SOIL AND WATER SAMPLING REPORT

MONITORING WELLS MW1-MW5

Rifkin Property
4525-4563 Horton Street
Emeryville, California

February 25, 1995

Prepared For:

County of Alameda, Health Care Services Agency
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Local Oversight Program
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Rifkin Property
4525-4563 Horton Street, Emeryville California

TMC Environmental, Inc. Report Number 115093-2
February 25, 1995

INTRODUCTION

On December 8-9, 1994, TMC recovered soil samples and on December 15-16, 1994, TMC recovered water samples from five new monitoring wells installed on the Rifkin Property. TMC installed three of the new wells (MW1, MW2 & MW3) down gradient of three former underground storage tanks along Horton Street. TMC installed two of the new wells (MW4 & MW5) along the up gradient boundary with the Sherwin Williams Company Plant. The objective of the field investigation is to: 1) determine the quality of ground water down-gradient of three former underground storage tanks along Horton Street, and 2) detect the presence of ground water contamination migrating onto the Rifkin Property from the Sherwin Williams Company Plant. This report presents the results of field observations, field measurements, and laboratory analyses.

GENERAL RIFKIN PROPERTY INFORMATION

RIFKIN PROPERTY DESCRIPTION

The subject property, called the Rifkin Property or Site in this report, is at the following address:

4525-4563 Horton Street, City of Emeryville
County of Alameda, State of California
Assessor's Parcel No. 49-1041-005

The study area includes the part of the property south of the Temescal Creek Overflow Culvert.

The large, rectangular-shaped property is along Horton Street between 53rd and 45th Streets, see Plate 1, Site Vicinity Map. The property occurs in a heavy industry area of Emeryville California, on filled land along the former shoreline of San Francisco Bay. The property contains several two story, brick walled, commercial buildings (see Plate 2, Site Map). The buildings occupy the majority of the one acre property. Multiple businesses and addresses occur within the buildings.

The Site is bordered to the north by Chiron International Research Corporation (Chiron), to the south by the Sherwin Williams Company Plant (Plant), to the east by Horton Street and Chiron,

and to the west by railroad tracks and the Plant. Prior to Chiron's occupation, the Shell Oil Company had a research laboratory with above ground tank storage across Horton Street to the east. Public utilities serve the general area. Land use of the surrounding area is commercial and industrial. Surface runoff from the Site flows into storm drains along Horton Street or infiltrates into the soil along the west and east side of the buildings. The storm drains and surface runoff flows into the Temescal Creek Culvert and the Temescal Creek Overflow Culvert. The Temescal Creek Overflow Culvert crosses the northern end of the property. The two culverts converge just west of the Rifkin Property. Temescal Creek flows into San Francisco Bay about 2000 feet to the west.

LEAD IMPLEMENTING AGENCIES

The local agency with jurisdiction over this investigation is:

County of Alameda, Health Care Services Agency
Department of Environmental Health, Local Oversight Program
1131 Harbor Bay Parkway, Alameda, California 94602

The officer overseeing this case is Susan Hugo, (510) 567-6700. The case file is labeled "Rifkin Realty Properties Case". The focus of this agency has been on the removal and investigation of underground storage tanks on the Rifkin Property. It is the responsibility of the local oversight program to issue a letter of completion for the underground storage tanks.

The State agency with jurisdiction over this investigation:

California Regional Water Quality Control Board (RWQCB)
San Francisco Bay Region
2101 Webster Street, Suite 500, Oakland, California 94612
Regional Water Quality Control Board Case Number 38-0252

Mr. Sum Arigala is the case officer for the RWQCB, (510) 286-0434. The RWQCB has been overseeing the investigation and interim remediation of the arsenic contamination at the Sherwin Williams Company Plant. In a May 29, 1992, letter, the RWQCB requested Sherwin Williams Company install two additional wells to assess pollution northeast of the Plant. In a September 22, 1993, letter, the RWQCB requested Sherwin Williams Company conduct additional investigation of possible off-site migration from the Plant towards the Rifkin Property. The RWQCB required the analysis of samples for total petroleum hydrocarbons (TPH) and volatile organic compounds (VOC) in addition to arsenic.

DECEMBER 1994 TMC FIELD INVESTIGATION

On December 8 and 9, 1994, TMC drilled five soil borings and installed five new monitoring wells on the Rifkin Property, see plate 2, Site Map. TMC recovered ground water samples from the new wells on December 15 and 16, 1994. The field investigation was conducted in accordance with the TMC documents, "Ground Water Investigation Work Plan, Rifkin Realty Properties Case" and "Ground Water Investigation Work Plan, Amendment Number 1, Rifkin Realty Properties Case," dated August 25, 1994 and December 2, 1994, respectively.

DESCRIPTION OF DECEMBER 1994 SOIL BORINGS

TMC located borings MW1, MW2 and MW3 close to the former underground tank excavation pits along Horton Street. TMC located borings MW4, and MW5 along the property boundary between the Rifkin Property and the Sherwin Williams Company facility. Bay Area Exploration, Inc. of Cordelia, California, drilled the soil borings under the supervision of TMC personnel. Truck-mounted drilling equipment utilizing 8-inch outer diameter hollow-stem augers advanced the borings. TMC examined three soil samples from each boring at depths of about 5, 10, and 15 feet below surface grade (bsg). A flame ionization detector type organic vapor analyzer (OVA-FID) tested the field bag sample from each sample interval for the presence of hydrocarbon vapors. A brief description of each soil boring follows. Complete boring logs can be found in Attachment 2.

Soil Boring MW1

TMC placed boring MW1 in the sidewalk north of the former gasoline tanks. The location is 376 feet north of the south property boundary and 9 feet east of the building wall, see plate 2, Site Map. The purpose of the boring is to detect contamination down-gradient of the former gasoline tanks. Boring MW1 encountered artificial fill, sand and silt-clay. Staining and hydrocarbon vapors occurred at a depth of roughly 9.5 to 10.5 feet bsg. Laboratory analysis of the samples recovered from boring MW1 revealed the presence of total petroleum hydrocarbons (TPH), and benzene, toluene, ethylbenzene, and xylenes (BTEX). Previous sampling indicates diesel fuel contamination of the ground water interface in this area of Horton Street.

Soil Boring MW2

TMC place boring MW2 in the sidewalk north of the former heating oil tank. The location is 424 feet north of the south property boundary and 7 feet east of the building wall. The purpose of the boring is to detect contamination down-gradient of the former heating oil tank. Boring MW2 encountered artificial fill, sand and silt-clay. Staining and moderate concentrations of hydrocarbon vapors occurred between 9 and 12 feet bsg. Laboratory analysis of soil samples recovered from boring MW2 revealed concentrations of TPH and BTEX.

Soil Boring MW3

TMC placed boring MW3 in the sidewalk north of the former paint thinner tank. The location is 118 feet north of the south property boundary and 7 feet east of the building wall. The purpose of this boring is to detect contamination down-gradient of the former paint thinner tank. Boring MW3 encountered artificial fill, sand and silt-clay. No chemical staining or discoloration was observed. Hydrocarbon vapor concentrations in the field bag samples were low. Laboratory analysis of soil samples recovered from MW3 revealed low concentrations of TPH.

Soil Boring MW4

TMC placed boring MW4 inside the auto shop about 9 feet north of the south property boundary and 73 feet west of the building wall on Horton Street. The purpose of the boring is to 1)investigate soil in the vicinity of former parts washing operations, and 2) detect off-site contaminant migration. Boring MW4 encountered artificial fill, sand and silt-clay free of chemical staining and discoloration. Chemical vapor concentrations in the field bag samples

were low. However, laboratory analysis of soil samples recovered from MW4 revealed concentrations of TPH and BTEX. The samples also contained significant concentrations of arsenic, barium, and zinc, and moderate concentrations of cadmium, chromium, copper, lead, mercury, and nickel. Low concentrations of polychlorinated biphenyls (PCBs) were also detected.

Soil Boring MW5

TMC placed boring MW5 about 20 feet north of the south property boundary and 144 feet west of the building wall on Horton Street. The purpose of the boring is to detect off-site contaminant migration onto the subject property. Boring MW5 encountered artificial fill, sand and silt-clay free of obvious chemical staining or discoloration. However, high concentrations of chemical vapors were encountered (>1000ppm by OVA-FID) in the field bag samples. Laboratory analysis of soil samples recovered from MW5 revealed concentrations of TPH, BTEX, acetone, 4-methyl-2-pentanone, arsenic, barium, beryllium, cadmium, chromium, copper, lead, nickel, and zinc.

DECEMBER 1994 SOIL SAMPLING RESULTS

Advanced Materials Engineering Research (AMER) of Sunnyvale, California, a State certified analytical laboratory, analyzed the soil samples collected from all five borings (MW-1, MW-2, MW-3, MW-4, MW-5). AMER analyzed the samples for total petroleum hydrocarbons (TPH), and for benzene, toluene, ethylbenzene, and xylenes (BTEX). Soil samples collected from borings MW-4 and MW-5 were additionally analyzed for polychlorinated biphenyls (PCBs), priority pollutant metals (with barium), semi-volatile organic compounds, and volatile organic compounds (VOCs). Plate 9, Soil Sampling Map, shows the results of the soil sampling. The following tables summarize the results of laboratory analyses. In general only detectable results are presented in the summary tables. The tables summarize the full laboratory reports that can be found in Attachment 1.

Table 1 1994 Soil Sample Results for PCBs in Wells MW4 and MW5

Well Label:	MW4 & MW5
Site Address:	4525-4563 Horton Street, Emeryville, California
Site Name:	Rifkin Property
Sample Collector:	TMC Environmental, Inc., San Pablo, California
Sample Collection Date:	December 8,12, 1994

Sample Number	Sample Depth (ft. BSG)	TOTAL PCBs (ppm)	Limit of Detection (ppm)
MW4-1	5.0 - 5.5	ND	0.30
MW4-2	10.0 - 10.5	**2.10**	0.30
MW5-1	5.0 - 5.5	ND	0.30
MW5-2	10.0 - 10.5	ND	0.30

ND = Not Detected
ppm = parts per million, or milligrams per kilogram
BSG = Below Surface Grade

Table 2 1994 Soil Sample Results for Metals in Wells MW4 and MW5

Well Label: MW4 & MW5
Site Address: 4525-4563 Horton Street, Emeryville, California
Site Name: Rifkin Property
Sample Collector: TMC Environmental, Inc., San Pablo, California
Sample Collection Date: December 8,12, 1994

	MW4-1 (ppm)	MW4-2 (ppm)	MW5-1 (ppm)	MW5-2 (ppm)	Limit of Detection (ppm)
Sample Depth (ft. BSG)	5.0 -5.5	10.0 - 10.5	5.0 - 5.5	10.0 - 10.5	
ARSENIC	**33.5**	**448.0**	**5.0**	**10.6**	1.0
BARIUM	**106.0**	**118.0**	**119.0**	**90.3**	10.0
BERYLLIUM	ND	ND	**0.54**	**0.64**	0.50
CADMIUM	**2.6**	**1.7**	ND	**1.3**	0.50
CHROMIUM	**33.1**	**9.3**	**31.9**	**33.5**	1.0
COPPER	**20.6**	**4.9**	**15.8**	**19.5**	2.5
LEAD	**6.0**	**9.2**	**6.3**	**7.5**	0.30
MERCURY	**0.23**	ND	ND	ND	0.10
NICKEL	**36.0**	ND	**44.0**	**43.3**	4.0
ZINC	**1290.0**	**93.5**	**39.7**	**466.0**	2.0

ND = Not Detected
ppm = parts per million, or milligrams per kilogram
BSG = Below Surface Grade

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Table 3 1994 Soil Sample Results for VOC in Wells MW4 & MW5

TMC has listed only detectable EPA method 8240 results in the following table.

Well Label: MW4 & MW5
Site Address: 4525-4563 Horton Street, Emeryville, California
Site Name: Rifkin Property
Sample Collector: TMC Environmental, Inc., San Pablo, California
Sample Collection Date: December 8-9, 1994

	MW4-1 (ppm)	MW4-2 (ppm)	MW5-1 (ppm)	MW5-2 (ppm)	Limit of Detection (ppm)
Sample Depth (ft. BSG)	5.0 - 5.5	10.0 - 10.5	5.0 - 5.5	10.0 - 10.5	
ACETONE	ND	ND	**48.0**	ND	0.028
BENZENE	ND	ND	ND	**0.009**	0.005
ETHYL-BENZENE	ND	**0.016**	ND	**0.004**	0.003
4-METHYL-2-PENTANONE	ND	ND	**3.1**	ND	0.009
TOLUENE	ND	**0.009**	**1.30**	**0.15**	0.003
O-XYLENE	ND	**0.069**	**0.041**	**0.004**	0.002
P/M-XYLENE	ND	**0.056**	**0.14**	**0.015**	0.003

ND = Not Detected

ppm = parts per million, or milligrams per kilogram
BSG = Below Surface Grade

Table 4 1994 Soil Sample Results for TPH in Wells MW1-MW5

Well Label: MW1, MW2, MW3, MW4 & MW5
Site Address: 4525-4563 Horton Street, Emeryville, California
Site Name: Rifkin Property
Sample Collector: TMC Environmental, Inc., San Pablo, California
Sample Collection Date: December 8-9, 1994

Sample Number	Sample Depth (ft. BSG)	TPH - Full Scan (ppm)	Limit of Detection (ppm)
MW1-1	5.0 - 5.5	ND	1.0
MW1-2	10.0 - 10.5	**320.0**	1.0
MW1-3	15.0 - 15.5	ND	1.0
MW2-1	5.5 - 6.0	**4.2**	1.0
MW2-2	10.0 - 10.5	**1400.0**	1.0
MW3-1	5.0 - 5.5	ND	1.0
MW3-2	10.0 - 10.5	**310.0**	1.0
MW4-1	5.0 - 5.5	ND	1.0
MW4-2	10.0 - 10.5	**4700.0**	1.0
MW5-1	5.0 - 5.5	**15.0**	1.0
MW5-2	10.0 - 10.5	ND	1.0

ND = Not Detected
ppm = parts per million, or milligrams per kilogram
BSG = Below Surface Grade

Table 5 1994 Soil Sample Results for BTEX in Wells MW1-MW5

EPA method 8020 results:

Well Label: MW1, MW2, MW3, MW4 & MW5
Site Address: 4525-4563 Horton Street, Emeryville, California
Site Name: Rifkin Property
Sample Collector: TMC Environmental, Inc., San Pablo, California
Sample Collection Date: December 8-9, 1994

Sample Number	Sample Depth (ft. BSG)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
MW1-1	5.0 - 5.5	ND	ND	ND	ND
MW1-2	10.0 - 10.5	**61.0**	**180.0**	**110.0**	**120.0**
MW1-3	15.0 - 15.5	**8.3**	ND	ND	ND
MW2-1	5.5 - 6.0	ND	ND	ND	ND
MW2-2	10.0 - 10.5	**15.0**	**7.5**	**26.0**	**11.0**
MW3-1	5.0 - 5.5	ND	ND	ND	ND
MW3-2	10.0 - 10.5	ND	ND	ND	ND
MW4-1	5.0 - 5.5	ND	ND	ND	ND
MW4-2	10.0 - 10.5	**65.0**	**97.0**	**80.0**	**341.0**
MW5-1	5.0 - 5.5	**7.5**	**190.0**	**18.0**	**94.0**
MW5-2	10.0 - 10.5	ND	**41.0**	ND	ND
Limit of Detection (ppb)		5.0	5.0	5.0	5.0

ND = Not Detected

ppb = parts per billion, or micrograms per kilogram
BSG = Below Surface Grade

The laboratory reported no detectable semi-volatile organic compounds by EPA Method 8270 in the soil samples collected from borings MW4 and MW5.

MONITORING WELL INSTALLATION

TMC provided for the installation of ground water monitoring wells in each of the drill holes. Bay Area Exploration, Inc. installed the wells during December 8-12, 1994. Bay Area Exploration, Inc. constructed all of the wells using similar methods and materials. Blank and slotted casing was 2-inch diameter schedule-40 PVC. The well screen casing had a slot size of 0.010 inches. Sand size used for the screen pack was #2-/16. Bay Area Exploration, Inc. constructed each well with a 1 foot thick bentonite annular seal overlain with Portland cement to surface grade. Well construction diagrams can be found in Attachment 3. TMC developed the new monitoring wells on December 13, 1994 by purging at least 10 well volumes of water from each well. Well development records can be found in Attachment 4.

TMC sampled the five new monitoring wells on December 16, 1994. TMC also sampled two observation wells on December 15, 1994. The observation wells occur in the gasoline tank and heating oil tank excavations. Prior to sample collection, TMC purged the wells of at least 3 well volumes of water. During the purging process, TMC monitored the stability of several ground water parameters in order to assure collection of representative ground water samples. Ground water sample collection records can be found in Attachment 5.

GROUND WATER SAMPLING ANALYSIS RESULTS

TMC submitted the ground water samples to Advanced Materials Engineering Research, Inc. (AMER), of Sunnyvale, California for chemical analysis. AMER analyzed the ground water samples recovered from wells MW1, MW2, MW3, MW4, MW5, OB1, and OB2 for volatile organic compounds (VOC), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total petroleum hydrocarbons (TPH). Groundwater samples recovered from monitoring wells MW4 and MW5 were additionally analyzed for priority pollutant metals (with barium), semi-volatile organic compounds, and PCBs. Plate 10, Ground Water Sampling Map, shows the results of ground water sampling. The tables summarize the laboratory reports. The complete laboratory reports can be found in Attachment 1.

Table 6 1994 Ground Water Sample Results for Metals in Wells MW4 and MW5

Site Address:	4525-4563 Horton Street, Emeryville, California
Site Name:	Rifkin Property
Sample Collector:	TMC Environmental, Inc., San Pablo, California
Wells Sampled:	MW4 and MW5
Sample Collection Date:	December 16, 1994

ANALYTES	MW4 (ppb)	MW5 (ppb)	Limit of Detection (ppb)
ARSENIC	**8870.0**	**41500.0**	50.0
BARIUM	**163.0**	**236.0**	100.0
CADMIUM	**141.0**	**156.0**	5.0
CHROMIUM	**35.9**	**56.0**	10.0
COPPER	**38.9**	**44.8**	25.0
LEAD	**30.4**	**31.7**	3.0
MERCURY	ND	**0.23**	0.20
NICKEL	**1150.0**	**449.0**	40.0
SELENIUM	**27.5**	**9.0**	5.0
SILVER	**13.4**	ND	10.0
ZINC	**71000.0**	**11000.0**	200.0

ND = Not Detected
ppb = parts per billion, or micrograms per liter

Table 7 1994 Ground Water Sample Results for VOC in Monitoring Wells MW1-MW5

Site Address: 4525-4563 Horton Street, Emeryville, California
Site Name: Rifkin Property
Sample Collector: TMC Environmental, Inc., San Pablo, California
Wells Sampled: MW1, MW2, MW3, MW4 and MW5
Sample Collection Date: December 16, 1994

ANALYTES	MW1 (ppb)	MW2 (ppb)	MW3 (ppb)	MW4 (ppb)	MW5 (ppb)	MDL* (ppb)
ACETONE	ND	ND	ND	ND	**1300000**	4.2
BENZENE	**13.0**	**14.0**	ND	ND	**430.0**	0.8
2-BUTANONE	ND	ND	ND	ND	**1700000**	1.1
CARBON DISULFIDE	ND	ND	**3.4**	ND	ND	1.2
CHLOROFORM	1.0	ND	ND	ND	ND	0.8
ETHYL-BENZENE	ND	ND	ND	ND	**1300.0**	0.4
1,2-DICHLORO-PROPANE	**32.0**	**4.7**	ND	ND	ND	2.2
2-HEXANONE	**2.8**	ND	ND	ND	ND	1.8
4-METHYL-2-PENTANONE	ND	ND	ND	ND	**130.0**	1.4
1,1,2,2-TETRACHLORO-ETHANE	ND	ND	**18.0**	ND	ND	0.8
TOLUENE	ND	ND	ND	ND	**330000.0**	0.4
TRANS-1,2-DICHLORO-ETHLENE	ND	ND	**2.8**	ND	ND	1.1
TRICHLORO-ETHYLENE	**2.8**	**1.8**	ND	**13.0**	ND	0.8
O-XYLENE	**1.0**	**1.1**	ND	**1.9**	**1300.0**	0.3
P/M-XYLENE	**2.0**	ND	ND	ND	**21000.0**	0.4
VINYL CHLORIDE	**2.2**	ND	ND	ND	ND	1.4

ND = Not Detected

ppb = parts per billion, or micrograms per liter
MDL = Method Detection Limits, or limit of detection
* The MDLs for samples recovered from MW5 are higher than the MDLs for the other samples. Please see the full laboratory report.

