled: 12/13/91 Date Extracted: 12/17/91

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (ug/L)	Amount Found (ug/L)
9112144-01	<b>MW−</b> 5	12/19/91	100	1900
9112144-02	MW-6	12/18/91	50	520
9112144-03	MW-7	12/18/91	50	ND
DWBL121791	METHOD BLANK	12/18/91	50	ND

Note: Reporting limit is obtained by multiplying the dilution factor times 50ug/L.

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

the method.

TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following sample extraction by EPA Method 3510.

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

#### BTEX MATRIX SPIKE REPORT EPA METHOD 5030 WITH GC/PID ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 91C0592A-4000 MW-8
Matrix : WATER
Date Sampled : 12/13/91
Date Analyzed : 12/18/91

Anametrix I.D.: 9112144-04 Analyst : 15 Supervisor : CF Date Released : 12/26/91 Instrument ID : HP12

СОМРОИИВ	SPIKE AMT. (ug/L)	MS (ug/L)	REC MS	MSD (ug/L)	REC MSD	RPD	%REC LIMITS
Benzene Toluene Ethylbenzene M+P-Xylenes O-Xylene	10.0 10.0 10.0 6.7 3.3	9.7 9.4 8.6 5.8 2.9	97% 94% 86% 87% 88%	9.6 9.2 8.5 5.7 2.9	96% 92% 85% 85% 88%	-1% -2% -1% -2% 0%	46-149 43-146 51-138 39-161 37-156
P-BFB			114%		114%		53-147%

<sup>\*</sup> Limits established by Anametrix, Inc.

#### TOTAL EXTRACTABLE HYDROCARBON METHOD SPIKE REPORT EPA METHOD 3510 WITH GC/FID ANAMETRIX, INC. (408) 432-8192

Sample I.D. : METHOD SPIKE Matrix : REAGENT WATER
Date Sampled : N/A

Date Extracted: 12/17/91 Date Analyzed: 12/20/91

Anametrix I.D. : SPK121891

Analyst : #
Supervisor : CF:
Date Released : 12/26/91
Instrument I.D.: HP 9

COMPOUND	SPIKE AMT. (ug/L)	MS (ug/L)	%REC MS	MSD (ug/L)	%REC MSD	RPD	%REC LIMITS
Diesel	1250	750	60%	630	50%	-17%	36-150

<sup>\*</sup> Limits established by Anametrix, Inc.

MS. LOIS GRUENBERG

WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100

OAKLAND, CA 94607-4014

Workorder # : 9112144
Date Received : 12/16/91
Project ID : 9100592A-4000

Purchase Order: N/A Department : PREP Sub-Department: PREP

#### SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9112144- 1	MW-5	WATER	12/13/91	5520BF
9112144- 2	MW-6	WATER	12/13/91	5520BF
9112144- 3	MW-7	WATER	12/13/91	5520BF

MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014 Workorder # : 9112144 Date Received: 12/16/91 Project ID : 91C0592A-4000

Purchase Order: N/A Department : PREP Sub-Department: PREP

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Department Supervisor

Date

#### ANALYSIS DATA SHEET - TOTAL OIL AND GREASE ANAMETRIX, INC. (408) 432-8192

: 91C0592A-4000 Project #

Analyst : 9112144

: WATER Matrix

Analyst

: 12/13/91 Date sampled

:43 Supervisor Date released : 12/23/91

Date ext. TOG : 12/18/91 Date anl. TOG : 12/18/91

•	Workorder #	Sample I.D.	Reporting Limit (mg/L)	Amount Found (mg/L)
•	9112144-01	MW-5	5	ND
•	9112144-02	MW-6	5	ND
	9112144-03	MW-7	5	ND
	GWBL121891	METHOD BLANK	5	ND

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

- Total Oil & Grease is determined by Standard Method 5520BF. TOG

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

#### TOTAL OIL AND GREASE MATRIX SPIKE REPORT STANDARD METHOD 5520BF ANAMETRIX, INC. (408) 432-8192

Sample I.D. : METHOD SPIKE

Anametrix I.D.: SPK121891

Matrix

: WATER

Date sampled : N/A
Date extracted : 12/18/91

Analyst : L/ Supervisor : Ce3

Supervisor : (2723/91 Date Released : 12723/91

Date analyzed : 12/18/91

COMPOUND	SPIKE AMT. (mg/L)	MS (mg/L)	%REC MS	MSD (mg/L)	%REC MSD	%RPD	%REC LIMITS
Motor Oil	50	40	80%	44	88%	10%	47-99%

<sup>\*</sup> Quality control limits established by Anametrix, Inc.