Table 8 1994 Ground Water Sample Results for VOC in Observation Wells

Site Address: 4525-4563 Horton Street, Emeryville, California
Site Name: Rifkin Property
Sample Collector: TMC Environmental, Inc., San Pablo, California
Wells Sampled: OB1 and OB2
Sample Collection Date: December 15, 1994

ANALYTE	OB1 (ppb)	OB2 (ppb)	Limit of Detection (ppb)
ACETONE	**1300.0**	ND	4.2
BENZENE	ND	**8.1**	0.8
2-BUTANONE	**570**	ND	1.1
CARBON DISULFIDE	ND	**2.6**	1.2
ETHYLBENZENE	**1.9**	ND	0.4
2-HEXANONE	ND	**3.6**	1.8
4-METHYL-2-PENTANONE	**370.0**	ND	1.4
TOLUENE	**93.0**	**8.4**	0.4
O-XYLENE	**2.4**	ND	0.3
P/M-XYLENE	**8.0**	**1.2**	0.4

ND = Not Detected
ppb = parts per billion, or micrograms per liter

Table 9 1994 Ground Water Sample Results for TPH in Wells MW1-MW5

Site Address: 4525-4563 Horton Street, Emeryville, California
Site Name: Rifkin Property
Sample Collector: TMC Environmental, Inc., San Pablo, California
Wells Sampled: MW1, MW2, MW3, MW4 and MW5
Sample Collection Date: December 15-16, 1994

Sample Number	Total Petroleum Hydrocarbons (ppb)
MW1	**16000.0**
MW2	**12000.0**
MW3	**27000.0**
MW4	**2700.0**
MW5	**510000.0**
OB1	**300**
OB2	**1400**
Limit of Detection (ppb)	50.0

ppb = parts per billion, or micrograms per liter

Table 10 1994 Ground Water Sample Results for BTEX in Wells MW1-MW5

Site Address: 4525-4563 Horton Street, Emeryville, California
Site Name: Rifkin Property
Sample Collector: TMC Environmental, Inc., San Pablo, California

Wells Sampled: MW1, MW2, MW3, MW4 and MW5
Sample Collection Date: December 15-16, 1994

Sample Number	BENZENE (ppb)	TOLUENE (ppb)	ETHYLBENZENE (ppb)	XYLENES (ppb)
MW1	**16.0**	**2.7**	ND	**3.1**
MW2	**17.0**	**1.9**	ND	**1.2**
MW3	ND	ND	ND	ND
MW4	**1.4**	**2.1**	**0.6**	**2.3**
MW5	**570.0**	**73000.0**	**1800.0**	**7800.0**
OB1	ND	**39.0**	**1.8**	**8.8**
OB2	**9.4**	**12.0**	ND	**2.7**
MDL (ppb)	0.5	0.5	0.5	0.5

ND = Not Detected
ppb = parts per billion, or micrograms per liter

The laboratory reported no detectable PCBs and no detectable semi-volatile organic compounds in ground water samples recovered from MW4 and MW5.

GROUND WATER DISCUSSION

The Rifkin Property is underlain by artificial fill, soil and alluvial material. Beneath the Rifkin Property is generally about four feet of artificial fill. The fill is thicker along Horton Street utility trenches and in the vicinity of the Temescal Creek Overflow Culvert. The Temescal Creek Overflow Culvert, that is 9-10 feet below surface grade, likely lowered the ground water table. The developer then placed compacted fill material on the original land surface for a building foundation.

The native soil underlying the artificial fill was deposited in an alluvial fan environment, as part of the Alameda Formation. The alluvial fan deposits consist of silt and sandy-clay interbedded with thin, discontinuous sand and gravel lenses. The sand and gravel lenses are part of continuous channels. The alluvial fan deposits grade laterally and vertically into marine fine-grained facies of the Alameda Formation. Two shallow water-bearing sand zones have been identified within the uppermost 40 feet of alluvial sediments by Levine Fricke. These water-bearing zones generally consist of silty sand deposits that range from 1 to 10 feet in thickness. The first water bearing sand zone generally exists between surface and 25 feet below ground surface and the second water bearing sand zone exists between 30 and 40 feet below ground surface.

The alluvial fan depositional environment contains sand channels that overlap and interfinger with other sand channels and finer-grained sediments. Vertical and lateral interconnection of sand lenses is expected within an alluvial fan environment. The presence of a potentiometric gradient toward the Temescal Creek Overflow Culvert indicates an unconfined shallow aquifer. Large and rapid rises in the ground water table occur during periods of heavy rainfall.

All monitoring wells on the Rifkin Property are in the first water bearing zone. TMC performed ground water measurements during September 1994, January 1995, and February 1995. The following table shows the results of ground water measurements in Rifkin Property monitoring wells:

Table 11 1994-1995 Ground Water Measurements in Monitoring Wells

Wells Measured: RP1, RP2, RP3, RP4, RP5, MW1, MW2, MW3, MW4 & MW5
Site Address: 4525-4563 Horton Street, Emeryville, California
Site Name: Rifkin Property
Measurement Date: September 1994, January 1995 & February 1995

Monitoring Well ID	Casing Elevation	Well Depth	Water Column	Ground Water Depth	Ground Water Elevation
	feet above MSL	feet	feet	feet below grade	feet above MSL
September 8, 1994 Water Level Measurements					
RP1	15.12*	11.8	3.2	-8.65	6.47
RP2	15.23*	14.4	5.4	-8.99	6.24
RP3	15.15*	12.8	3.9	-8.80	6.35
RP4	15.10*	16.2	7.1	-9.03	6.07
RP5	15.03*	15.9	6.93	-8.95	6.08
* - Levine Fricke well survey datum					
January 9, 1995 Water Level Measurements					
RP1	15.14	11.8	**	NA	NA
RP2	15.24	14.4	8	-6.40	8.84
RP3	15.17	12.8	6.2	-6.55	8.62
RP4	15.12	16.2	9.8	-6.31	8.81
RP5	15.04	15.9	9.6	-6.22	8.82
MW1	13.79	15.73	10.5	-5.14	8.65
MW2	13.59	15.04	10.11	-4.93	8.66
MW3	14.64	18.85	13.47	-5.38	9.26
MW4	15.55	15.92	9.05	-6.87	8.68
MW5	15.27	16.04	9.9	-6.14	9.13
** - Monitoring well surface box submerged beneath water puddle on floor of warehouse					
January 27, 1995 Water Level Measurements					
RP1	15.14	11.8	5.8	-5.96	9.18
RP2	15.24	14.4	8.4	-5.95	9.29
RP3	15.17	12.8	6.6	-6.12	9.05
RP4	15.12	16.2	10.2	-5.97	9.15
RP5	15.04	15.9	9.9	-5.93	9.11
MW1	13.79	15.73	10.9	-4.78	9.01
MW2	13.59	15.04	10.5	-4.53	9.06
MW3	14.64	18.85	14.1	-4.66	9.98
MW4	15.55	15.92	9.1	-6.75	8.8
MW5	15.27	16.04	10.3	-5.71	9.56
February 17, 1995 Water Level Measurements					
RP1	15.14	11.8	4.34	-7.46	7.68
RP2	15.24	14.4	6.64	-7.76	7.48
RP3	15.17	12.8	5.35	-7.45	7.72
RP4	15.12	16.2	7.33	-7.79	7.33
RP5	15.04	15.9	8.19	-7.71	7.33
MW1	13.79	15.73	9	-6.73	7.06
MW2	13.59	15.04	8.46	-6.58	7.01

Monitoring Well ID	Casing Elevation	Well Depth	Water Column	Ground Water Depth	Ground Water Elevation
MW3	14.64	18.85	11.84	-7.01	7.63
MW4	15.55	15.92	8.68	-7.24	8.31
MW5	15.27	16.04	8.77	-6.59	8.68
TMC well survey datum used on measurements after December 19, 1994					

TMC measured the stable ground water gradient during September 1994. The water table in September is at a seasonally low and stable level. Only five wells, RP1-RP5, existed in September 1994. The ground water elevation in these wells can be grouped in three sets to form three triangles; RP1-RP2-RP3, RP2-RP3-RP4, and RP3-RP4-RP5. TMC used a three point solution to estimate the horizontal gradient and down gradient direction for each set of three wells. The variation in estimates between the three groups of wells is small for measurements of this type. The horizontal gradient is measured at 0.003 foot per foot (3 feet vertical in one thousand feet horizontal) in a direction towards north 15 degrees west. The measured direction of ground water flow is northward generally parallel to Horton Street and towards the Temescal Creek Overflow Culvert.

TMC measured the water levels in all ten monitoring wells during the winter month of January 1995. Substantial winter rainfall preceded both of the January 1995 measurements. All monitoring wells showed water level elevation increases of up to 4 feet. The largest increases in water level elevation occurred at the perimeter of the Rifkin Property. Wells within the interior of the large warehouse building showed smaller increases in water level elevation. The ground water data from the January 1995 measurements represent unstable winter conditions.

TMC estimated the ground water gradient and down gradient direction from the February 1995 data. TMC shows the ground water table on plate 8, Ground Water Gradient Map. Using the data from four monitoring wells spaced from 178 to 303 feet apart, TMC estimated the horizontal gradient and down gradient direction. The ground water elevation in the wells can be grouped in two sets to form two triangles; MW2-MW3-RP5, and MW3-MW5-RP5. TMC used a 'three point solution' to estimate the horizontal gradient and down gradient direction for each set of three wells. The variation in estimates between the three groups of wells is small for measurements of this type. The horizontal gradient is measured at 0.004 foot per foot (4 feet vertical in one thousand feet horizontal) in a down gradient direction towards north 17 degrees west. The direction of ground water flow is northward generally parallel to Horton Street and towards the Temescal Creek Overflow Culvert. The following table shows the results of the ground water gradient estimates:

Table 12 Horizontal Gradient and Direction in Rifkin Property Monitoring Wells

Site Address:	4525-4563 Horton Street, Emeryville, California
Site Name:	Rifkin Property
Date of Measurements:	September 1994, January 1995 and February 1995

Monitoring Well Group	Ground Water Elevation in feet	Horizontal Gradient foot per foot	Down Gradient Direction degrees
September 8, 1994			
RP1-RP2-RP3	6.47-6.24-6.35	0.004	North 27 West
RP2-RP3-RP4	6.4-6.35-6.07	0.003	North 2 West
RP3-RP4-RP5	6.35-6.07-6.08	0.003	North 16 West
Average Values:	6.24	0.003	North 15 West
January 9, 1995			
All wells	average 8.78	unstable	unstable
January 27, 1995			
All wells	average 9.17	unstable	unstable
February 17, 1995			
MW2-MW3-RP5	7.01-7.63-7.33	0.002	North 34 West
MW3-MW5-RP5	7.63-8.68-7.33	0.007	North 1 East
Average Values	7.66	0.004	North 17 West

The data from this study indicates the Temescal Creek Overflow Culvert (9-10 feet bsg) is draining the shallow ground water of the Rifkin Property. The base of the Temescal Creek Overflow Culvert (about 3-4 feet above mean sea level) is below the level of the ground water table. The measured direction of ground water flow is towards this culvert. Seasonal measurements indicate the shallow ground water is unconfined and subject to large, rapid increases in ground water level up to 4 feet above normal dry season levels.

Erler & Kalinowski, Inc. in their 1993, Preliminary Site Characterization Report, noted the following; "Evaluation of the available water level data indicates that, the Temescal Creek Culverts, which run underground, locally divert shallow groundwater flow to the southwest, north of the Rifkin Site. Drainage pipes, which permit groundwater inflow, are apparent within the Temescal Creek Overflow Culvert in the vicinity of the Rifkin Site. Although information obtained from the Alameda County Flood Control District indicates that such drainage pipes do not exist within the main Temescal Creek Culvert near the Rifkin Site, the base of this main Culvert is approximately 15 feet below grade surface and is underlain with gravel. Therefore, both culverts have the capacity to act as high permeability drains that can create preferential pathways for shallow groundwater flow."

SECOND WATER BEARING ZONE

The second water bearing zone occurs from a depth of 30-40 feet below grade. No information is available on the second water bearing sand zone within the Rifkin Property. Levine Fricke reports that the second zone contains water-saturated sand and gravel. The ground water flow within the deeper aquifer zone is semi-confined to confined as reported by Levine Fricke. Investigation of the second water bearing zone is incomplete. The characterization of the second B water bearing zone as a confined aquifer separate from the first water bearing zone is unreliable due to incomplete investigation. The second water bearing zone is known to be contaminated on the Sherwin Williams Company Plant.

REVIEW OF HISTORICAL AERIAL PHOTOGRAPHY

Investigation results indicate serious soil and water contamination at the southern margin of the Rifkin Property and the adjoining Sherwin Williams Company Plant. The magnitude of the contamination suggests a prominent facility capable of discharging large quantities of metals and chemicals. TMC reviewed nine different years of historical aerial photographs to identify an obvious source of the contamination. Pacific Aerial Surveys in Oakland, California provided the aerial photographs. During the review, TMC looked for obvious features that show past use of the Rifkin and Sherwin Williams Company properties. The review involved the inspection of the following photographs:

1930	photograph GY-30-12	scale 1:9500
Sept. 16, 1949	photographs AV28 Line 12 frames 32 & 33	scale 1:7200
July 3, 1959	photographs AV337 Line 6 frames 25 & 26	scale 1:9600
April 10, 1968	photographs AV884 Line 12 frames 28 & 29	scale 1:30000
July 19, 1977	photographs AV1377 Line 5 frames 20 & 21	scale 1:12000
June 21, 1983	photographs AV2300 Line 6 frames 18 & 19	scale 1:12000
September 1, 1987	photographs AV3117 Line 3 frames 10 & 11	scale 1: 36000
March 30, 1988	photographs AV3268 Line 6 frames 19 & 20	scale 1:12000
April 8, 1992	photographs AV4230 Line 8 frames 19 & 20	scale 1:12000

The earliest photograph from 1930 shows buildings on the Rifkin Property. The northern limit of the Rifkin Property buildings stops at the Temescal Creek Overflow Culvert. Two small above ground tanks are present to the north of the Temescal Creek Overflow Culvert. The earliest photograph from 1930 shows the Sherwin Williams Company Plant in operation. The Plant railroad yard consists of about ten railroad tracks full of railroad cars. Four large above ground storage tanks occur on the Sherwin Williams Company property. Plate 3, First Generation Storage Tanks, Sherwin Williams Company Plant, shows the location of the above ground storage tanks. The tanks likely stored oil in the 1930's.

The 1949 photographs show the Rifkin Property has expanded northward to its present configuration. The building expansion has replaced the two above ground tanks shown in the 1930 photograph. The first generation tanks on the Sherwin Williams Company Plant have also been removed. The photographs indicate the Sherwin Williams Company Plant expanded significantly. A new storage tank area exists to the south of the Rifkin Property which is labeled as the "oils tank" storage area on Levine Fricke technical report maps. The oils tank area consists of about 17 large above ground storage tanks.

Also shown in the 1949 photographs are seven (7) large above ground storage tanks along the boundary with the Rifkin Property. Sanborn Fire Insurance Maps from 1951 and 1967 indicate these tanks are part of a Sherwin Williams Company lacquer plant facility. The largest tank is about 12 feet in diameter with an estimated height of 15 feet. The capacity of the tank is estimated at about 12,000 gallons. The largest tank is adjacent to the southwest corner of the

Rifkin Property. The next tank to the east is smaller with a diameter of about 10 feet and a height of 15 feet. The capacity of the second tank is estimated at about 8,000 gallons. The next five tanks to the east are smaller with a diameter of about 8 feet and a height of about 15 feet. The capacity of the smaller tanks is estimated at about 5,000 gallons. Total passive storage of the lacquer plant tank facility is about 45,000 gallons.

Lacquer is any of various clear or colored synthetic coatings made by dissolving nitrocellulose or other cellulose derivatives together with plasticizers and pigments in a mixture of volatile solvents. Presumably the lacquer plant tanks contained volatile solvents, paint thinners, and various oil products. Plate 4, Second Generation Storage Tanks, Sherwin Williams Company Plant, shows the location of the lacquer tank storage tank facility. Soil sampling results indicate these tanks may have stored arsenic raw materials and fuels. The tanks may have been used as mixing tanks containing a wide variety of oils and chemicals.

In the 1959 photographs, the Rifkin Property and Plant appear similar to the building configuration shown in the 1949 photographs. A large complex of buildings, storage tanks and piping occurs across Horton Street to the east. Sanborn Fire Insurance maps indicate the facility is a Shell Oil Company laboratory facility.

The Rifkin Property is unchanged in the 1968 photographs. Features at the Sherwin Williams Company Plant have changed significantly in the 1968 photographs. A large new building occurs on the southwest corner of the Plant. A new solvent tank storage area (14 tanks) is present west of the Rifkin Property. A large above ground storage tank is present next to the Temescal Creek overflow conduit. The new structures replace the former railroad yard. Three above ground tank storage areas occur on the Sherwin Williams Company Plant in 1968: 1) the solvent tank storage area, 14 tanks, 2) the oils tank storage area, 17 tanks, and 3) the lacquer plant tank storage area, 7 tanks.

In the 1977 photographs, the Rifkin Property and Sherwin Williams Company Plant are unchanged. The photographs show all three above ground storage tank areas on the Plant. The large Shell Oil Company complex across Horton Street to the east is dismantled. The 1983 photographs show the Rifkin Property and Plant unchanged. Plate 5, Third Generation Storage Tanks, Sherwin Williams Company Plant, shows the location of above ground storage tank farms prior to demolition in 1987.

The 1988 photographs show the Rifkin Property unchanged. The Plant shows significant changes in the 1988 photographs consisting of large scale demolition of buildings and above ground storage tanks. Levine Fricke reports indicate that in 1987 the Plant changed from oil-based paints to water-based paints. The photographs indicate that Sherwin Williams Company demolished the buildings and storage tanks in the lacquer plant area, the oils tank area, and solvent tank storage area. The large tank near Temescal Creek is still present in the 1988 photographs. The 1992 photographs show the Rifkin Property and Plant unchanged.

Levine Fricke technical reports do not reference the lacquer plant or lacquer plant storage tanks. The Levine Fricke reports indicate Sherwin Williams Company dismantled two above ground tank storage facilities in 1987. The two facilities were an oil tank storage area and a solvent tank storage area. These two tank areas appear on plates in 1989-1994 technical reports. All

aerial photographs reviewed that show the solvent tank storage area, also clearly show the lacquer plant and lacquer plant tank storage area.