MS. LOIS GRUENBERG

WOODWARD-CLYDE CONSULTANTS

500 12TH STREET, SUITE 100

OAKLAND, CA 94607-4014

Workorder # : 9112144

Date Received: 12/16/91
Project ID: 91C0592A-4000
Purchase Order: N/A

Department : METALS Sub-Department: METALS

#### SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9112144- 1	MW-5	WATER	12/13/91	PP-MET
9112144- 2	MW-6	WATER	12/13/91	PP-MET
9112144- 3	MW-7	WATER	12/13/91	PP-MET

MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014 Workorder # : 9112144
Date Received : 12/16/91
Project ID : 91C0592A-4000

Purchase Order: N/A
Department : METALS
Sub-Department: METALS

QA/QC SUMMARY :

- No QA/QC problems encountered for samples.

Maury Guyen 2/26/0,
Department Supervisor Date

Chemist 12/2/6/

METALS/METALS - PAGE 2

### ANALYSIS DATA SHEET - PRIORITY POLLUTANT METALS ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9112144 Matrix : WATER

Date Sampled : 12/13/91

Project Number: 91C0592A-4000

Date Prepared : 12/22/91 Date Analyzed : 12/23/91 Date Released : 12/26/91

Instrument I.D.: AA1/AA2/ICP1

	EPA Method#	Reporting Limit	Sample I.D.# MW-5	Sample I.D.# MW-6	Sample I.D.# MW-7	I.D.#	
ELEMENTS		(ug/L)	-01	-02 	-03 	MB1222W	
Silver (Ag) Arsenic (As) Beryllium (Be) Cadmium (Cd) Total Cr Copper (Cu) Mercury (Hg) Nickel (Ni) Lead (Pb) Lead (Pb) Antimony (Sb) Selenium (Se) Thallium (T1) Zinc (Zn)	6010 7060 6010 6010 6010 7470 6010 7421 6010 7740 7841 6010	10.0 10.0 5.0 5.0 10.0 25.0 0.68 40.0 3.0 40.0 60.0 5.0	ND ND ND 22.6 56.2 ND ND 173  ND ND ND	ND 14.3 ND ND 42.2 94.2 ND 126 1040 ND ND ND ND ND ND 837	ND ND ND 10.6 35.1 ND 270 11.4  ND ND ND	ND ND ND ND ND ND ND ND ND ND ND ND ND N	

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

All Metals by EPA Method 6010/7000, Test Methods for Evaluating Solid Waste, SW-846 3rd Edition November 1986.

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DATE	TIME	SAMPLE N		Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method	EPA Method	EPA Method	EPA Method	Dil + Grease	PP Mc	1 HAL	TP##		9707	Number of Containers	handling procedures, etc.)
15/91	9:15	MW-5 (8	-8.5)	3	X	X	X	X	X	X	X	<del></del>			1	Allsamples
1/		MW-6 (7.		S	X	Χ	Х	X	X	¥	X	X				Shoved in
11	11	MW-6 (8.		S	_				<u> </u>					<b>X</b>	1	Stored in baggies in chilled cooler
11	<del></del>	MW-7 (		<u>5</u>	X	X	Х	X	X	X	X	X		_	/	chilled cooler
14	11	MW-7 (	7.5-8)	<del>                                     </del>	<del>  -</del>	-	-		<del>                                     </del>	<del>-</del> -	-		$\frac{1}{2}$	4	1	
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MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014

Workorder # : 9112047 Date Received: 12/05/91 Project ID : 91C0592A Purchase Order: N/A Department : METALS Sub-Department: METALS

#### QA/QC SUMMARY :

- Samples MW-5(8-8.5) and MW-7(7-7.5) were analyzed at 1:2.5 dilution for EPA Method 6010 due to spectral interferences.

- All samples were analyzed at 1:5 dilution for selenium by EPA Method

7740 due to spectral interferences.

- Spike recoveries for copper and zinc by EPA Method 6010 were outside of Anametrix control limits due to high concentration levels in the unspiked sample.

- Matrix and post-digestion spike recoveries for arsenic by EPA Method 7060, lead by EPA Method 7421, selenium by EPA Method 7740 and thallium by EPA Method 7841 were outside of Anametrix control limits due to matrix effects.

- Spike recoveries for antimony by EPA Method 6010 and mercury by EPA Method 7471 were outside of Anametrix control limits.

Department/Supervisor

Mang Kane / 12/19/91

#### ANALYSIS DATA SHEET - PRIORITY POLLUTANT METALS ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9112047

Thallium (T1)

Zinc (Zn)

Matrix : SOIL Date Sampled : 12/05/91 Project Number: 91C0592A

Date Prepared : 12/17, 12/18/91 Date Analyzed : 12/18/91 Date Released : 12/19/91 Instrument I.D.: AA1/AA2/ICP1

	EPA Method#	Reporting Limit	Sample I.D.# MW-6 (7.5-8)	 
ELEMENTS		(mg/Kg)	-02	 
Silver (Ag)	6010	0.50	ND	
Arsenic (As)	7060	0.50	2.1	
Beryllium (Be)	6010	0.25	ND	
Cadmium (Cd)	6010	0.25	0.29	
Total Cr	6010	0.50	43.4	
Copper (Cu)	6010	1.25	26.3	
Mercury (Hg)	7471	0.34	ND	
Nickel (Ni)	6010	2.0	43.4	
Lead (Pb)	6010	2.0	94.0	
Antimony (Sb)	6010	3.0	ND	
Selenium (Se)	7740	1.2	ND	

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

0.50

1.0

All Metals by EPA Method 6010/7000, Test Methods for Evaluating Solid Waste, SW-846 3rd Edition November 1986.

ND 79.5

Meaneyhaufu 12/19/91

7841

6010

# ANALYSIS DATA SHEET - PRIORITY POLLUTANT METALS ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9112047

Matrix : SOIL
Date Sampled : 12/05/91
Project Number: 91C0592A

Date Prepared : 12/17, 12/18/91

Date Analyzed : 12/18/91 Date Released : 12/19/91 Instrument I.D.: AA1/AA2/ICP1

	EPA Method#	Reporting Limit	MW-5	I.D.# MW-7	 	
ELEMENTS		(mg/Kg)	-01 	-04	 	
Silver (Ag) Arsenic (As) Beryllium (Be) Cadmium (Cd) Total Cr Copper (Cu) Mercury (Hg) Nickel (Ni) Lead (Pb) Antimony (Sb) Selenium (Se) Thallium (Tl) Zinc (Zn)	6010 7060 6010 6010 6010 7471 6010 7421 6010 7740 7841 6010	1.2 0.50 0.62 0.62 1.2 3.1 0.34 5.0 0.75 7.5 1.2 0.50 2.5	ND 1.5 ND 28.1 89.4 ND 37.8 7.9 ND ND ND	ND ND 30.2 81.5 ND 35.9 7.3 ND ND		

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

All Metals by EPA Method 6010/7000, Test Methods for Evaluating Solid Waste, SW-846 3rd Edition November 1986.

J101119119114 12/19/01 Supervisor / Date

Mona Kame /2/19/91 Chemist Date

#### ANALYSIS DATA SHEET - PRIORITY POLLUTANT METALS ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9112047

Matrix : SOIL

Date Sampled: 12/05/91 Project Number: 91C0592A

Date Prepared : 12/17, 12/18/91

Date Analyzed : 12/18/91 Date Released : 12/19/91 Instrument I.D.: AA1/AA2/ICP1

ELEMENTS		Reporting Limit  (mg/Kg)	BLANK	I.D.# METHOD BLANK	 	
222222222					 	
Silver (Ag) Arsenic (As) Beryllium (Be) Cadmium (Cd) Total Cr Copper (Cu) Mercury (Hg) Nickel (Ni) Lead (Pb) Antimony (Sb) Selenium (Se) Thallium (Tl) Zinc (Zn)	7060 6010 6010 6010 7471 6010 6010 7740	0.25 0.25 0.50 1.25		  ND 		

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

All Metals by EPA Method 6010/7000, Test Methods for Evaluating Solid Waste, SW-846 3rd Edition November 1986.