The Harding Lawson Associates report, Preliminary Site Assessment dated October 20, 1992, refers to above ground tanks along the south side of the Rifkin building. Page 6 of the report states, "The 1946, aerial photograph of the site and surrounding area remain generally unchanged from 1933. There appears to be fuel tanks along the south side of the building, with pipelines running along the roof to the center of the building." The August 26, 1993, Erler & Kalinowski, Inc., Preliminary Characterization Report, states on page 3.2 that "Above ground fuel tanks were present on the south side of the building during the time that California Container operated at the Rifkin Site". Inspection of historical aerial photographs by TMC indicates no obvious indication of piping running from the tanks to the Rifkin building. The aerial photographs indicate that demolition of the lacquer plant and tanks occurred at the same time in 1987, suggesting ownership of the lacquer plant and tanks by the Sherwin Williams Company.

SHERWIN WILLIAMS COMPANY PLANT INVESTIGATIONS

Historical aerial photography indicates a prominent tank facility capable of generating large quantities of metals and chemicals formerly existed along the southern margin of the Rifkin Property. TMC reviewed and summarized the previous Sherwin Williams Company reports to provide information on the former lacquer plant and storage tank facility. The following account of the Sherwin Williams Company Plant (Plant) history is summarized from technical reports submitted by Sherwin Williams Company and their environmental consultant, Levine Fricke, Inc. to the Regional Water Quality Control Board (RWCQB). Please refer to the original reports on file at the RWQCB for detailed information. Additional information has been supplied by TMC through a review of historical aerial photographs and Sanborn Fire Insurance maps.

The reports indicate the Sherwin Williams Company has operated a coatings and pesticide manufacturing facility (known as the Oakland Plant or Plant) since the 1920s. The Plant produced lead-arsenate pesticides until the late 1940s. The portion of the Plant adjacent to the Rifkin property formerly contained buildings active in the storage and mixing of paint, lacquer and arsenic products. In 1987, the Plant changed manufacturing methods from oil based paints to water based paints. The change in manufacturing operations included the closure and dismantling of an oil tank storage facility and a solvent tank storage facility. The Plant used the two tank facilities, one containing oils and the other containing solvents, to store bulk raw materials for the production of resin-based and solvent based coatings. Both of the tank facilities occurred in a diked area, but neither area included an impermeable flooring, to preclude possible leaks or spills from affecting local soil and ground-water quality.

The technical reports on file with the Regional Water Quality Control Board (RWQCB) do not appear to reference a third large above ground storage tank facility. Historical aerial photographs and Sanborn Fire Insurance maps indicate a storage tank facility, the lacquer plant, existed immediately adjacent to the Rifkin Property. Reference to the lacquer plant tanks first appears in the Harding Lawson Associates 1992 Preliminary Site Assessment. Sanborn Fire

Insurance maps included with the report indicate a lacquer plant facility existed along the south margin of the Rifkin Property. Associated with the lacquer plant were seven large above ground storage tanks that bordered the Rifkin Property. Historical aerial photographs reviewed by TMC indicate the lacquer plant and storage tanks existed from the 1930's until 1987. Sherwin Williams Company apparently demolished the lacquer plant facility and tanks during Plant rebuilding in 1987, along with the other two tank storage facilities.

PREVIOUS LEVINE FRICKE INVESTIGATION 1989-1993

The Regional Water Quality Control Board (RWQCB) provided oversight for the investigation and interim remediation of the Sherwin Williams Company Plant. Sherwin Williams Company notified the RWQCB of investigation activities in July 1989. Sherwin Williams Company used one environmental consultant, Levine Fricke, to perform all investigation and interim remediation from 1988 to 1994. Levine Fricke performed a phase I investigation during 1989, consisting of drilling 9 borings and installation of 7 ground water monitoring wells. Levine Fricke performed a phase II investigation during 1989-1990 involving the drilling of 16 borings and installation of 9 ground water monitoring wells. In 1990, Sherwin Williams Company and Levine Fricke installed 4 more wells, excavated 4500 cubic yards of lead-contaminated soil from the solvent tank storage area, and began ground water monitoring. Also in 1990, Levine Fricke investigated the 2000 gallon spill of Texanol (ester alcohol) from the oils tank storage area. In 1990-1991, Levine Fricke drilled an additional 41 borings in the arsenic source area, investigated the oil source area near well LF-10, and performed a Treatability study of the contaminated soil and water.

Levine Fricke found that contamination of the Sherwin William Company Plant is caused by numerous source areas: 1) releases associated with two former above ground tank farms used for the storage of petroleum oils and solvents located to the west and southwest of the Rifkin property, 2) an arsenic source area located to the south and adjacent of the Rifkin property, 3) releases associated with underground bunker C oil storage tanks along the Southern Pacific railroad lines, and 4) a release associated with the spill of Texanol in 1990. Investigation by Levine Fricke indicates the soil and ground water of the Sherwin Williams Company Plant is contaminated with a complex mixture of petroleum oil and fuels, certain volatile organic compounds (VOCs), semi-volatile organic compounds, and some metals; notably arsenic, barium, cadmium, copper, lead, and zinc. The oils and solvent tank farm areas have been identified as the areas with the greatest concentrations of volatile and semi-volatile organic compounds. The oil tank storage area is also affected by volatile and semi-volatile organic compounds.

The soil investigation by Levine Fricke detected elevated concentrations of VOCs, including benzene, ethylbenzene, toluene, xylenes, tetrachloroethylene (PCE), trichloroethylene (TCE), 2-butanone, and long-chain hydrocarbons; elevated concentrations of semi-volatile organic compounds, including acenaphthene, naphthalene, 2-methylphenol, 4-methylphenol, 2,4-dimethylphenol, bis(2-ethylhexyl)phthalate, and di-n-butylphthalate; and elevated concentrations of metals, chromium, copper, mercury, nickel, lead, selenium, thallium, vanadium, and zinc.

The primary VOC detected was the tentatively identified C5-C13 hydrocarbon range. These hydrocarbons may be a portion of petroleum naphtha formerly used in oil-based paint manufactured at the Sherwin-William Plant. The primary semi-volatile detected was the tentatively identified longer chain C8-C35 hydrocarbon range. These hydrocarbons are probably related to the raw materials used in oil-based paints formerly manufactured at the facility. Laboratory analysis results indicate that VOCs are present outside the former solvent tank farm beneath the railroad tracks, east and west of the tank farm area.

The shallow ground water investigation indicated elevated concentrations of VOCs, including acetone, benzene, ethylbenzene, methyl ethyl ketone, toluene, total xylenes, and 2-hexanone; elevated concentrations of semi-volatile organic compounds, including 2-methylnaphthalene, naphthalene, 2-methylphenol, 4-methylphenol, 2,4-dimethylpehnol, acenapthene, anthracene, benzo(a)-anthracene, chrysene, dibenzofuran, fluoranthene, fluorene, phenanthrene, and pyrene; and elevated concentrations of metals, including arsenic, cadmium, nickel, selenium, and zinc. Elevated concentrations of tentatively identified compounds include straight chain hydrocarbons, alcohols, ketones, esters, organic acids, alkyl benzene isomers, and molecular sulfur. These compounds are present at the down-gradient margin of the Sherwin Williams Plant. Levine Fricke's review of chemical analysis results for total quantified and semi-quantified volatile and semi-volatile organic compounds indicates that the leading edge of a total VOC plume extends to the north and west of the Plant.

Results of deeper B water bearing zone investigation indicate ground water contamination by propylether, 1,2-dichloroethane, vinyl acetate, methyl ethyl ketone, methyl isobutyl ketone, 2-hexanone, and arsenic.

Levine Fricke determined that the ground water flows in the direction of the Rifkin property during studies conducted in 1989. The June 8, 1990 Proposed Work Plan, Site Investigation/Treatability Study states on page 3, "Analysis of ground-water samples from wells located on the down-gradient margin of the Site (Plant) indicated that off-site migration of some compounds may have occurred". Evidence of off site migration of VOCs was available as early as 1989. The June 8, 1990 Proposed Work Plan, Site Investigation/Treatability Study states on page 3, "This (contour mapping) indicated that the extent of the areas affected by concentrations of 0.010 ppm (VOCs) may extend to the northwest, beyond the limits of the Plant. Similar evidence was available for semi-volatile organic compounds.

The highest concentrations of arsenic are in the apparent arsenic source area adjacent to the Rifkin property. Significant concentrations of arsenic also occur in the ground water of the tank farm areas. Arsenic, volatile and semi-volatile compounds are also reported contaminating the deeper B-zone aquifer of the Sherwin Williams Company Plant.

Levine Fricke is currently monitoring the site, under a sampling plan approved by the RWQCB. Levine Fricke is developing interim remedial measures to contain and cap the contaminants. Levine Fricke has partially completed the installation of a slurry wall surrounding the Sherwin Williams Company Plant. Sherwin Williams Company has not thoroughly drilled or sampled soil and ground water along the up gradient boundary with the Rifkin property. No final remediation plan has been submitted to the RWQCB.

The Health & Safety Plan dated June 1994, for the Sherwin Williams Plant, furnished to TMC by Levine Fricke, indicates the following chemicals are known to occur in the soil and groundwater of the Plant: arsenic up to 52000 ppm in soil and 320 ppm in water; lead up to 2300 ppm in soil and 0.2 ppm in water; acetone up to 280 ppm in water; benzene up to 0.11 ppm in water; ethylbenzene up to 1500 ppm in soil and 6.3 ppm in water; methyl ethyl ketone up to 720 ppm in water; xylenes up to 9900 ppm in soil and 210 ppm in water; 2-hexanone up to 24 ppm in water; toluene up to 14000 ppm in soil and 310 ppm in water; perchloroethylene up to 45 ppm in water; Chlorobenzene up to 1 ppm in water; Total Petroleum Hydrocarbons up to 20000 ppm in soil and 150 ppm in water; Bis (2-ethyl hexyl) phthalate up to 10.2 ppm in soil; Isophorone up to 8 ppm in soil; and Naphthalene up to 11 ppm in soil.

OCTOBER 1993 ERLER & KALINOWSKI, INC. INVESTIGATION

During the summer of 1993, Erler & Kalinowski, Inc. performed soil and groundwater sampling on the Rifkin property, for Chiron Corporation of Emeryville. The results of the investigation were presented in the October 27, 1993 report "Preliminary Site Characterization Report Summarizing Investigations Performed at the Rifkin Property". The purpose of the site characterization was to evaluate the nature and potential magnitude of likely remediation activities which may need to be undertaken on the Rifkin property prior to redevelopment for Chiron's planned R&D/industrial use. The consultant reported that free petroleum product was observed at the groundwater table in boring 4525-7. This boring is at the southwest corner of the Rifkin property near the Sherwin William Company former lacquer plant and above ground storage tank facility. Chlorinated volatile organic compounds including 1,2-DCA were found in the shallow aquifer zone along the up gradient edge of the Rifkin property.

Erler & Kalinowski, Inc. also reviewed the Levine Fricke reports on file with the RWQCB for the Plant. The summary reports that elevated concentrations of arsenic and petroleum hydrocarbons have been detected in shallow groundwater, and in soils, on the Sherwin Williams Company Plant. Evaluation of chemical distribution maps and groundwater gradient maps from the Sherwin Williams site indicates that these compounds are migrating onto the southwestern portion of the Rifkin site. These compounds appear to be migrating onto the Rifkin property from the direction of the Sherwin Williams Company Plant.

JANUARY 1994 SHERWIN WILLIAMS COMPANY CONCEPTUAL REMEDIATION PLAN FOR RIFKIN PROPERTY

Sherwin Williams Company is installing an arsenic containment system on the up-gradient, adjacent Plant property with the permission of the California Regional Water Quality Control Board. The Sherwin Williams Company Plant (Plant) is known to be contaminated with high concentrations of arsenic, petroleum hydrocarbons, and other volatile and semi-volatile organic compounds. The containment system consists of a slurry wall and cap with hydraulic control. Sherwin Williams Company's consultant, Levine Fricke, determined in 1989 studies that the polluted ground water from the Sherwin Williams Company Plant flows in the direction of the Rifkin property.

Sherwin Williams Company proposed in a "conceptual Remedial Plan" dated January 18, 1994, to install an additional slurry wall and cap on the Rifkin property. The purpose of the proposed Rifkin Property slurry wall and cap is to contain the arsenic polluted ground water that has migrated from the Sherwin Williams Company Plant. Sherwin Williams Company recommended the conceptual remediation plan to the Regional Water Quality Control Board in a letter dated October 7, 1994.

Significant concentrations of arsenic are known to exist on the Sherwin William Company Plant in the soil and ground water. Previous soil borings and water sampling by Levine Fricke estimated the extent of the arsenic contamination of the Rifkin Property, see Levine Fricke "Field Investigation Report" dated May 19, 1994. This arsenic contamination of the ground water is known to be polluting the Rifkin property for a distance of about 200 feet beyond the boundary with the Sherwin Williams Company Plant.

MAY 1994 LEVINE FRICKE INVESTIGATION

In April 1994, Levine-Fricke performed a soil and ground water investigation on the southern portion of the Rifkin property. Levine-Fricke presented the procedures and findings of the investigation in a "Field Investigation Report" dated May 19, 1994. The drilling and sampling was performed by Precision Drilling of South San Francisco under the supervision of Levine Fricke. Pertinent to this discussion is the soil and water sampling results from boring SB-8 located on the Sherwin Williams Company Plant adjacent to the up-gradient boundary of the Rifkin property. During the drilling and sampling of SB-8, the field personnel reported very strong hydrocarbon vapors in the soil and water samples.

The results of the sampling and laboratory analyses indicate substantial soil and ground water contamination along the up-gradient boundary of the Rifkin property. The laboratory, American Environmental Network of Pleasant Hill, California, diluted the samples due to the high concentrations of gasoline, toluene, and xylenes, resulting in excessively high detection limits on other chemicals possibly present in the samples. Excessive laboratory detection limits prevented the complete characterization of the contamination in boring SB-8. The soil and ground water contamination in boring SB-8 directly affects the water quality on the Rifkin property.

Laboratory analysis results from boring SB-8 indicate concentrations of the following chemicals. Gasoline concentrations of 3200 to 8000 ppm occurred in soil at 7-9.5 feet below grade. The laboratory reported gasoline in the ground water at 280 ppm. Arsenic concentrations of 8500 ppm occurred in the shallow surface soil sample. Arsenic concentrations of 1900 ppm occurred in soil at a depth of 10 feet below grade. The laboratory reported arsenic in the ground water at 430 ppm. Toluene concentrations of 360 to 670 ppm occurred in soil at depths of 7-9.5 feet. The laboratory reported toluene in the ground water at 210 ppm. Xylene concentrations of 360 to 670 ppm occurred in soil at depths of 7-9.5 ppm. The laboratory reported xylenes in the ground water at 20 ppm. Ethylbenzene concentrations of 62 to 130 ppm occurred in soil at depths of 7-9.5 ppm. Acetone concentrations of 1100 ppm occurred in soil at depths of 2-6.5 ppm. See the original Levine Fricke report for detailed information.

JULY 1994 TMC INVESTIGATION OF PLANT BOUNDARY

On July 6, 1994, TMC recovered soil and water samples from the Sherwin Williams Company Plant. TMC presented the results of the investigation in a technical report, Upgradient Investigation Report dated October 4, 1994. Four temporary borings penetrated the Plant property adjacent to the Rifkin Property boundary. Borings SW1 and SW2 were located about 25 feet south from the Rifkin property. Borings SW3 and SW4 were located 18 feet south from the Rifkin property. Three soil samples came from each boring at about 4½, 7½, 10½ and 12½ feet from surface grade. An organic vapor analyzer, OVA-FID, analyzed the field bag samples from each sample interval for hydrocarbon vapors. Following the completion of soil sampling, TMC advanced each boring to a depth of 15 feet below grade. Field personnel installed new, two-inch, PVC well casing into each open drill hole. Recovery of the ground water into the drill hole occurred quickly in all four borings. A disposable bailer immediately recovered a water sample from each boring.

SUMMARY OF 1994 TMC BORING SW1 ON PLANT

Boring SW1 was close to the Sherwin Williams Company lacquer plant storage tanks. Boring SW1 encountered soils with strong discoloration and high concentrations of chemical vapors. Chemical vapor concentrations in boring SW1 exceeded 10,000 ppmv, as measured with the OVA-FID field analyzer. Level C respiratory protection was required to finish drilling and sampling this boring.

Laboratory analysis indicates high concentrations of gasoline up to 5000 ppm, diesel up to 1000 ppm, and motor oil up to 470 ppm in shallow soils. Shallow soils also contained significant concentrations of acetone up to 86 ppm, 2-butanone (MEK) up to 32 ppm, ethylbenzene up to 43 ppm, 4-methyl-2-pentanone up to 31 ppm, and xylenes up to 210 ppm. Laboratory analysis indicated the following additional volatile organic compounds occur in the shallow soils: benzene; bromodichloromethane; 2-chloro-ethyl-vinyl ether; chloroform; 1,2-dichloroethane, trans-1,3-dichlorpropene; 2-hexanone; toluene; 1,1,2-trichloroethane; and trichloroethylene.

The laboratory also reported the following tentatively identified compounds in the soil samples from boring SW1: 3-methylhexane, 1,3-dimethyl-trans-cyclopentane, 1,2-dimethylcyclopentane, heptane, methylcyclohexane, 1,7-dimethyl-4-(1-methylethyl)cyclodecane; ethylcyclopentane, 1,2,4-trimethylcyclopentane, 1,2,3-trimethyl cyclopentane, 2,4-dimethylhexane, octane, ehtylcyclohexane, 1,1,3-trimethyl cyclohexane, 5-methyl-2-hexanone, 1-ethyl-2-methylbenzene, 1,2,4-trimethylbenzene, 1,2,3-trimethylbenzene, nonane, decane, 1,3,5-trimethylbenzene, 1,2,3-trimethyl- benzene, undecane.

The water sample from boring SW1 had a strong chemical odor (>10,000 ppmv). Laboratory analysis of the water from boring SW1 indicated 850 ppm gasoline and 240 ppm TPH as diesel. The laboratory reported the following volatile organic compounds: acetone; benzene; 2-butanone (MEK); ethylbenzene; 2-hexano; 4-methyl-2-pentanone; toluene; trichloroethylene; o-xylene; p/m-xylene. The laboratory reported the following tentatively identified volatile organic compounds in the water sample from boring SW1: methylester acetic acid, ethylacetate, 1-methylethylester acetic acid, methylcyclohexane, 2-methylpropylester acetic acid, butylester acetic acid, 2-heptanone, methylcyclohexane.

SUMMARY OF 1994 TMC BORING SW2 ON PLANT

Boring SW2 was close to the Sherwin Williams Company lacquer plant storage tanks. Boring SW2 encountered soils with strong discoloration and high concentrations of chemical vapors. Soil vapor concentrations in boring SW2 reached a maximum value of 9,500 ppmv, as measured with the OVA-FID field analyzer. Level C respiratory protection was required to finish drilling and sampling this boring. Boring SW2 was located close to the location of previous Levine Fricke boring SB-8.

Laboratory analysis of soil samples indicates high concentrations of gasoline up to 5700 ppm, diesel up to 800 ppm, and motor oil up to 310 ppm. Laboratory analysis detected significant concentrations of acetone up to 520 ppm, 4-methyl-2-pentanone up to 72 ppm, toluene up to 73 ppm, and xylenes up to 22 ppm. Laboratory analysis indicated the following volatile organic compounds occur in the shallow soils: acetone; benzene; chlorobenzene; 2-chloro-ethyl-vinyl ether; chloroform; 1,2-dichloroethane; ethylbenzene; 2-hexanone; 4-methyl-2-pentanone; toluene; trichloroethylene; o-xylene; p/m-xylene; and vinyl acetate.

The laboratory also reported the following tentatively identified volatile organic compounds in soil samples from boring SW2: butylester acetic acid, 2-methylpropylester acetic acid, ethylcyclohexane, 1,1,3-trimethylcyclohexane, 1-ethyl-2-methylcyclohexane, 1,2-dimethyl-transcyclohexane, methylcyclohexane, 4-methyl-2-pentylacetate, 2-methylpropyl ester butanoic acid, 1-ethyl-2-methylbenzene, 1,2,4-trimethylbenzene, 1,2,3-trimethylbenzene, 1,3,5-trimethylbenzene, 1-bromo-3-fluorobenzene, 1-propanol, 2-methylOctane, 2-heptanone, heptane, 3-methylpentane.

The water sample from boring SW2 had a strong chemical odor. Laboratory analysis of the water from boring SW2 indicated 850 ppm gasoline and 240 ppm diesel. The laboratory reported the following volatile organic compounds: acetone; benzene; ethylbenzene; 2-hexano; 4-methyl-2-pentanone; toluene; trichloroethylene; o-xylene; p/m-xylene. The laboratory reported the following tentatively identified volatile organic compounds in the water sample from boring SW2: ethyl acetate, 1-methylethyl ester acetic acid, methylcyclohexane, 2-methylpropylester acetic acid, butylester acetic acid, methylcyclohexane, 2-hexanol, 4-methyl-2-pentylacetate, 2-methyl-2-methyl propanoic acid, 2-methyl-1-propanol.

Laboratory analysis of Levine Fricke shallow soil sample duplicates from boring SB-8 indicated concentrations of arsenic up to 8500 ppm, gasoline up to 8000 ppm, toluene up to 1400 ppm, and acetone up to 1100 ppm. Duplicate Levine Fricke laboratory analysis of ground water from boring SB-8 indicated concentrations of arsenic up to 430 ppm, gasoline up to 280 ppm, and toluene up to 210 ppm

SUMMARY OF 1994 TMC BORING SW3 ON PLANT

Boring SW3 encountered soils without noticeable staining or chemical vapors. Field screening of the soil samples with an OVA-FID indicated only background levels. Laboratory sample analysis results indicated low levels of soil contamination. Laboratory analysis indicated no concentration of gasoline, diesel up to 11 ppm, and motor oil up to 430 ppm in shallow soils. Laboratory analysis indicated low concentrations of the following volatile organic compounds occur in the shallow soils: 2-butanone; 2-chloro-ethyl-vinyl ether; ethylbenzene; 2-hexanone; 4-methyl-2-pentanone; toluene; o-xylene; and p/m-xylene.

The laboratory also reported the following tentatively identified volatile organic compounds in soil samples from boring SW3: hexane and 1,1,2-trichloro-1,2,2-trifluoroethane.

The grab water sample from boring SW3 had low hydrocarbon vapors (<100ppmv). Laboratory analysis of the water from boring SW3 indicated 4.3 ppm gasoline and 0.18 ppm diesel. The laboratory reported the following volatile organic compounds: acetone; benzene; ethylbenzene; 2-hexano; 4-methyl-2-pentanone; toluene; tetrachloroethylene; trichloroethylene; o-xylene; p/m-xylene. The laboratory reported the following tentatively identified volatile organic compounds in the water sample from boring SW1: 2-methylpropylester acetic acid; 2-heptanone and methylcyclohexane.

SUMMARY OF 1994 TMC BORING SW4 ON PLANT

Boring SW4 was the closest drill hole to Horton Street. Boring SW4 encountered soils without noticeable staining and low levels of chemical vapors. Field screening of the soil samples with an OVA-FID indicated low vapor levels. Laboratory analysis results indicated only low concentrations of soil contamination. Laboratory analysis indicated gasoline up to 1.2 ppm, diesel up to 8 ppm, and motor oil up to 16 ppm in shallow soils. Total lead was detected at 153 ppm. Laboratory analysis indicated low concentrations of the following volatile organic compounds occur in the shallow soils: acetone; ethylbenzene; 2-hexanone; 4-methyl-2-pentanone; toluene; o-xylene; and p/m-xylene.

The laboratory also reported the following tentatively identified volatile organic compounds in soil samples from boring SW4: hexane and 3-methylhexane

The grab water sample from boring SW4 had low levels of chemical vapors (<100 ppmv). Laboratory analysis of the water from boring SW4 indicated 1.7 ppm gasoline and 0.88 ppm diesel. The laboratory reported the following volatile organic compounds in the ground water: acetone; benzene; 2-butanone (MEK); ethylbenzene; 4-methyl-2-pentanone; toluene; trichloroethylene; o-xylene; p/m-xylene. The laboratory reported the following tentatively identified volatile organic compounds in the water sample from boring SW4: 2-heptanone and 2-methyl-1-propanol.

DISCUSSION OF FINDINGS

UNDERGROUND TANKS ALONG HORTON STREET

Recent ground water gradient measurements indicate the ground water flows north 15-17 degrees west towards the Temescal Creek Overflow Conduit. Ground water level measurements during the winter months indicate the unconfined first water bearing zone experiences large seasonal variations in water level. TMC measured water levels as high as 4 feet below surface grade during January 1995. Soil sampling in the three new wells along Horton Street indicate significant total petroleum hydrocarbon contamination at the groundwater interface at 10 feet bsg. Previous soil sampling indicates the contamination is diesel fuel.

Water sampling indicates total petroleum hydrocarbon contamination of all three wells. The water contamination appears to be diesel fuel contamination. No floating product is present in

the wells. The diesel fuel contamination is found along Horton Street where utility lines exist. The former Shell Company research laboratory across Horton Street to the east is a potential source of contamination. Additional water sampling and analysis is needed to further define the origin of the contamination. Quarterly well sampling in March 1995 will use laboratory analysis for TPH as gasoline and diesel and BTEX to define the character of the water contamination.

CONTAMINATION ALONG BOUNDARY WITH SHERWIN WILLIAMS COMPANY PLANT

Significant concentrations of arsenic, various metals, petroleum fuels and volatile organic compounds occur in the shallow soil and ground water at the southwest portion of the Rifkin property. The soil and water contamination increases in concentration towards the up-gradient Sherwin Williams Company Plant. Historical aerial photographs show a large Sherwin Williams Company storage tank complex adjacent to the south margin of the Rifkin Property. Sanborn Fire Insurance maps label the tanks as part of a Sherwin Williams Company lacquer plant facility. Aerial photographs indicate the lacquer plant and storage tanks existed adjacent to the Rifkin Property for over 50 years. The lacquer plant and storage tanks disappeared during the 1987 Plant remodeling. The lacquer plant and above ground storage tanks are the most likely source area for the oil, fuel, solvent, and metal contamination observed at the southwest portion of the Rifkin Property.

The shallow soil and ground water contamination observed on the southwest portion of the Rifkin property, increases in chemical concentration towards the Sherwin Williams Company lacquer plant. The following chemicals occur in the ground water: gasoline, diesel, and the chemicals acetone, benzene, 2-butanone (MEK), ethylbenzene, 2-hexanone, 4-methyl-e-pentanone, toluene, trichloroethylene, and xylenes. The collection of chemicals detected in the soil and ground water at the Rifkin Property match the description of the characteristic Plant contamination as described in the Levine Fricke report "Results of Second Phase Environmental Investigation, Sherwin Williams Plant, Emeryville, California, dated April 4, 1990.

Recent ground water gradient measurements indicate the ground water flows north 15-17 degrees west towards the Temescal Creek Overflow Conduit. Ground water contamination from the east portion of the Sherwin Williams Company Plant flows towards the Rifkin Property. Ground water level measurements during the winter months indicate the unconfined first water bearing zone experiences large seasonal variations in water level. TMC measured water levels as high as 4 feet below surface grade during January 1995. The capillary fringe zone beneath the Rifkin Property extends upward higher than formerly stated by Levine Fricke. Soil contamination observed in Levine Fricke borings at 5-7 feet below grade can be attributed to the capillary fringe, rather than the vadose zone.

The petroleum fuels and volatile organic compounds detected on the Rifkin Property coincide with the arsenic contamination also found at the Rifkin Property. The arsenic, petroleum fuel, and volatile organic compounds occur together within the shallow soil and ground water of the Sherwin Williams Company Plant, adjacent to the Rifkin property. Arsenic contamination has been associated with fuel, volatile organic compound contamination in other parts of the Sherwin Williams Company Plant. The down gradient extent of petroleum fuel and volatile

organic compound contamination polluting the soil and ground water of the Rifkin property may be estimated using the known extent of arsenic contamination. The plume of ground water contamination from the Plant is distinct from diesel fuel contamination occurring along Horton Street.

Erler & Kalinowski, Inc. (EKI) performed a remediation evaluation of the Rifkin Property during the summer 1993. EKI reported the results of the extensive investigation in the August 26, 1993 Preliminary Site Characterization Report. As discussed in section 6.1, EKI recovered soil samples from seven locations on the Rifkin Property. "These sampling locations correspond to areas where concrete staining was observed and/or chemical handling operations or storage appear to have existed, base on observations made during EKI's site walk-through in July 1993". EKI did not detect any chlorinated volatile organic compounds in soil samples collected on the Rifkin Site.

Erler & Kalinowski, Inc.(EKI) suggested by in the August 26, 1993 Preliminary Site Characterization Report, that a "parts cleaner" is a possible Rifkin Property source of MEK (2-butanone) contamination. Subsequent soil sampling and laboratory analysis has not identified a significant source area of MEK contamination on the Rifkin Property. The EKI report indicates sample 4525-6 that detected the MEK at the parts cleaner location, was a composite sample of soil from depths of 6 and 9 feet. Recent water level measurements indicate both of these samples come from the ground water interface zone. Mr. Miguel Caparros of Auto Magic states that the "parts cleaner" referred to in the report is a small portable cleaner. Mr. Caparros also states that the new concrete patch along the wall where the parts cleaner was reportedly located, resulted from a foundation test pit. Results of recent investigation indicate MEK is found in up-gradient soil and water on the Sherwin Williams Company Plant. A ground water sample form TMC boring SW-1, on the Sherwin Williams Company plant, had an MEK concentration of 510 ppm. Duplicate samples by Levine Fricke had concentrations of 1300 and 1100 ppm MEK in ground water.

Erler & Kalinowski, Inc.(EKI) stated the following conclusions in the 1993 report: 1) On page 6.1, elevated concentrations of arsenic and petroleum hydrocarbons are migrating onto the southwestern portion of the Rifkin Site, 2) On page 6.2, floating petroleum product at the ground water table results from hydrocarbons migrating in and on the surface of the groundwater table from the Sherwin Williams Company oil tank area, 3) On page 6.4, chlorinated volatile organic compounds appear to be migrating across the Rifkin Site from an up gradient source, 4) On page 6.5, arsenic and hydrocarbons are migrating from the Sherwin William's Site, 5) On page 6.5, the magnitude of BTEX and unidentified petroleum hydrocarbon concentrations detected on and upgradient of the Rifkin Site were similar, and 6) On page 7.1, Sherwin Williams should be notified that soil and ground water beneath the southwestern corner of the Rifkin Site has been impacted by chemicals or concern migrating from the adjacent Sherwin Williams Site.

Field investigations by three independent consultants; Levine Fricke, Erler & Kalinowski and TMC, indicate the pollution on the Sherwin Williams Company Plant impacted the Rifkin Property. Levine Fricke notified the Sherwin Williams Company of likely down-gradient contamination of off site properties in the Levine Fricke field investigation report dated 1989. Sherwin Williams Company was directed by the Regional Water Quality Control Board

(RWQCB) in a letter dated May 29, 1992 to assess the ground water pollution northeast of the Plant by installing two new wells in the vicinity of the Rifkin property.

Levine Fricke investigation results indicate the A and deeper B aquifer is impacted by pollution from the Sherwin Williams Company Plant. Inadequate B aquifer investigation has been performed within the unreported lacquer plant area of the Sherwin Williams Company Plant. Additional monitoring wells and studies are required to assess the extent and degree of B aquifer contamination.

The design of the Sherwin Williams Company interim remediation method, utilizing a slurry wall and cap, did not include the soil and water contamination at the unreported lacquer plant and storage tank facility. The installed slurry wall does not fully contain the contaminated soil and water where the former lacquer plant storage tanks formerly occurred. The contaminated soil and water from the lacquer plant facility intrudes into the Rifkin Property leaving a substantial source area of contamination unconstrained by the slurry wall. The interim remediation design appears inadequate, considering that it is based upon incomplete site investigation.

RECOMMENDATIONS

TMC submits the following recommendations concerning the Rifkin Property.

1. TMC recommends quarterly monitoring of all wells for similar constituents. TMC recommends the analysis of future water samples for metals, volatile organic compounds (EPA method 624), and total petroleum hydrocarbons as gasoline, diesel, and oil. Concentration maps of the ground water contamination can be constructed once all 10 wells on the Rifkin Property are sampled consistently.
2. TMC recommends continued ground water level measurements on the Rifkin Property during the summer months in order to obtain a complete record of the seasonal variation in water table level.
3. TMC recommends the further investigation of ground water contamination of both the A and B water bearing zones within the arsenic source area and lacquer plant on the Sherwin Williams Company facility. If further study indicates significant degradation of the deeper B aquifer at the up gradient boundary of the Rifkin property, then future deeper B aquifer monitoring wells should be installed on the Rifkin property to assess the impact of migrating Plant pollution.
4. TMC recommends immediate emergency migration control of the arsenic and associated chemical pollution migrating across the Rifkin Property from the Sherwin Williams Company Plant. Significant migration of contaminated water has likely occurred during the past five years. Further migration of polluted ground water is likely occurring, threatening to impact the remaining areas of the Rifkin property and Temescal Creek.
5. TMC recommends additional research into the operations of the former Sherwin Williams Company lacquer plant and storage tank facility. Sherwin Williams Company has not reported information in regard to the storage, use, and disposal of oil and

chemicals at the lacquer plant and storage tanks. TMC recommends the drilling and sampling of additional soil borings and monitoring wells within the lacquer plant and above ground storage tank area to define the magnitude and extent of soil and water contamination.

CHRONOLOGY OF DOCUMENTS

The following is a list of selected reports, documentation, and memorandum. TMC reviewed the documents in the Regional Water Quality Control Board (RWQCB) case file on November 16, 1994. TMC added recent work plans and additional documents supplied by the Receiver:

August 5, 1988, Safety Specialists, Inc., Tank Removal Report, 1000 gallon gasoline tank, Rifkin Properly

December, 1988, Safety Specialists, Inc., Installation and Sampling of a Groundwater Monitoring Well

January 25, 1989, Levine Fricke, Inc., Letter report with analytical results for monitoring wells LF-8 and LF-9

March 13, 1989, Aqua Terra Technology, Letter summarizing gasoline tank removals, Rifkin Property

June 15, 1989, Aqua Terra Technology, Preliminary Site Assessment, Rifkin Property

July 17, 1989, Levine Fricke, Inc., Results of Environmental Investigation, Sherwin Williams Plant, Emeryville, California

July 31, 1989, Aqua Terra Technology, Quarterly Groundwater Monitoring Report

December 15, 1989, Aqua Terra Technology, Quarterly Groundwater Monitoring Report

August 17, 1989, Levine Fricke, Inc., Work Order No. 2, Further Soil and Ground-Water Investigation, Sherwin Williams Plant, Emeryville, California

March 30, 1990, Regional Water Quality Control Board (RWQCB) Internal Memorandum, report of Texanol spill, 2500 gallons, at Sherwin Williams Plant. Spill moved over ground 200 feet towards Temescal Creek. Some flowed into creek.

April 4, 1990, Levine Fricke, Inc., Results of Second Phase Environmental Investigation, Sherwin Williams Plant, Emeryville, California

June 8, 1990, Levine Fricke, Inc., Proposed Work Plan, Site Investigation/ Treatability Study, Sherwin Williams Plant, Emeryville, California

November 29, 1990, Levine Fricke, Inc., Quarterly Report of Ground-Water Monitoring for the Period July 1 to September 30, 1990, Sherwin Williams Plant, Emeryville, California

April 22, 1991, Levine Fricke, Inc., Quarterly Report of Ground-Water Monitoring for the Period from October 1, 1990 to January 30, 1991, Sherwin Williams Plant, Emeryville, California

November 7, 1991b, Levine Fricke, Inc., Report of Annual Ground-Water Monitoring for the Period June through August 1991, The Sherwin Williams Plant, Emeryville, California

December 20, 1991, Levine Fricke, Inc., Evaluation of Interim Remedial Measures at the Sherwin Williams Facility, Emeryville, California

March 10, 1992, Regional Water Quality Control Board (RWQCB) letter allowing proposed interim cleanup to proceed on Sherwin Williams Company Plant and requiring deed restriction

March 19, 1992, Levine Fricke, Inc., Semiannual Ground-Water Monitoring Report, Sherwin Williams Plant, Emeryville, California

May 18, 1992, Levine Fricke, Inc., Self-Monitoring Plan for 1992-1993, Annual and Semiannual Ground-Water Monitoring Program, Sherwin Williams Plant, Emeryville, California

May 29, 1992, Regional Water Quality Control Board (RWQCB) letter approving self-monitoring plan for Sherwin Williams Company Plant and requiring two additional off-site wells near Rifkin Property

September 11, 1992, Sherwin Williams Company deed notice for Sherwin Williams Company Plant to RWQCB

October 20, 1992, Harding Lawson Associates, Preliminary Site Assessment, Rifkin Property

December 16, 1992, Levine Fricke, Inc., Report of Annual Ground-Water Monitoring conducted in July 1992, The Sherwin Williams Plant, Emeryville, California

March 5, 1993, Sherwin Williams Company status report to RWQCB

June 14, 1993, Sherwin Williams Company status report to RWQCB

July 30, 1993, Sherwin Williams Company status report to RWQCB

August 26, 1993, Erler & Kalinowski, Inc., Preliminary Site Characterization Report, Summarizing Investigations Performed at the Rifkin Property, prepared for Chiron

August 26, 1993, Erler & Kalinowski, Remedial Cost Tables for Rifkin Property

September 22, 1993, RWQCB letter requiring additional investigation to determine off site migration from Plant towards the Rifkin Property. The letter Inquired about status of proposed wells near Rifkin Property

October 8, 1993, Levine Fricke, Inc., Report of Annual Ground-Water Monitoring for the Period from January 1991 through June 30, 1993, The Sherwin Williams Plant, Emeryville, California

October 26, 1993, Levine Fricke, Inc., Work Plan for Installation of Additional Ground-Water Monitoring and Extraction Wells, The Sherwin Williams Plant, Emeryville, California

December 7, 1993, Sherwin Williams Company status report to RWQCB

December 7, 1993, Sherwin Williams Company letter to RWQCB responding to September 22, 1993 RWQCB letter

December 22, 1994, TMC, Over Excavation Work Plan, Rifkin Property

January 6, 1994, Levine Fricke, Inc., Addendum to the Sherwin Williams Company Plant NPDES Permit Application, base line study on sediment and water quality in Temescal Creek

January 11, 1994, RWQCB, Letter approving 1-6-94 Levine Fricke Inc. work plan for borings on Rifkin Property, RWQCB requires analysis for of TPH and VOC

January 18, 1994, Levine Fricke, Inc., Conceptual Remediation Plan for Arsenic Affected Ground-Water at the Rifkin Property; Draft, Slurry Wall and Cap Design

March 10, 1994, Regional Water Quality Control Board (RWQCB) Internal Memorandum of status report from Sherwin Williams Company

March 31, 1994, Sherwin Williams Company letter to Kofi Bonner, Director Economic Development and Housing, City of Emeryville, letter discusses Sherwin William Company plans for Rifkin Property

April 25, 1994, TMC, Source Removal Report for Rifkin Property

April 28, 1994, Memorandum of Understanding between Sherwin Williams Company, Chiron, and City of Emeryville, an agreement concerning the Rifkin Property

May 15, 1994, RWQCB letter approving Levine-Fricke work plan for installing five monitoring wells on Rifkin Property

May 19, 1994. Levine Fricke, Inc., Field Investigation Report, Rifkin Property

May 25, 1994, Sherwin Williams Company letter to Susan Hugo, Alameda County Local Oversight Program, letter states Southern Pacific Railroad agrees to remove underground tanks along railroad tracks west of Rifkin Property

June 8, 1994, Levine Fricke, Inc., Revised Health and Safety Plan, Sherwin Williams Company Plant

June 10, 1994, Levine Fricke, Inc., Report of Semiannual Ground-Water Monitoring For the Period from July 1 through December 31, 1993, The Sherwin Williams Plant, Emeryville, California

June 28, 1994, TMC, Investigation Work Plan, Sherwin Williams Company Plant

July 14, 1994, Levine Fricke, Inc., Procedure for Installation of Ground Water Monitoring Wells on a Portion of the Rifkin Property

August 25, 1994, Ground Water Investigation Work Plan, Rifkin Reality Properties Case by TMC Environmental, Inc.