#### ANAMETRIX, INC. 1961 CONCOURSE DRIVE, SUITE E SAN JOSE, CA 95131, (408) 432-8192

	INOR	GANICS	MATRIX	SPIKE R	EPORT			
I.D. : repared: nalyzed: WO # :	12/17, 1 12/18/91	.2/18/91	·	Date Matr		AA1/AA2/ 12/19/91 SOIL mg/Kg		CP1 /91
METHOD	SPIKE AMOUNT	SAMPLE CONC.*	M.S. CONC.	REC.	M.S.D.	REC.	RPD	
6010 7060 6010 6010 6010 7471 6010 7421 6010 7740 7841 6010	50.0 100 2.50 2.50 10.0 12.5 0.68 25.0 25.0 25.0 100 25.0	0.0 0.0 30.2 81.5 0.0 35.9	41.7 99.5 1.12 63.3 21.5 15.0 40.5	73.3 108.0 94.8 115.0 NR 165 109.6 56.8 60.0	73.9 2.68 2.45 41.8 99.4 1.73 63.8 20.0 14.5	107.2 98.0 116.0 NR 254 111.6 50.8 58.0 43.4	1.1 0.7 3.3 0.9 NR 42.8 1.8 11.2 3.4 6.9	
				=	-======	========	======	į

Quality control limits for percent recovery are 75-125% and 25% for RPD.

Not reported due to interferences from relatively high background levels in the unspiked sample.

Sample concentration of 0.0 indicates that the analyte in the sample was below detection limit for the method. 0.0 is entered for calculations of the percent recovery and RPD only.

12/19/91 50x Date Mong Kame / 12/19/41
Chemist Date

/2//4/91 Date

### ANAMETRIX INC

Environmental & Analytical Chemistry 1961 Concourse Drive, Suite E, San Jose, CA 95131 (408) 432-8192 · Fax (408) 432-8196



MS. LOIS GRUENBERG WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100 OAKLAND, CA 94607-4014

Workorder # : 9112144 Date Received : 12/16/91

Project ID : 91C0592A-4000

Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis:

ANAMETRIX ID	CLIENT SAMPLE ID
9112144- 1	MW-5
9112144- 2	MW-6
9112144- 3	MW-7
9112144- 4	MW-8
9112144- 5	MW-9
9112144- 6	MW-10

This report consists of 40 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.

Laboratory Manager

MS. LOIS GRUENBERG

WOODWARD-CLYDE CONSULTANTS 500 12TH STREET, SUITE 100

OAKLAND, CA 94607-4014

Workorder # : 9112144
Date Received : 12/16/91
Project ID : 91C0592A-4000
Purchase Order: N/A

Department : GCMS Sub-Department: GCMS

#### SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9112144- 1	MW-5	WATER	12/13/91	8240
9112144- 2	MW-6	WATER	12/13/91	8240
9112144- 3	MW-7	WATER	12/13/91	8240
9112144- 6	MW-10	WATER	12/13/91	8240
9112144- 1	MW-5	WATER	12/13/91	8270
9112144- 2	MW-6	WATER	12/13/91	8270
9112144- 3	MW-7	WATER	12/13/91	8270

MS. LOIS GRUENBERG

WOODWARD-CLYDE CONSULTANTS

500 12TH STREET, SUITE 100

OAKLAND, CA 94607-4014

Workorder # : 9112144

Date Received: 12/16/91 Project ID: 91C0592A-4000

Purchase Order: N/A Department : GCMS Sub-Department: GCMS

QA/QC SUMMARY :

- No QA/QC problems.