September 29, 1994, Tank Closure Report by Industrial Compliance, closure of four underground 6500 gallon bunker C tanks, soil and water contamination on the Sherwin Williams Company Plant

October 4, 1994, TMC Environmental, Inc., Upgradient Investigation Report, Sherwin Williams Plant, Emeryville, California

October 7, 1994, Sherwin Williams Company letter to RWQCB, Sherwin Williams Company plans to apply conceptual remediation plan to Rifkin Property

October 11, 1994, Levine Fricke, Inc., Installation of Ground-Water Monitoring Wells on a Portion of the Rifkin Property and July and September 1994 Sampling Results

October 11, 1994, Levine Fricke, Inc., Oversight of TMC Environmental, Inc., and Results of Soil and Grab Water Sampling at the Sherwin Williams Plant, Emeryville, California

October 21, 1994, Regional Water Quality Control Board (RWQCB) notes of meeting between Sherwin Williams Company, Levine Fricke, and RWQCB concerning Rifkin Property

October 26, 1994, Sherwin Williams Company letter to RWQCB indicating Sherwin Williams Company will perform monitoring of Rifkin Property for one year than begin ground water treatment

October 28, 1994, Chiron company fax correspondence to RWQCB of cleanup order 92-022 (RWQCB) with site cleanup requirements for Rhone-Poulenc arsenic superfund site in San Mateo County

December 2, 1994, Ground Water Investigation Work Plan, Amendment Number 1 by TMC Environmental, Inc.

LIMITATIONS

The procedures herein agree with professional practice as recommended in the guidelines of the Water Quality Control Board. The laboratory test results rely on limited data collected at specific sampling locations. Budget and access constraints restrict the amount of testing allowed. The laboratory test results do not apply to the Site as a whole. Therefore, TMC Environmental Inc. cannot have complete knowledge of the underlying conditions at the study area. Work plans and reports contain information provided to TMC by the client, adjacent property owners, and government agencies. TMC does not warranty the accuracy of reported information. We provide this report to our client, in order that the client can make a more informed decision about site conditions. The professional opinion and judgment is subject to revisions in light of new information. We do not state or imply any guarantees or warranties that the subject property is or is not free of environmental impairment. Monitoring wells are temporary sampling devices that must eventually be abandoned by a licensed well driller, at the clients expense.

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US Geological Survey, Oakland West Quadrangle Map

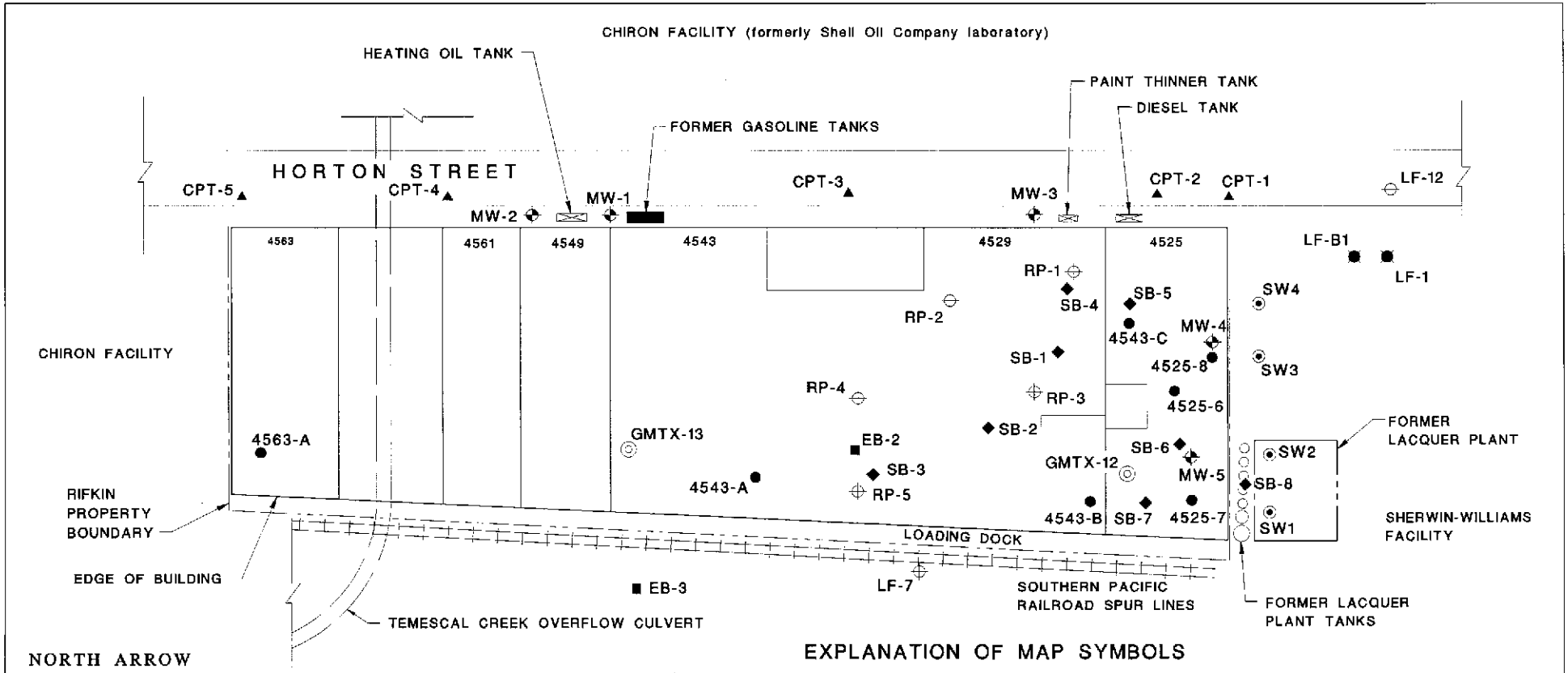
TMC
Environmental, Inc.

SITE VICINITY MAP
Rifkin Property

4525-4563 Horton Street
Emeryville, California

Project No. 130 November 1994

PLATE
1



NORTH ARROW

APPROXIMATE

EXPLANATION OF MAP SYMBOLS

- MONITORING WELL, TMC 1994
- MONITORING WELL, LEVINE FRICKE
- EXPLORATORY SOIL BORING, TMC 1994
- GEOTECHNICAL SOIL BORING, EKI, 1994
- UNDERGROUND TANKS REMOVED IN 1993
- FORMER GASOLINE TANKS REMOVED IN 1988
- CPT/HYDROPUNCH LOCATION BY ERLER & KALINOWSKI, INC., JULY 1993
- FORMER SOIL BORING LOCATION, HARTING LAWSON 1992
- SOIL & GRAB GROUND-WATER LOCATION, LEVINE-FRICKE APRIL 1994
- SOIL & GRAB GROUND-WATER LOCATION, ERLER & KALINOWSKI, INC., JULY 1993
- DESTROYED WELL

SCALE IN FEET

0 60 120

APPROXIMATE

TMC Environmental, Inc.

TMC ENVIRONMENTAL, INC.

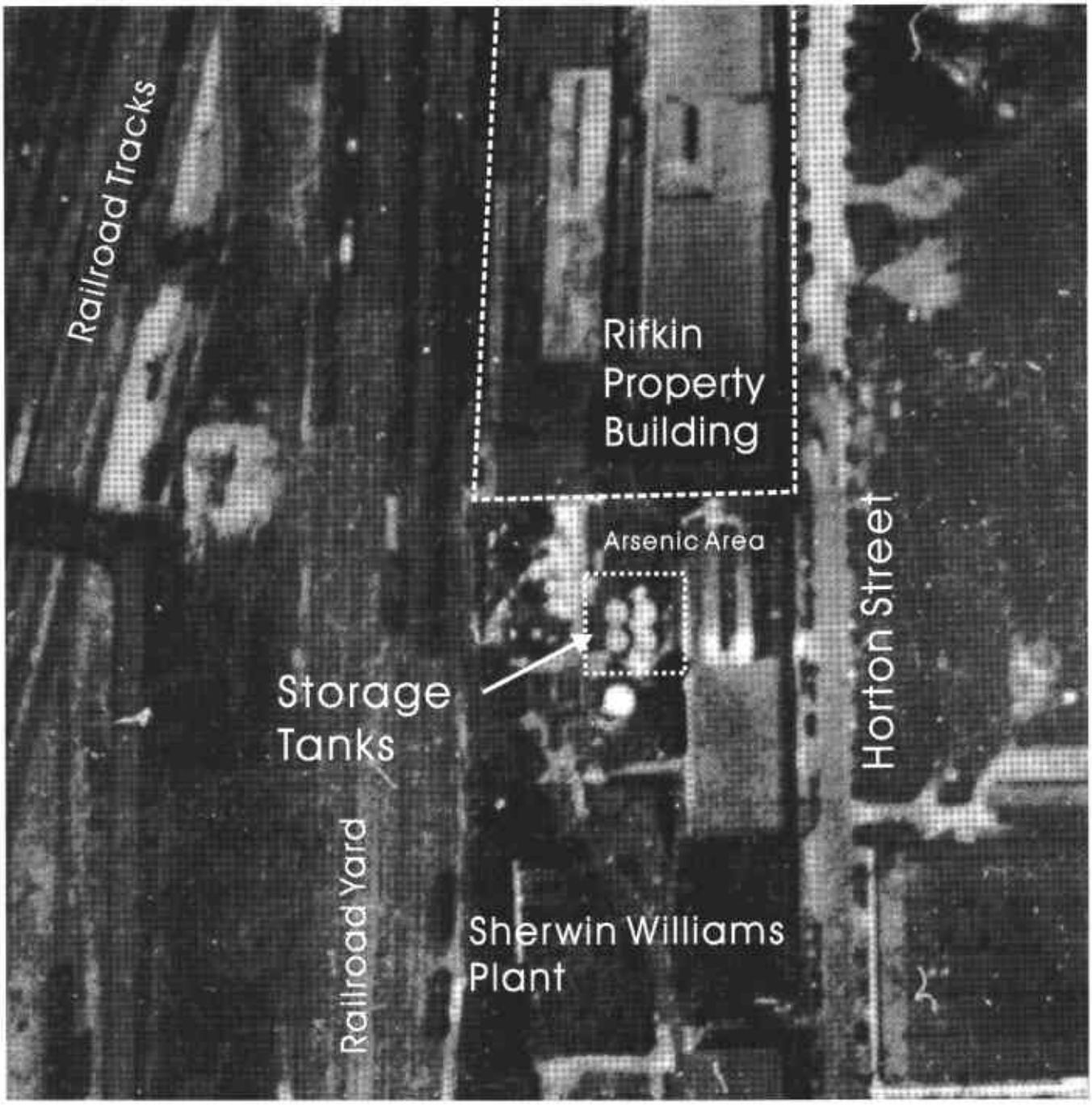
13908 SAN PABLO AVENUE, SUITE 101
SAN PABLO, CALIFORNIA 94806
510-232-8366 FAX 510-232-5133

SITE MAP

RIFKIN PROPERTY
EMERYVILLE, CALIFORNIA

DATE OF DRAWING: FEBRUARY, 1995 JOB NO. 113093

PLATE 2



N W E S

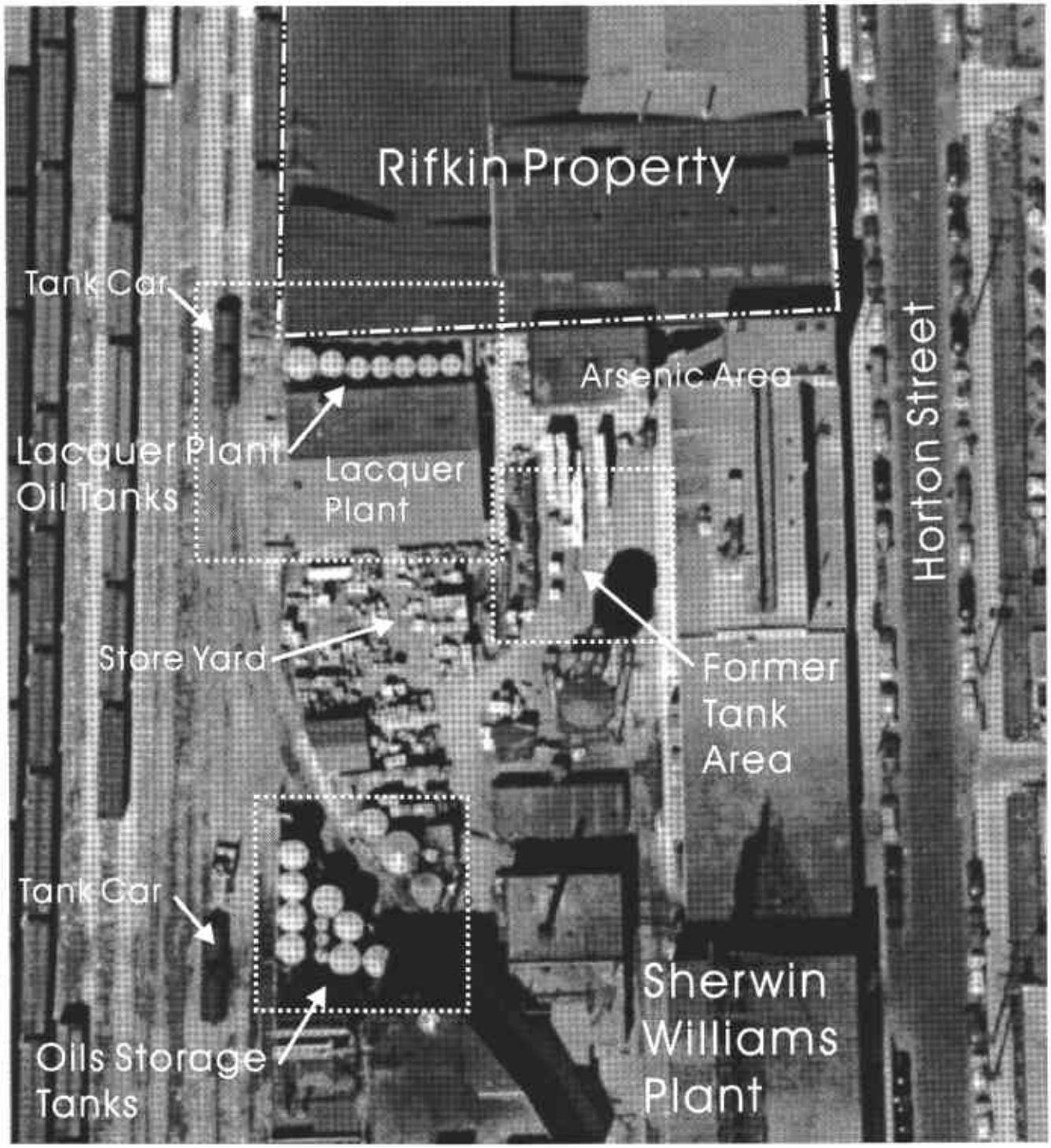
1930 Aerial Photograph, Pacific Aerial Surveys, Oakland, Ca
Scale is about 125 feet per inch

TMC
Environmental, Inc.

First Generation Storage Tanks
Sherwin Williams Company Plant

Project No. 1-13093 November 1994

PLATE
3



N
W E
S

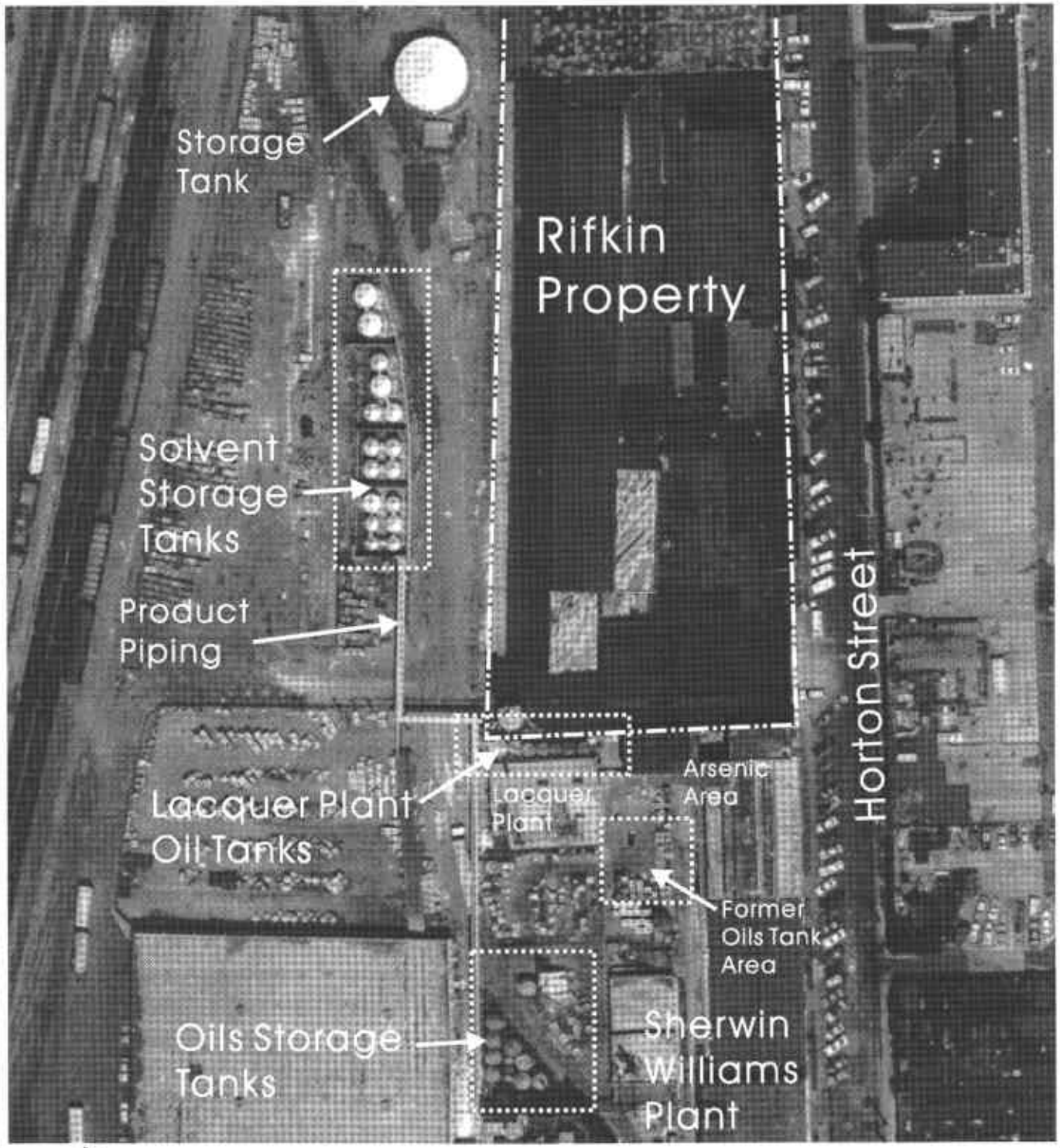
1949 Aerial Photograph, Pacific Aerial Surveys, Oakland Ca
Scale is about 60 feet per inch

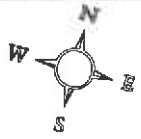
TMC
Environmental, Inc.