Department Supervisor

GCMS/GCMS - PAGE 2

: 91C0592A : MW-5 coject ID
ample ID

Anametrix ID : 9112144-01 Analyst : Market Supervisor : M

Matrix

: WATER Matrix : WATER

ate Sampled :12/13/91

ate Analyzed :12/19/91

astrument ID : MSD1

Dilution Factor: 50.00

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	Chloromethane	500.	ND	U
75-01-4	Vinyl chloride	500.	ND	U
74-83-9	Bromomethane	500	ND	U
75-00-3	Chloroethane	500.	ND	U
75-69-4	Trichlorofluoromethane	250.	ND	U
	1,1-Dichloroethene	250.	ИD	U
75-35-4	Trichlorotrifluoroethane	250.	ND	U
76-13-1		1000.	ND	U
67-64-1	Acetone Carbon disulfide	250.	ND	ប
75-15-0	Carbon disdilide	250.	ND	ប
75-09-2	Methylene chloride	250.	ND	Ü
156-60-5	Trans-1,2-dichloroethene	250.	ND	Ū
75-34-3	1,1-Dichloroethane	_	ND	Ū
156-59-2	Cis-1,2-dichloroethene	1000.	ND	Ŭ
78-93-3	2-Butanone	250.	ND	ŭ
67-66-3	Chloroform		ND	Ü
71-55-6	1,1,1-Trichloroethane	250.		Ü
56-23-5	Carbon tetrachloride	250.	ND	Ü
108-05-4	Vinyl acetate	500.	ND	U
71-43-2	Benzene	250.	1800.	
107-06-2	1,2-Dichloroethane	250.	ND	ü
79-01-6	Trichloroethene	250.	ND	Ü
78-87-5	1,2-Dichloropropane	250.	ND	ט
75-27-4		250.	ND	U
110-75-8	Bromodichloromethane 2-Chloroethylvinyl ether Cis-1,3-dichloropropene	250.	ND	U
10061-01-5	cis-1 3-dichloropropene	250.	ND	บ
108-10-1	4-Methyl-2-pentanone	500.	ND	U
	Toluene	250.	ND	บ
108-88-3	Toruene 2-dichloropropene		ND	U
10061-02-6	Trans-1,3-dichloropropene	250.	ND	U
79-00-5	1,1,2-Trichioroechane	250.	ND	Ū
127-18-4	Tetrachloroethene	500.	ND	Ü
591-78-6	2-Hexanone		ND	Ū
124-48-1	Dibromochloromethane		ND	Ü
108-90-7	Chlorobenzene Ethylbenzene Xylene (Total)	250.	1000.	"
100-41-4	Ethylbenzene	250.	3800.	
1330-20-7	Xylene (Total)	250.	<b>I</b>	บ
100-42-5	Styrene	270.	ND	Ü
75-25-2	! Bromoform	250.	ND	บ็
79-34-5	1,1,2,2-Tetrachloroethane	250.	ND	
541-73-1	1,3-Dichlorobenzene	250.	ND	Ü
106-46-7	1,4-Dichlorobenzene	] 250.	ND	Ü
95-50-1	1,2-Dichlorobenzene	250.	ND	ן ט
1 33 30 1				_

roject ID : 91C0592A
ample ID : MW-6
Matrix : WATER
ate Sampled :12/13/91
ate Analyzed :12/19/91
astrument ID : MSD1

Anametrix ID : 9112144-02 Analyst : max

Supervisor

· W Dilution Factor : 1.00

roject ID Lample ID

: 91C0592A

Anametrix ID Analyst

: 9112144-03

: 7 1

Matrix

: MW-7 : WATER

Supervisor

ate Sampled :12/13/91 ate Analyzed :12/19/91 instrument ID : MSD1

Dilution Factor :

1.00

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-07-3	Chloromethane	10.	ND	ט
74-87-3 75-01-4	Vinyl chloride	10.	ND	ប
74-83-9	Bromomethane	10.	ND	ΙŪ
75-00-3	Chloroethane	10.	ND	U
75-69-4	Trichlorofluoromethane	5.	ND	U
75-35-4	1.1-Dichloroethene	5.	ND	U
76-13-1	Trichlorotrifluoroethane	5.	ND	U
67-64-1	Acetone	20.	ND	U
75-15-0	Carbon disulfide	5.	ND	U
	Methylene chloride	5.	ND	U
75-09-2	Trans-1,2-dichloroethene	5.	ND	Ū
156-60-5	1,1-Dichloroethane	5.	ND	U
75-34-3	Cis-1,2-dichloroethene	5.	ND	ט
156-59-2		20.	ND	שו
78-93-3	2-Butanone	5.	ND	ប
67-66-3	Chloroform 1,1,1-Trichloroethane	5.	ND	lΰ
71-55-6	Carbon tetrachloride	5.	ND	Ū
56-23-5		10.	ND	lŭ
108-05-4	Vinyl acetate	5.	ND	Ü
71-43-2	Benzene	5.	ND	บั
107-06-2	1,2-Dichloroethane	5.	ND	Ιŭ
79-01-6	Trichloroethene	5.	ND	Ū
78-87-5	1,2-Dichloropropane	5.	ND	lũ
75-27-4	Bromodichloromethane	5.	ND	υ
110-75-8	2-Chloroethylvinyl ether	5.	ND	Ū
10061-01-5	Cis-1,3-dichloropropene	10.	ND	Ŭ
108-10-1	4-Methyl-2-pentanone	5.	ND	Ιŭ
108-88-3	Toluene	<u> </u>	ND	Ŭ
10061-02-6	Trans-1,3-dichloropropene	li de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	ND	บั
79-00-5	1,1,2-Trichloroethane	5.	ND	Ü
127-18-4	Tetrachloroethene	10.	ND	บ
591-78-6	2-Hexanone		·	lΰ
124-48-1	Dibromochloromethane	5. 5.	ND	ŭ
108-90-7	Chlorobenzene	1	ND	l ט
100-41-4	Ethylbenzene Xylene (Total)	5.	ND	υ
1330-20-7	Xylene (Total)	5.	ND	บ็
100-42-5	Styrene	<b>—</b>	ND	ט
75-25-2	Bromoform	5.	ND	
79-34-5	1,1,2,2-Tetrachloroethane	5.	ND	ָ ע
541-73-1	1,3-Dichlorobenzene	5.	ND	Ŭ.
106-46-7	1.4-Dichlorobenzene	5.	ND	Ţ
95-50-1	1,2-Dichlorobenzene	5.	מא	١٠
I —	1,4-Dichlorobenzene 1,2-Dichlorobenzene	5.	ND	Ŭ