Second Generation Storage Tanks
Sherwin Williams Company Plant

Project No. 1-13093 November 1994

PLATE
4





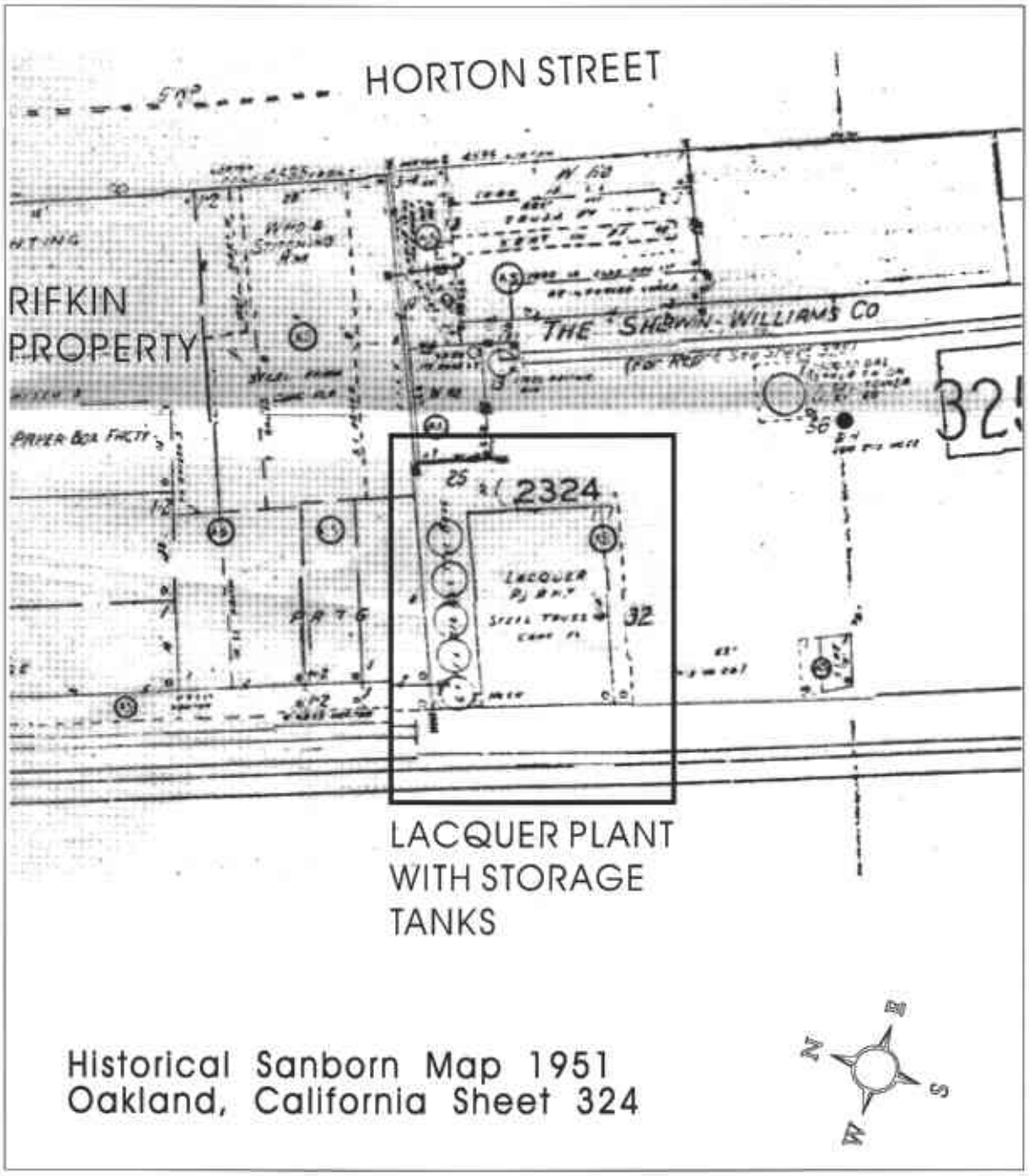
1983 Aerial Photograph, Pacific Aerial Surveys, Oakland Ca
Scale is about 60 feet per inch

TMC
Environmental, Inc.

Third Generation Storage Tanks
Sherwin Williams Company Plant

Project No. 1-15093 November 1994

PLATE
5



Sanborn Fire Insurance Map from 1951 showing Rifkin Property and Sherwin Williams Company Plant. Lacquer plant with above ground storage tanks shown adjacent to Rifkin Property.
Scale, 1 inch is about 70 feet.

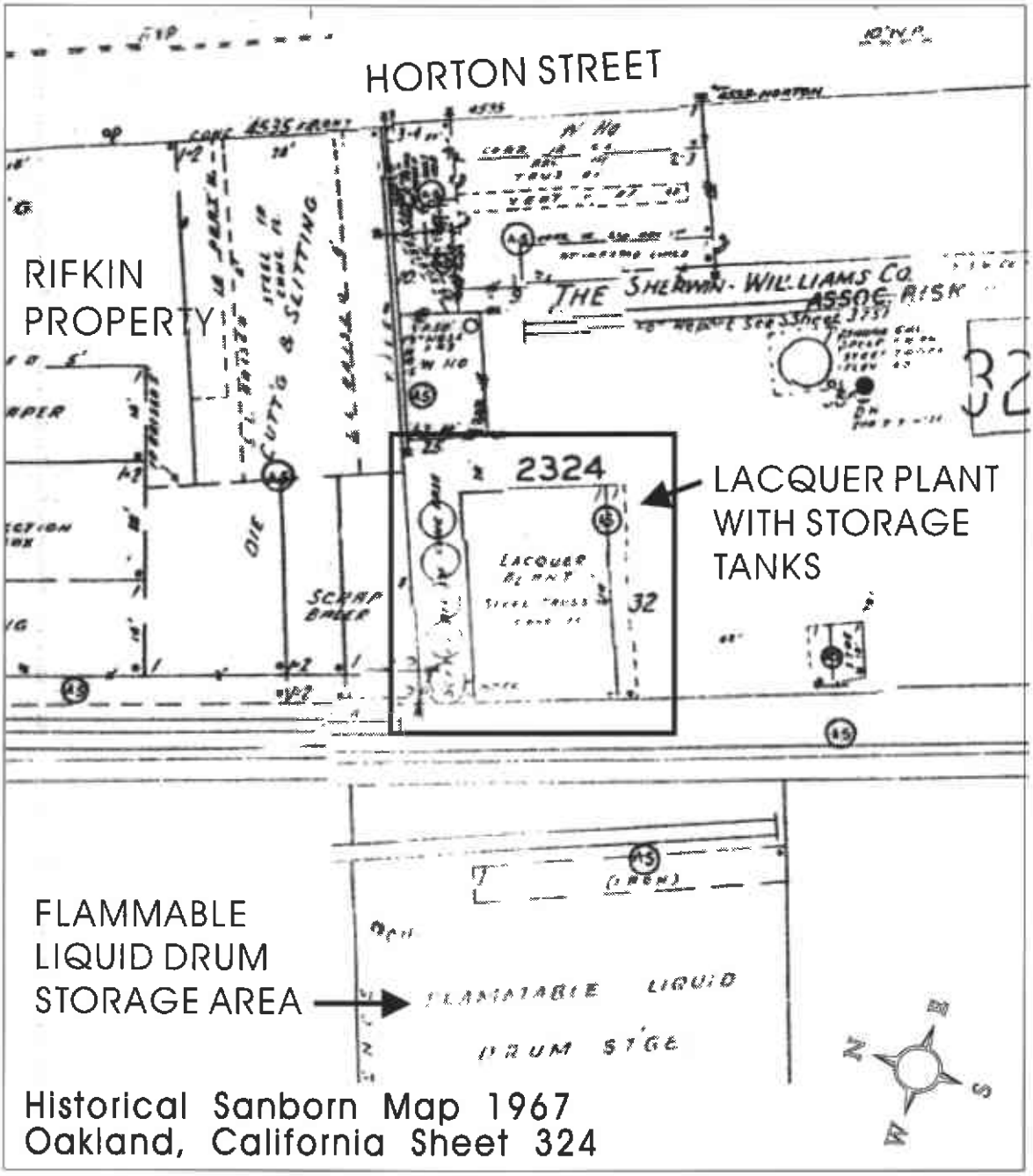
TMC
Environmental, Inc.

1951 FIRE INSURANCE MAP

Rifkin Property

4525-4563 Horton Street
Emeryville, California

PLATE
6



Sanborn Fire Insurance Map from 1967 showing Rifkin Property and Sherwin Williams Company Plant. Lacquer plant with above ground storage tanks shown adjacent to Rifkin Property. Flammable liquid drum storage area also shown by lacquer plant. Scale, 1 inch is about 70 feet.

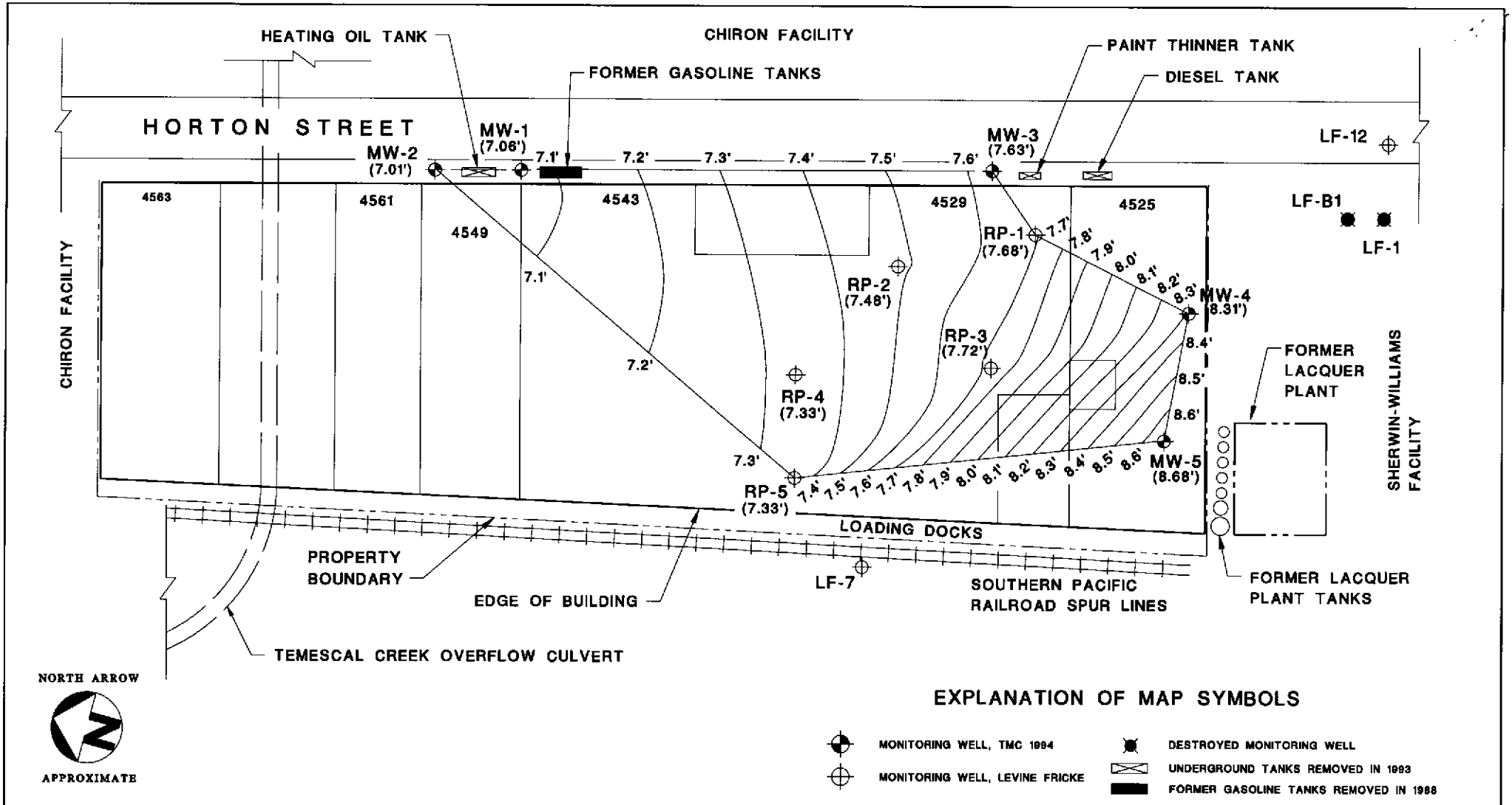
TMC
Environmental, Inc.

1967 FIRE INSURANCE MAP

Rifkin Property

4525-4563 Horton Street
Emeryville, California

PLATE
7



SCALE IN FEET
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APPROXIMATE

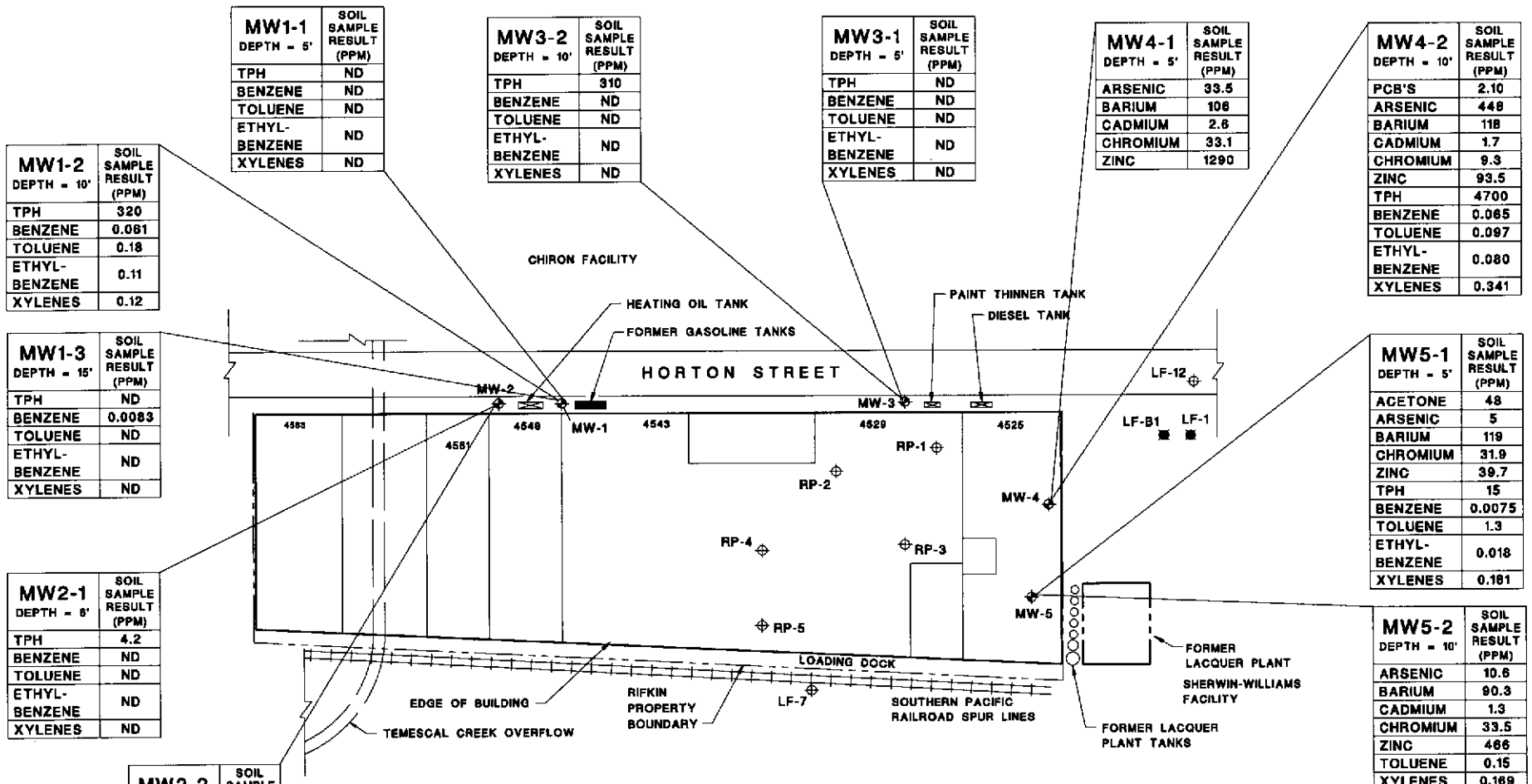
TMC ENVIRONMENTAL, INC.
13908 SAN PABLO AVENUE, SUITE 101
SAN PABLO, CALIFORNIA 94806
510-232-8366 FAX 510-232-5133

GROUNDWATER GRADIENT MAP

RIFKIN PROPERTY
EMERYVILLE, CALIFORNIA

DATE OF DRAWING: FEBRUARY, 1995 JOB NO. 113093

PLATE 8



NOTES AND LIMITATIONS

THE TABLES AND SUMMARIES OF CHEMICAL DATA PROVIDE A QUICK REFERENCE TO THE MORE COMPLETE INFORMATION IN THE TECHNICAL REPORTS AND CERTIFIED LABORATORY REPORTS.

THIS DIAGRAM WAS NOT SURVEYED OR DRAWN BY A STATE LICENSED SURVEYOR. THE PROPERTY AND OTHER BOUNDARIES THAT MAY BE SHOWN CAN NOT BE USED FOR CONSTRUCTION OR CONSTRUCTION DESIGN.