Anametrix ID : 9112144-06 Analyst : 195 Supervisor : W

Dilution Factor : 50.00 Conc. Units : ug/L

roject ID : 91C0592A mple ID : MW-10 MATRIX : WATER ate Sampled :12/13/91 ate Analyzed :12/19/91 strument ID : MSD1

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	Chloromethane	500.	ИД	บ
		500.	ND	lυ
75-01-4	Vinyl chloride Bromomethane	500.	ND	Ū
74-83-9	Chloroethane	500.	ND	Ū
75-00-3	Trichlorofluoromethane	250.	ND	Ū
75-69-4	Trichioroffuoromechane	250.	ND	Ü
75-35-4	1,1-Dichloroethene Trichlorotrifluoroethane	250.	ND	Ŭ
76-13-1	<del></del> :	1000.	ND	ŭ
67-64-1	Acetone		ND	lΰ
75-15-0	Carbon disulfide	250.		lΰ
75-09-2	Methylene chloride	250.	ND	υ
156-60 <del>-</del> 5	Trans-1,2-dichloroethene	250.	ND	
75-34-3	1,1-Dichloroethane	250.	ND	ט
156-59-2	Cis-1,2-dichloroethene	250.	ND	U
78-93 <del>-</del> 3	2-Butanone	1000.	ND	U
67-66-3	Chloroform	250.	ND	U
71-55-6	1,1,1-Trichloroethane	250.	ND	U
56-23-5	Carbon tetrachloride	250.	ND	U
108-05-4	Vinyl acetate	500.	ND	ט
71-43-2	Benzene	250.	1600.	İ
107-06-2	1,2-Dichloroethane	250.	ND	U
		250.	ND	U ·
79-01-6	Trichloroethene 1,2-Dichloropropane	250.	ND	U
78-87-5	Bromodichloromethane	250.	ND	Ū
75-27-4	2-Chloroethylvinyl ether	250.	ND	Ü
110-75-8	Z-Chioroethylvinyi ethei	250.	ND	Ū
10061-01-5	Cis-1,3-dichloropropene 4-Methyl-2-pentanone	500.	ND	Ū
108-10-1	4-Metny1-2-pentanone	250.	ND ND	Ŭ
108-88-3	Toluene	1	ND	ប័
10061-02-6	Trans-1,3-dichloropropene	250. 250.		Ü
79-00-5	1,1,2-Trichloroethane		ND	υ
127-18-4	Tetrachloroethene	250.	ND	1 -
591-78-6	2-Hexanone	500.	ND	U
124-48-1	Dibromochloromethane	250.	ND	Ü
108-90-7	Chlorobenzene	250.	ND	U
100-41-4	EthVibenzene	250.	980.	1
1330-20-7	Xylene (Total)	250.	3500.	
100-42-5	Styrene	250.	ND	U
75-25-2	Bromoform	250.	ND	ט
79-34-5	1,1,2,2-Tetrachloroethane	250.	ND	U
541-73-1	1,3-Dichlorobenzene	250.	ND	U
106-46-7	1,4-Dichlorobenzene	250.	ND	ט
1	1,2-Dichlorobenzene	250.	ND	Ū
95-50-1	1,2-DICHIOLODGHZEHE		1	1