SCALE IN FEET

0 60 120

APPROXIMATE

TMC ENVIRONMENTAL, INC.
13908 SAN PABLO AVENUE, SUITE 101
SAN PABLO, CALIFORNIA 94806
510-232-8366 FAX 510-232-5133

SOIL SAMPLING MAP

RIFKIN PROPERTY
EMERYVILLE, CALIFORNIA

DATE OF DRAWING: FEBRUARY, 1995 JOB NO. 113093

PLATE 9

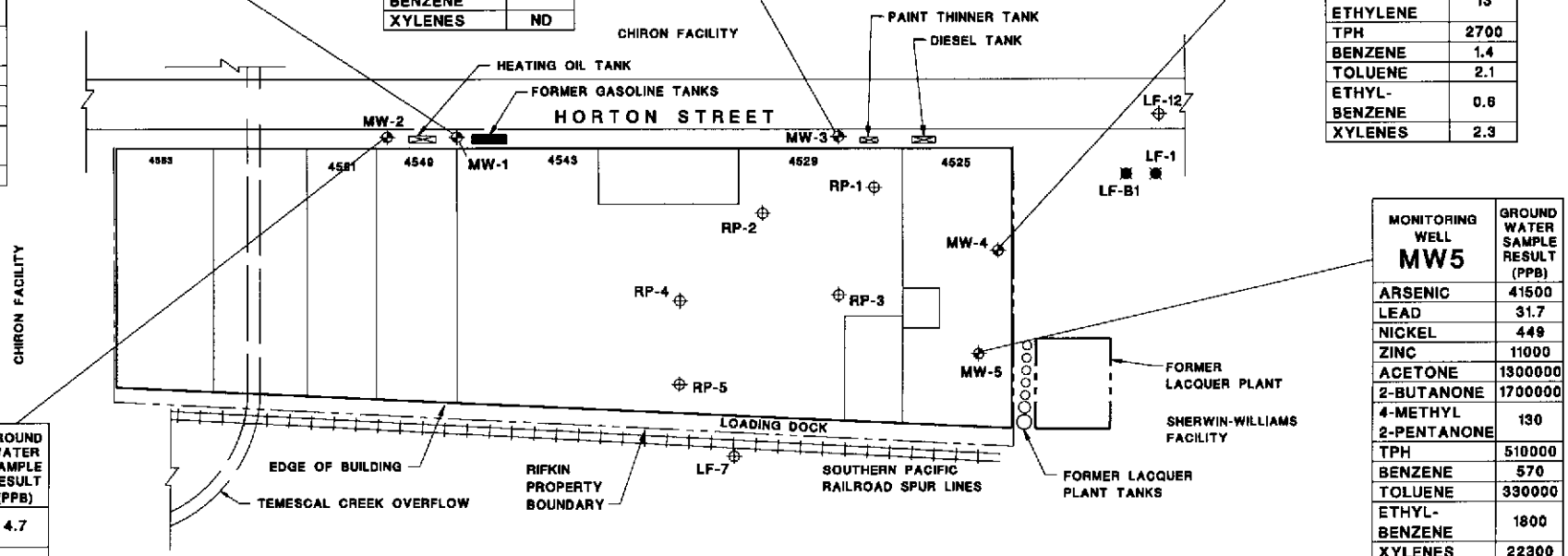
MONITORING WELL MW1	GROUND WATER SAMPLE RESULT (PPB)
1,2-DICHLORO-PROPANE	32
2-HEXANONE	2.8
TRICHLORO-ETHANE	2.8
VINYL CHLORIDE	2.2
TPH	16000
BENZENE	16
TOLUENE	2.7
ETHYL-BENZENE	ND
XYLENES	3.1

MONITORING WELL MW3	GROUND WATER SAMPLE RESULT (PPB)
CARBON DISULFIDE	3.4
1,1,2,2-TETRACHLORO-ETHANE	18
TRANS-1,2-DICHLORO-ETHYLENE	2.8
TPH	27000
BENZENE	ND
TOLUENE	ND
ETHYL-BENZENE	ND
XYLENES	ND

MONITORING WELL MW4	GROUND WATER SAMPLE RESULT (PPB)
ARSENIC	8870
LEAD	30.4
NICKEL	1150
ZINC	71000
TRICHLORO-ETHYLENE	13
TPH	2700
BENZENE	1.4
TOLUENE	2.1
ETHYL-BENZENE	0.6
XYLENES	2.3

MONITORING WELL MW5	GROUND WATER SAMPLE RESULT (PPB)
ARSENIC	41500
LEAD	31.7
NICKEL	449
ZINC	11000
ACETONE	1300000
2-BUTANONE	1700000
4-METHYL 2-PENTANONE	130
TPH	510000
BENZENE	570
TOLUENE	330000
ETHYL-BENZENE	1800
XYLENES	22300

MONITORING WELL MW2	GROUND WATER SAMPLE RESULT (PPB)
1,2-DICHLORO-PROPANE	4.7
TRICHLORO-ETHANE	1.8
TPH	12000
BENZENE	17
TOLUENE	1.9
ETHYL-BENZENE	ND
XYLENES	1.2



NORTH ARROW

APPROXIMATE

EXPLANATION OF MAP SYMBOLS

- MONITORING WELL, TMC 1994
- MONITORING WELL, LEVINE FRICKE
- DESTROYED MONITORING WELL
- UNDERGROUND TANKS REMOVED IN 1993
- FORMER GASOLINE TANKS REMOVED IN 1988

PPB = PARTS PER BILLION
TPH = TOTAL PETROLEUM HYDROCARBONS
ND = NOT DETECTABLE AT OR ABOVE REPORTING LIMIT

NOTES AND LIMITATIONS

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SCALE IN FEET

0 60 120

APPROXIMATE

TMC Environmental, Inc.

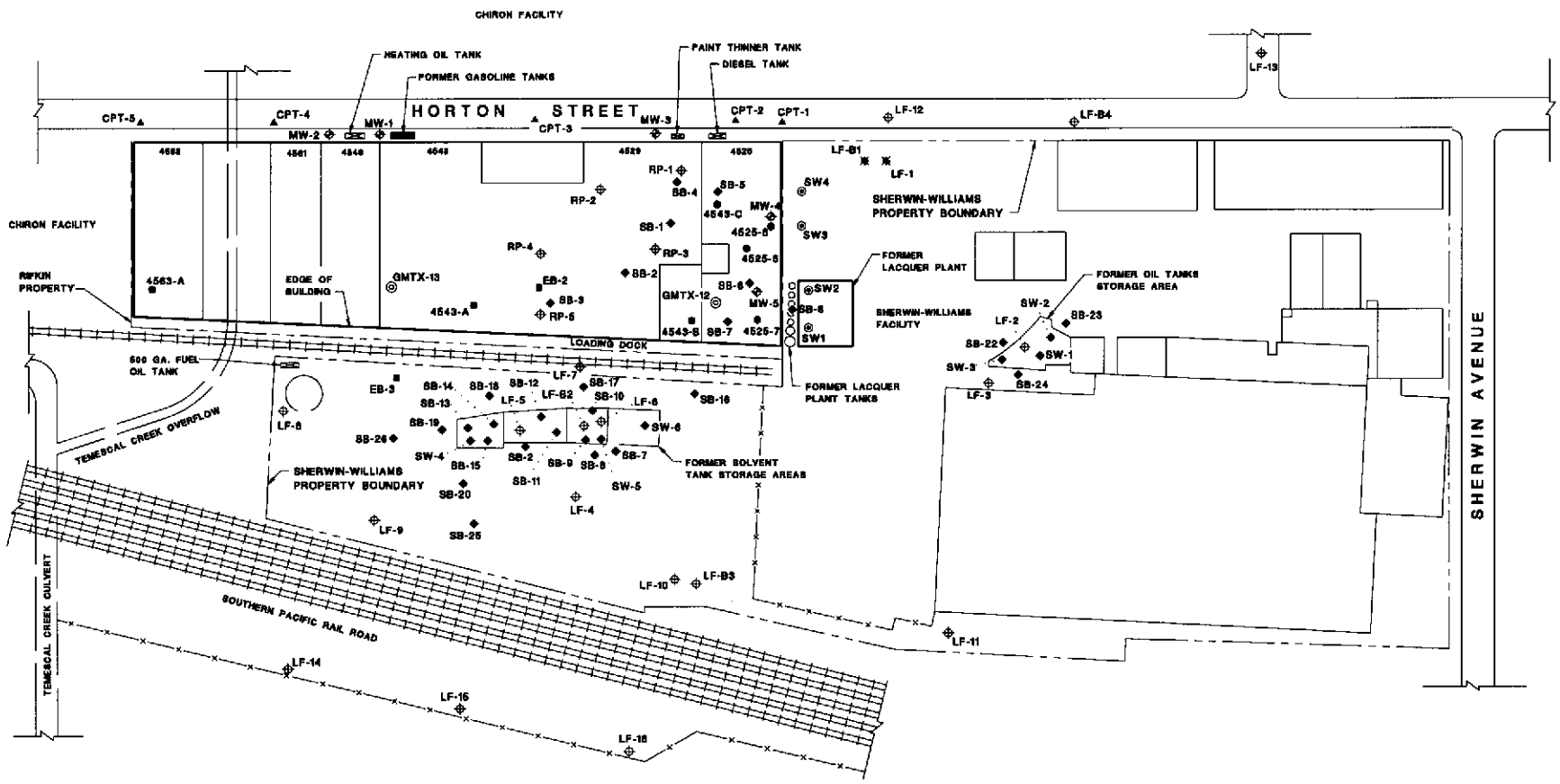
TMC ENVIRONMENTAL, INC.
13908 SAN PABLO AVENUE, SUITE 101
SAN PABLO, CALIFORNIA 94806
510-232-8366 FAX 510-232-5133

GROUNDWATER SAMPLING MAP

RIFKIN PROPERTY
EMERYVILLE, CALIFORNIA

DATE OF DRAWING: FEBRUARY, 1995 JOB NO. 113093

PLATE 10



NORTH ARROW

APPROXIMATE

EXPLANATION OF MAP SYMBOLS

- MONITORING WELL, TMC 1994
- MONITORING WELL, LEVINE FRICKE
- EXPLORATORY SOIL BORING, TMC 1994
- GEOTECHNICAL SOIL BORING, EKI, 1994
- UNDERGROUND TANKS REMOVED IN 1993
- FORMER GASOLINE TANKS REMOVED IN 1988
- CPT/HYDROPUNCH LOCATION BY ERLER & KALINOWSKI, INC., JULY 1993
- FORMER SOIL BORING LOCATION, HARTING LAWSON 1992
- SOIL & GRAB GROUND-WATER LOCATION, LEVINE-FRICKE APRIL 1994
- SAMPLE LOCATION, ERLER & KALINOWSKI, INC., JULY 1993
- DESTROYED WELL
- FENCE

SCALE IN FEET

0 60 120

APPROXIMATE

NOTES AND LIMITATIONS

THE TABLES AND SUMMARIES OF CHEMICAL DATA PROVIDE A QUICK REFERENCE TO THE MORE COMPLETE INFORMATION IN THE TECHNICAL REPORTS AND CERTIFIED LABORATORY REPORTS.

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TMC
Environmental, Inc.

TMC ENVIRONMENTAL, INC.
13908 SAN PABLO AVENUE, SUITE 101
SAN PABLO, CALIFORNIA 94806
510-232-8366 FAX 510-232-5133

BORING LOCATION MAP

RIFKIN PROPERTY

EMERYVILLE, CALIFORNIA

DATE OF DRAWING: FEBRUARY, 1995 PROJECT NO. 113093

PLATE 11

ATTACHMENT 1

ANALYTICAL LABORATORY REPORTS
CHAIN-OF-CUSTODY FORMS

AMER
Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT

(ELAP CERTIFICATE NO. 1909)
EPA METHOD 8080
Polychlorinated Biphenyls (PCBs)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite 101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Laboratory Report ID.: E727
Sample Name: MW4-1, E4120909
Project Name: ~~2495~~ 2425 Horton St., #1-13093

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Analyzed: 12-20-94
Date Reported: 12-22-94
Matrix: SOIL
Dilution Factor: 1

COMPOUND	CAS #	CONCENTRATION mg/kg	LIMIT OF DETECTION mg/kg
AROCLOR 1016	12674-11-2	ND	0.30
AROCLOR 1221	11104-28-2	ND	0.30
AROCLOR 1232	11141-16-5	ND	0.30
AROCLOR 1242	53469-21-9	ND	0.30
AROCLOR 1248	12672-29-3	ND	0.30
AROCLOR 1254	11097-69-1	ND	0.30
AROCLOR 1260	11096-82-5	ND	0.30

ND = NOT DETECTED. Concentration is at or lower than the detection limit.

Reported By:

Kayvan Kimyai, Senior Chemist

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

AMER
Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT

(ELAP CERTIFICATE NO. 1909)
EPA METHOD 8080
Polychlorinated Biphenyls (PCBs)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite 101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Laboratory Report ID.: E727
Sample Name: MW4-2, E4120910
Project Name: ~~2495~~ 2425 Horton St., #1-13093

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Analyzed: 12-20-94
Date Reported: 12-22-94
Matrix: SOIL
Dilution Factor: 1

COMPOUND	CAS #	CONCENTRATION mg/kg	LIMIT OF DETECTION mg/kg
AROCLOR 1016	12674-11-2	ND	0.30
AROCLOR 1221	11104-28-2	ND	0.30
AROCLOR 1232	11141-16-5	ND	0.30
AROCLOR 1242	53469-21-9	ND	0.30
AROCLOR 1248	12672-29-3	ND	0.30
AROCLOR 1254	11097-69-1	ND	0.30
AROCLOR 1260	11096-82-5	ND	0.30
AROCLOR MIXTURE		2.1	0.30

ND = NOT DETECTED. Concentration is at or lower than the detection limit.

Reported By:

Kayvan Kimyai, Senior Chemist

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

AMER
Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT

(ELAP CERTIFICATE NO. 1909)
EPA METHOD 8080
Polychlorinated Biphenyls (PCBs)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite 101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Laboratory Report ID.: E733
Sample Name: MW5-2, E4121236
Project Name: 4525-4563 Horton St., #1-13093

Date Sampled: 12-12-94
Date Received: 12-12-94
Date Analyzed: 12-20-94
Date Reported: 12-29-94
Matrix: SOIL
Dilution Factor: 1

COMPOUND	CAS #	CONCENTRATION mg/kg	LIMIT OF DETECTION mg/kg
AROCLOR 1016	12674-11-2	ND	0.30
AROCLOR 1221	11104-28-2	ND	0.30
AROCLOR 1232	11141-16-5	ND	0.30
AROCLOR 1242	53469-21-9	ND	0.30
AROCLOR 1248	12672-29-3	ND	0.30
AROCLOR 1254	11097-69-1	ND	0.30
AROCLOR 1260	11096-82-5	ND	0.30

ND = NOT DETECTED. Concentration is at or lower than the detection limit.

Reported By:

Kayvan Kimyai, Senior Chemist

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AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD Proirity Metals

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Laboratory Report ID.: E727
Sample Name: MW4-1, E4120909
Project Name: ~~2495~~ Horton St., #1-13093

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Analyzed: 12-20-94
Date Reported: 12-22-94
Matrix: Soil

ANALYTES 2425	Prep Method	Analytical Method	Dilution Factor	Results	MDL	Units
Antimony	3050	6010	1	ND	6.0	mg/kg
Arsenic	3050	6010	1	**33.5**	1.0	mg/kg
Barium	3050	6010	1	**106**	10.0	mg/kg
Beryllium	3050	6010	1	ND	0.50	mg/kg
Cadmium	3050	6010	1	**2.6**	0.50	mg/kg
Chromium	3050	6010	1	**33.1**	1.0	mg/kg
Copper	3050	6010	1	**20.6**	2.5	mg/kg
Lead	3050	6010	1	**6.0**	0.30	mg/kg
Mercury	7471	7471	1	**0.23**	0.10	mg/kg
Nickel	3050	6010	1	**36.0**	4.0	mg/kg
Selenium	3050	6010	1	ND	0.50	mg/kg
Silver	3050	6010	1	ND	1.0	mg/kg
Thallium	3050	6010	5	ND	5.0	mg/kg
Zinc	3050	6010	2	**1290**	4.0	mg/kg

Analytes reported as ND were not present above the stated limit of detection.
MDL: Method Detection Limit.

Reviewed By:

Lei Chen, Laboratory Manager

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

AMER
Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD Proirity Metals

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Laboratory Report ID.: E727
Sample Name: MW4-2, E4120910
Project Name: ~~2495~~ Horton St., #1-13093

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Analyzed: 12-20-94
Date Reported: 12-22-94
Matrix: Soil

ANALYTES 2425	Prep Method	Analytical Method	Dilution Factor	Results	MDL	Units
Antimony	3050	6010	1	ND	6.0	mg/kg
Arsenic	3050	6010	1	**448**	1.0	mg/kg
Barium	3050	6010	1	**118**	10.0	mg/kg
Beryllium	3050	6010	1	ND	0.50	mg/kg
Cadmium	3050	6010	1	**1.7**	0.50	mg/kg
Chromium	3050	6010	1	**9.3**	1.0	mg/kg
Copper	3050	6010	1	**4.9**	2.5	mg/kg
Lead	3050	6010	1	**9.2**	0.30	mg/kg
Mercury	7471	7471	1	ND	0.10	mg/kg
Nickel	3050	6010	1	ND	4.0	mg/kg
Selenium	3050	6010	5	ND	2.5	mg/kg
Silver	3050	6010	1	ND	1.0	mg/kg
Thallium	3050	6010	1	ND	5.0	mg/kg
Zinc	3050	6010	1	**93.5**	2.0	mg/kg

Analytes reported as ND were not present above the stated limit of detection.
MDL: Method Detection Limit.

Reviewed By:

Lei Chen, Laboratory Manager

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AMER
Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD Proirity Metals

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Laboratory Report ID.: E733
Sample Name: MW5-1, E4121235
Project Name: 4525-4563 Horton ST., #1-13093

Date Sampled: 12-12-94
Date Received: 12-12-94
Date Analyzed: 12-20-94
Date Reported: 12-29-94
Matrix: Soil

ANALYTES	Prep Method	Analytical Method	Dilution Factor	Results	MDL	Units
Antimony	3050	6010	1	ND	6.0	mg/kg
Arsenic	3050	6010	1	**5.0**	1.0	mg/kg
Barium	3050	6010	1	**119**	10.0	mg/kg
Beryllium	3050	6010	1	**0.54**	0.50	mg/kg
Cadmium	3050	6010	1	ND	0.50	mg/kg
Chromium	3050	6010	1	**31.9**	1.0	mg/kg
Copper	3050	6010	1	**15.8**	2.5	mg/kg
Lead	3050	6010	1	**6.3**	0.30	mg/kg
Mercury	7471	7471	1	ND	0.10	mg/kg
Nickel	3050	6010	1	**44.0**	4.0	mg/kg
Selenium	3050	6010	1	ND	0.50	mg/kg
Silver	3050	6010	1	ND	1.0	mg/kg
Thallium	3050	6010	1	ND	5.0	mg/kg
Zinc	3050	6010	1	**39.7**	2.0	mg/kg

Analytes reported as ND were not present above the stated limit of detection.
MDL: Method Detection Limit.

Reviewed By:

Kayvan Kimyai, Senior Chemist

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AMER
Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD Proirity Metals

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Laboratory Report ID.: E733
Sample Name: MW5-2, E4121236
Project Name: 4525-2563 Horton ST., #1-13093

Date Sampled: 12-12-94
Date Received: 12-12-94
Date Analyzed: 12-20-94
Date Reported: 12-29-94
Matrix: Soil

ANALYTES	Prep Method	Analytical Method	Dilution Factor	Results	MDL	Units
Antimony	3050	6010	1	ND	6.0	mg/kg
Arsenic	3050	6010	1	**10.6**	1.0	mg/kg
Barium	3050	6010	1	**90.3**	10.0	mg/kg
Beryllium	3050	6010	1	**0.64**	0.50	mg/kg
Cadmium	3050	6010	1	**1.3**	0.50	mg/kg
Chromium	3050	6010	1	**33.5**	1.0	mg/kg
Copper	3050	6010	1	**19.5**	2.5	mg/kg
Lead	3050	6010	1	**7.5**	0.30	mg/kg
Mercury	7471	7471	1	ND	0.10	mg/kg
Nickel	3050	6010	1	**43.3**	4.0	mg/kg
Selenium	3050	6010	1	ND	2.5	mg/kg
Silver	3050	6010	1	ND	1.0	mg/kg
Thallium	3050	6010	1	ND	5.0	mg/kg
Zinc	3050	6010	1	**466**	2.0	mg/kg

Analytes reported as ND were not present above the stated limit of detection.
MDL: Method Detection Limit.