roject ID ample ID

: BLANK

Anametrix ID : 1219B001

Analyst Supervisor

\* MI : iM

Matrix : WATER
ate Sampled : 0/0/0
ate Analyzed :12/19/91
astrument ID : MSD1

Dilution Factor : Conc. Units : ug/L

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	Chloromethane	10.	ND	U
75-01-4	Vinyl chloride	10.	ND	U
74-83-9	Bromomethane	10.	ND	U
75-00-3	Chloroethane	10.	ND	U
75-69-4	Trichlorofluoromethane	5.	ND	U
I	1,1-Dichloroethene	5.	ND	U
75-35-4	Trichlorotrifluoroethane	5.	ND	U
76-13-1		20.	ND	Ū
67-64-1	Acetone	5.	ND	Ιŭ
75-15-0	Carbon disulfide	5.	ND	Ū
75-09-2	Methylene chloride	5.	ND	ĺΰ
156-60-5	Trans-1,2-dichloroethene	5.	ND	Ŭ
75-34 <b>-</b> 3	1,1-Dichloroethane	5.	ND	Ŭ
156 <b>-</b> 59-2	Cis-1,2-dichloroethene	20.	ND	บั
78-93-3	2-Butanone		1	ŭ
67-66-3	Chloroform	5.	ND	Ü
71-55-6	1,1,1-Trichloroethane	5.	ND	Ü
56-23-5	Carbon tetrachloride	_5.	ND	บ
108-05-4	Vinyl acetate	10.	ND	
71-43-2	Benzene	5.	ND	Ü
107-06-2	1,2-Dichloroethane	5.	ND	U
79-01-6	Trichloroethene	5.	ND	U
78-87-5	1,2-Dichloropropane	5.	ND	U
75-27-4	Bromodichloromethane	5.	ND	U
110-75-8	2-Chloroethylvinyl ether	ί 5.	ND	U
10061-01-5	Cis-1,3-dichloropropene	5.	ND	ប
108-10-1	4-Methyl-2-pentanone	10.	ND	U
108-88-3	Toluene	5.	ND	U
10061-02-6	Trans-1, 3-dichloropropene	5.	ND	U
79-00-5	1,1,2-Trichloroethane	5.	מא	U
127-18-4	Tetrachloroethene	5.	ND	טן
1	2-Hexanone	10.	מא	ប
591-78-6	Dibromochloromethane	5.	ND	ีบ
124-48-1	Of leachers one change	5.	ND	Ū
108-90-7	Chlorobenzene	5.	ND	Ū
100-41-4	Ethylbenzene	5.	ND	Ū
1330-20-7	Xylene (Total)	5.	ND	บั
100-42-5	Styrene	5.	ND	ŭ
75-25-2	Bromoform	5.	ND	บั
79-34-5	1,1,2,2-Tetrachloroethane	5.	ND	Ü
541-73-1	1,3-Dichlorobenzene		ND	Ü
106-46-7	1,4-Dichlorobenzene	5.	1	บ
95-50-1	1,2-Dichlorobenzene	5.	ND	l u

# SURROGATE RECOVERY SUMMARY -- EPA METHOD 624/8240 ANAMETRIX, INC. (408)432-8192

Project ID : 91C0592A Matrix : LIQUID Anametrix ID : 9112144 Analyst : W

Supervisor : W

			<del></del>		TOTAL
	SAMPLE ID	SU1	SU2	SU3	OUT
1234567890123456789	BLANK MW-6 MW-7 MW-5 MW-10	99 97 97 93 102	96 101 96 104 99	101 108 108 107 103	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 21 22					
22 23 24 25 26 27					
26 27 28					
29 30					

### QC LIMITS

SU1 = 1,2-Dichloroethane-d4 (75-113) SU2 = Toluene-d8 (83-110) SU3 = 1,4-Bromofluorobenzene (82-114)

\* Values outside of Anametrix QC limits

: 9112144-01 Anametrix ID : 90C0592A Project ID

Analyst : [] Sample ID : MW-5 Supervisor : W : WATER Matrix

Date Sampled :12/13/91 Date Extracted :12/17/91 Amount Extracted: 950.0 mL

Date Analyzed :12/19/91 Dilution Factor: 1.00

Conc. Units : ug/L Instrument ID : F3

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2 111-44-4 95-57-8 541-73-1 106-46-7 100-51-6 95-50-1 95-48-7 108-60-1 106-44-5 621-64-7 67-72-1 98-95-3 78-59-1 88-75-5 105-67-9 65-85-0 111-91-1 120-83-2 120-82-1 91-20-3 106-47-8 87-68-3 59-50-7 91-57-6	PHENOL  BIS (2-CHLOROETHYL) ETHER  2-CHLOROPHENOL  1,3-DICHLOROBENZENE  1,4-DICHLOROBENZENE  BENZYL ALCOHOL  1,2-DICHLOROBENZENE  2-METHYLPHENOL  BIS (2-CHLOROISOPROPYL) ETHER  4-METHYLPHENOL  N-NITROSO-DI-N-PROPYLAMINE  HEXACHLOROETHANE  NITROBENZENE  ISOPHORONE  2-NITROPHENOL  2,4-DIMETHYLPHENOL  BENZOIC ACID  BIS (2-CHLOROETHOXY) METHANE  2,4-DICHLOROPHENOL  1,2,4-TRICHLOROBENZENE  NAPHTHALENE  4-CHLOROANILINE  HEXACHLOROBUTADIENE  4-CHLORO-3-METHYLPHENOL  2-METHYLNAPHTHALENE	LIMIT  11. 11. 11. 11. 11. 11. 11. 11. 11. 1	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ם מתת תמתתתתתתתתתתתתתתת
77-47-4 88-06-2 95-95-4 91-58-7 88-74-4 131-11-3 208-96-8 606-20-2	HEXACHLOROCYCLOPENTADIENE  2,4,6-TRICHLOROPHENOL  2,4,5-TRICHLOROPHENOL  2-CHLORONAPHTHALENE  2-NITROANILINE  DIMETHYLPHTHALATE  ACENAPHTHYLENE  2,6-DINITROTOLUENE	11. 11. 53. 11. 53. 11. 11.	ND ND ND ND ND ND ND	ט ט ט ט ט ט ט ט ט ט

Project ID Sample ID : 9112144-01 : 90C0592A Anametrix ID

: MW-5 Analyst : W Matrix : WATER Supervisor · M

Date Sampled :12/13/91 Date Extracted :12/17/91 Amount Extracted: 950.0 mL

Dilution Factor: 1.00

Date Analyzed :12/19/91 Instrument ID : F3 Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	53.	ND	U
83-32-9	ACENAPHTHENE	11.	ND	U
51-28-5	2,4-DINITROPHENOL	53.	ND	U
100-02-7	4-NITROPHENOL	53.	ND	U
132-64-9	DIBENZOFURAN	11.	ND	U
121-14-2	2,4-DINITROTOLUENE	11.	ND	U
84-66-2	DIETHYLPHTHALATE	11.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	11.	ND	U
86-73-7	FLUORENE	11.	ND	U
100-01-6	4-NITROANILINE	53.	מא	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	53.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	11.	ИD	U
101-55-3	4-BROMOPHENYL-PHENYLETHER	11.	ИD	Ū
118-74-1	HEXACHLOROBENZENE	11.	ND	ט
87-86-5	PENTACHLOROPHENOL	53.	ND	U
85-01-8	PHENANTHRENE	11.	ND	U
120-12-7	ANTHRACENE	11.	ND	Ū
84-74-2	DI-N-BUTYLPHTHALATE	11.	ND	U
206-44-0	FLUORANTHENE	11.	ND	U
129-00-0	PYRENE	11.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	11.	ND	U
91-94-1	3,3'-DICHLOROBENZIDINE	21.	ND	ប
56-55-3	BENZO(A) ANTHRACENE	11.	ND	U
218-01-9	CHRYSÈNE	11.	מא	ប
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	11.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	11.	ND	บ
205-99-2	BENZO(B) FLUOROANTHENE	11.	ND	Ū
207-08-9	BENZO (K) FLUOROANTHENE	11.	ND	Ū
50-32-8	BENZO(A) PYRENE	11.	ND	ט
193-39-5	INDENO(1,2,3-CD)PYRENE	11.	ND	ΰ
53-70-3	DIBENZ[A,H]ANTHRACENE	11.	ND	υ
191-24-2	BENZO(G, H, I) PERYLENE	11.	ND	Ū
62-75-9	N-NITROSODIMETHYLAMINE	11.	אס	Ū
4165-61-1	ANILINE	11.	ND	Ū
103-33-3	AZOBENZENE	11.	ND	Ū
92-87-5	BENZIDINE	53.	ND	ΙŪ
			·	,