Reviewed By:

Kayvan Kimyai, Senior Chemist

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD PROIRITY METALS
MATRIX SPIKE REPORT

Laboratory I.D.: E727
Sample Name: E4121235-SP
Project Name: 2495 Horton St., #1-13093

ANALYTES	Prep Method	Analytical Method	Dilution Factor	Units	Spike Level	Sample Conc.	MS Conc.	MS % R.	MSD Conc.	MSD % R.	Average % Rec.	RPD %
Antimony	3050	6010	1	mg/kg	50.0	0.0	10.0	20	8.1	16.2	18	21.0
Arsenic	3050	6010	1	mg/kg	10.0	5.0	14.0	90	14.7	97	94	7.5
Barium	3050	6010	1	mg/kg	200	119	305	93	309	95	94	2.1
Beryllium	3050	6010	1	mg/kg	5.0	0.54	5.3	95.2	5.4	97.2	96	2.1
Cadmium	3050	6010	1	mg/kg	5.0	0.0	4.6	92	4.7	94	93	2.2
Chromium	3050	6010	1	mg/kg	20.0	31.9	43.9	60	48.6	83.5	72	32.8
Copper	3050	6010	1	mg/kg	25.0	15.8	37.6	87.2	38.4	90.4	89	3.6
Lead	3050	6010	1	mg/kg	5.0	6.3	53.3	940	53.4	942	941	0.2
Mercury	7471	7471	1	mg/kg	0.50	0.0	0.54	108	0.49	98	103	9.7
Nickel	3050	6010	1	mg/kg	50.0	44.0	86.3	84.6	87.6	87.2	86	3.0
Selenium	3050	6010	1	mg/kg	5.0	0.0	5.0	100	5.0	100	100	0.0
Silver	3050	6010	1	mg/kg	5.0	0.0	4.3	86	4.3	86	86	0.0
Thallium	3050	6010	1	mg/kg	10.0	0.0	8.9	89	9.0	90	90	1.1
Zinc	3050	6010	1	mg/kg	50.0	39.7	78.8	78.2	79.9	80.4	79	2.8

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
RPD- Relative Percent Difference

ANALYSIS REPORT
(ELAP Certificate No.:1909)
EPA METHOD PRIORTIY METALS
POST DIGESTION SPIKE REPORT

Laboratory I.D.: E727
Sample Name: E4121235-SP
Project Name: 2495 Horton St., #1-13093

ANALYTES	Prep Method	Analytical Method	Dilution Factor	Units	Spike Level	Sample Conc.	MS Conc.
Antimony	3050	6010	1	mg/kg	25.0	0.0	24.2
Chromium	3050	6010	1	mg/kg	60.0	31.9	84.5
Zinc	3050	6010	1	mg/kg	80.0	39.7	105

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD PROIRITY METALS
MATRIX SPIKE REPORT

Laboratory I.D.: E733
Sample Name: E4121235-SP
Project Name: 4525-4563 Horton St., #1-13093

ANALYTES	Prep Method	Analytical Method	Dilution Factor	Units	Spike Level	Sample Conc.	MS Conc.	MS % R.	MSD Conc.	MSD % R.	Average % Rec.	RPD %
Antimony	3050	6010	1	mg/kg	50.0	0.0	10.0	20	8.1	16.2	18	21.0
Arsenic	3050	6010	1	mg/kg	10.0	5.0	14.0	90	14.7	97	94	7.5
Barium	3050	6010	1	mg/kg	200	119	305.0	93	309	95	94	2.1
Beryllium	3050	6010	1	mg/kg	5.0	0.54	5.3	95.2	5.4	97.2	96	2.1
Cadmium	3050	6010	1	mg/kg	5.0	0.0	4.6	92	4.7	94	93	2.2
Chromium	3050	6010	1	mg/kg	20.0	31.9	43.9	60	48.6	83.5	72	32.8
Copper	3050	6010	1	mg/kg	25.0	15.8	37.6	87.2	38.4	90.4	89	3.6
Lead	3050	6010	1	mg/kg	5.0	6.3	53.3	940	53.4	942	941	0.2
Mercury	7471	7471	1	mg/kg	0.50	0.0	0.54	108	0.49	98	103	9.7
Nickel	3050	6010	1	mg/kg	50.0	44.0	86.3	84.6	87.6	87.2	86	3.0
Selenium	3050	6010	1	mg/kg	5.0	0.0	5.0	100	5.0	100	100	0.0
Silver	3050	6010	1	mg/kg	5.0	0.0	4.3	86	4.3	86	86	0.0
Thallium	3050	6010	1	mg/kg	10.0	0.0	8.9	89	9.0	90	90	1.1
Zinc	3050	6010	1	mg/kg	50.0	39.7	78.8	78.2	79.9	80.4	79	2.8

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
RPD- Relative Percent Difference

ANALYSIS REPORT
(ELAP Certificate No.:1909)
EPA METHOD PRIORTIY METALS
POST DIGESTION SPIKE REPORT

Laboratory I.D.: E733
Sample Name: E4121235-SP
Project Name: 4525-4563 Horton St., #1-13093

ANALYTES	Prep Method	Analytical Method	Dilution Factor	Units	Spike Level	Sample Conc.	MS Conc.
Antimony	3050	6010	1	mg/kg	25.0	0.0	24.2
Chromium	3050	6010	1	mg/kg	60.0	31.9	84.5
Zinc	3050	6010	1	mg/kg	80.0	39.7	105

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result

AMER

Advanced Materials Engineering Research, Inc.

EPA METHODS 8240 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: ~~2495~~ 2425 Horton St., #1-13093
Sample Name: MW4-1, E4120909

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Reported: 12-22-94
Sample Matrix: SOIL
AMER Report #: E727

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
acetone		ND	0.028
benzene		ND	0.005
bromomethane		ND	0.008
bromodichloromethane		ND	0.005
bromoform (SPCC)		ND	0.008
2-butanone		ND	0.007
carbon disulfide		ND	0.008
carbon tetrachloride		ND	0.010
chlorobenzene (SPCC)		ND	0.004
chlorodibromomethane		ND	0.010
chloroethane		ND	0.005
2-chloro-ethyl-vinyl ether		ND	0.011
chloroform (CCC)		ND	0.005
chloromethane		ND	0.008
1,2-dichlorobenzene		ND	0.004
1,3-dichlorobenzene		ND	0.003
1,4-dichlorobenzene		ND	0.003
dichlorodifluoromethane		ND	0.010
1,1 -dichloroethane (SPCC)		ND	0.008
1,2-dichloroethane		ND	0.006
1,1 -dichloroethene (CCC)		ND	0.005
1,2-dichloropropane		ND	0.014
cis-1,3-dichloropropene		ND	0.005
trans-1,3-dichlorpropene		ND	0.006
ethylbenzene		ND	0.003
2-hexanone		ND	0.011
4-methyl-2-pentanone		ND	0.009

AMER

Advanced Materials Engineering Research, Inc.

EPA METHODS 8240 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: ~~2495~~ 2425 Horton St., #1-13093
Sample Name: MW4-1, E4120909

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Reported: 12-22-94
Sample Matrix: SOIL
AMER Report #: E727

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
methylene dichloride		ND	0.043
styrene		ND	0.005
1,1,2,2-tetrachloroethane		ND	0.005
tetrachloroethylene		ND	0.011
toluene		ND	0.003
trans- 1,2-dichloroethlene		ND	0.007
1,1,1-trichloroethane		ND	0.005
1,1,2-trichloroethane		ND	0.008
trichloroethylene		ND	0.005
trichlorofluoromethane		ND	0.010
o-xylene		ND	0.002
p/m-xylene		ND	0.003
vinyl acetate		ND	0.011
vinyl chloride		ND	0.009

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8240 or EPA 624 and EPA 5030
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Lei Chen, Laboratory Manager

AMER

Advanced Materials Engineering Research, Inc.

EPA METHODS 8240 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: ~~2495~~ 2425 Horton St., #1-13093
Sample Name: MW4-2, E4120910

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Reported: 12-22-94
Sample Matrix: SOIL
AMER Report #: E727

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
acetone		ND	0.028
benzene		ND	0.005
bromomethane		ND	0.008
bromodichloromethane		ND	0.005
bromoform (SPCC)		ND	0.008
2-butanone		ND	0.007
carbon disulfide		ND	0.008
carbon tetrachloride		ND	0.010
chlorobenzene (SPCC)		ND	0.004
chlorodibromomethane		ND	0.010
chloroethane		ND	0.005
2-chloro-ethyl-vinyl ether		ND	0.011
chloroform (CCC)		ND	0.005
chloromethane		ND	0.008
1,2-dichlorobenzene		ND	0.004
1,3-dichlorobenzene		ND	0.003
1,4-dichlorobenzene		ND	0.003
dichlorodifluoromethane		ND	0.010
1,1 -dichloroethane (SPCC)		ND	0.008
1,2-dichloroethane		ND	0.006
1,1 -dichloroethene (CCC)		ND	0.005
1,2-dichloropropane		ND	0.014
cis-1,3-dichloropropene		ND	0.005
trans-1,3-dichlorpropene		ND	0.006
ethylbenzene		**0.016**	0.003
2-hexanone		ND	0.011
4-methyl-2-pentanone		ND	0.009

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 8240 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: ~~2495~~ 2425 Horton St., #1-13093
Sample Name: MW4-2, E4120910

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Reported: 12-22-94
Sample Matrix: SOIL
AMER Report #: E727

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
methylene dichloride		ND	0.043
styrene		ND	0.005
1,1,2,2-tetrachloroethane		ND	0.005
tetrachloroethylene		ND	0.011
toluene		**0.009**	0.003
trans- 1,2-dichloroethlene		ND	0.007
1,1,1-trichloroethane		ND	0.005
1,1,2-trichloroethane		ND	0.008
trichloroethylene		ND	0.005
trichlorofluoromethane		ND	0.010
o-xylene		**0.069**	0.002
p/m-xylene		**0.056**	0.003
vinyl acetate		ND	0.011
vinyl chloride		ND	0.009

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8240 or EPA 624 and EPA 5030
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Lei Chen, Laboratory Manager

AMER

Advanced Materials Engineering Research, Inc.

EPA METHODS 8240 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW5-1, E4121235

Date Sampled: 12-09-94
Date Received:12-12-94
Date Reported: 12-29-94
Sample Matrix: SOIL
AMER Report #: E733

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
acetone		**48**	0.028
benzene		ND	0.005
bromomethane		ND	0.008
bromodichloromethane		ND	0.005
bromoform (SPCC)		ND	0.008
2-butanone		ND	0.007
carbon disulfide		ND	0.008
carbon tetrachloride		ND	0.010
chlorobenzene (SPCC)		ND	0.004
chlorodibromomethane		ND	0.010
chloroethane		ND	0.005
2-chloro-ethyl-vinyl ether		ND	0.011
chloroform (CCC)		ND	0.005
chloromethane		ND	0.008
1,2-dichlorobenzene		ND	0.004
1,3-dichlorobenzene		ND	0.003
1,4-dichlorobenzene		ND	0.003
dichlorodifluoromethane		ND	0.010
1,1 -dichloroethane (SPCC)		ND	0.008
1,2-dichloroethane		ND	0.006
1,1 -dichloroethene (CCC)		ND	0.005
1,2-dichloropropane		ND	0.014
cis-1,3-dichloropropene		ND	0.005
trans-1,3-dichlorpropene		ND	0.006
ethylbenzene		ND	0.003
2-hexanone		ND	0.011
4-methyl-2-pentanone		**3.1**	0.009

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AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 8240 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW5-1, E4121235

Date Sampled: 12-09-94
Date Received: 12-12-94
Date Reported: 12-29-94
Sample Matrix: SOIL
AMER Report #: E733

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
methylene dichloride		ND	0.043
styrene		ND	0.005
1,1,2,2-tetrachloroethane		ND	0.005
tetrachloroethylene		ND	0.011
toluene		**1.3**	0.003
trans- 1,2-dichloroethlene		ND	0.007
1,1,1-trichloroethane		ND	0.005
1,1,2-trichloroethane		ND	0.008
trichloroethylene		ND	0.005
trichlorofluoromethane		ND	0.010
o-xylene		**0.041**	0.002
p/m-xylene		**0.14**	0.003
vinyl acetate		ND	0.011
vinyl chloride		ND	0.009

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8240 or EPA 624 and EPA 5030
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 8240 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW5-2, E4121236

Date Sampled: 12-09-94
Date Received: 12-12-94
Date Reported: 12-29-94
Sample Matrix: SOIL
AMER Report #: E733

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
acetone		ND	0.028
benzene		**0.009**	0.005
bromomethane		ND	0.008
bromodichloromethane		ND	0.005
bromoform (SPCC)		ND	0.008
2-butanone		ND	0.007
carbon disulfide		ND	0.008
carbon tetrachloride		ND	0.010
chlorobenzene (SPCC)		ND	0.004
chlorodibromomethane		ND	0.010
chloroethane		ND	0.005
2-chloro-ethyl-vinyl ether		ND	0.011
chloroform (CCC)		ND	0.005
chloromethane		ND	0.008
1,2-dichlorobenzene		ND	0.004
1,3-dichlorobenzene		ND	0.003
1,4-dichlorobenzene		ND	0.003
dichlorodifluoromethane		ND	0.010
1,1 -dichloroethane (SPCC)		ND	0.008
1,2-dichloroethane		ND	0.006
1,1 -dichloroethene (CCC)		ND	0.005
1,2-dichloropropane		ND	0.014
cis-1,3-dichloropropene		ND	0.005
trans-1,3-dichlorpropene		ND	0.006
ethylbenzene		**0.004**	0.003
2-hexanone		ND	0.011
4-methyl-2-pentanone		ND	0.009

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 8240 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW5-2, E4121236

Date Sampled: 12-09-94
Date Received: 12-12-94
Date Reported: 12-29-94
Sample Matrix: SOIL
AMER Report #: E733

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
methylene dichloride		ND	0.043
styrene		ND	0.005
1,1,2,2-tetrachloroethane		ND	0.005
tetrachloroethylene		ND	0.011
toluene		**0.15**	0.003
trans- 1,2-dichloroethlene		ND	0.007
1,1,1-trichloroethane		ND	0.005
1,1,2-trichloroethane		ND	0.008
trichloroethylene		ND	0.005
trichlorofluoromethane		ND	0.010
o-xylene		**0.004**	0.002
p/m-xylene		**0.015**	0.003
vinyl acetate		ND	0.011
vinyl chloride		ND	0.009

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8240 or EPA 624 and EPA 5030
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

8240 TEST QA/QC TABLE

AMER WORKORDER: E727

AMER I.D. Number: E4120909-SP
Project: # 1-13093
Ext/Prep. Method: EPA 5030
Date: 12-16-94
Analyst: LC

Analytical Method EPA 8240
Analysis date: 12-16-94
Analyst: LC
Matrix: Soil
Unit: mg/kg

Analyte	Sample Result	Spike Level	Matrix Spike Result	Ms Recovery %	Matrix Spike Dul. Result	MSD Recovery %	Average Recovery %R	LCL %R	UCL %R	RPD %	UCL %RPD
1,1-Dichloroethene	0.000	0.125	0.143	114	0.140	112	113	59	172	2	14
Trichloroethene	0.000	0.125	0.131	105	0.125	100	102	62	137	5	14
Chlorobenzene	0.000	0.125	0.130	104	0.123	98	101	60	133	6	13
Toluene	0.000	0.125	0.125	100	0.116	93	96	59	139	7	13
Benzene	0.000	0.125	0.138	110	0.133	106	108	66	142	4	11

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spik
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
LCL- Lower Criteria Level
UCL- Upper Criteria Level
RPD- Relative Percent Difference

8240 TEST QA/QC TABLE

AMER WORKORDER: E733

AMER I.D. Number: E4120909-SP
Project: # 1-13093
Ext/Prep. Method: EPA 5030
Date: 12-16-94
Analyst: LC

Analytical Method EPA 8240
Analysis date: 12-16-94
Analyst: LC
Matrix: Soil
Unit: mg/kg

Analyte	Sample Result	Spike Level	Matrix Spike Result	Ms Recovery %	Matrix Spike Dul. Result	MSD Recovery %	Average Recovery %R	LCL %R	UCL %R	RPD %	UCL %RPD
1,1-Dichloroethene	0.000	0.125	0.143	114	0.140	112	113	59	172	2	14
Trichloroethene	0.000	0.125	0.131	105	0.125	100	102	62	137	5	14
Chlorobenzene	0.000	0.125	0.130	104	0.123	98	101	60	133	6	13
Toluene	0.000	0.125	0.125	100	0.116	93	96	59	139	7	13
Benzene	0.000	0.125	0.138	110	0.133	106	108	66	142	4	11

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spik
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
LCL- Lower Criteria Level
UCL- Upper Criteria Level
RPD- Relative Percent Difference

AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD 8015M

CLIENT:
TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
MATRIX: SOIL
PROJECT MANAGER: Tom Ghigliotto
PROJECT: ~~2495~~ 2425 Horton St., #1-13093

DATE SAMPLED: 12-08-94
DATE RECEIVED: 12-09-94
DATE REPORTED: 12-22-94
AMER ID: E727

Client I.D.	AMER I.D.	8015M/ TPH-FULL SCAN	DF
MW1-1	E4120906	ND	1
MW1-2	E4120907	**320**	5
MW1-3	E4120908	ND	1
MW4-1	E4120909	ND	1
MW4-2	E4120910	**4700**	10
MW3-1-5'-51/2'	E4120912	ND	1
MW3-2-10-101/2'	E4120913	**310**	1
MW2-1-51/2'-6'	E4120915	**4.2**	1
MW2-2-10'-101/2'	E4120916	**1400**	1
Units		mg/kg	
Method Detection Limits		1.0mg/kg	

ND Not Detected. All analytes recorded as ND were found to be under the limit of detection.
Sample Detection Limit is equal to the Method Detection Limit X the Dilution Factor.

Reviewed By

Lei Chen, Laboratory Manager

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AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD 8015M

CLIENT:
TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
MATRIX: SOIL
PROJECT MANAGER: Tom Ghigliotto
PROJECT: 4525-4563 Horton St, #1-13093

DATE SAMPLED: 12-09-94
DATE RECEIVED: 12-12-94
DATE REPORTED: 12-29-94
AMER ID: E733

Client I.D.	AMER I.D.	8015M/ TPH-FULL SCAN	DF
MW5-1	E4121235	**15**	1
MW5-2	E4121236	ND	1
Units		mg/kg	
Method Detection Limits		1.0mg/kg	

ND Not Detected. All analytes recorded as ND were found to be under the limit of detection.
Sample Detection Limit is equal to the Method Detection Limit X the Dilution Factor.

Reviewed By

Kayvan Kimyai, Senior Chemist

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AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD 8020

CLIENT:
TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
MATRIX: SOIL
PROJECT MANAGER: Tom Ghigliotto
PROJECT: ~~2495~~ 2425 Horton St., #1-13093

DATE SAMPLED: 12-08-94
DATE RECEIVED: 12-09-94
DATE REPORTED: 12-22-94
AMER ID: E727

Client I.D.	AMER I.D.	Benzene	Toluene	Ethyl Benzene	Total Xylene	DF
MW1-1	E4120906	ND	ND	ND	ND	1
MW1-2	E4120907	**61**	**180**	**110**	**120**	5
MW1-3	E4120908	**8.3**	ND	ND	ND	1
MW4-1	E4120909	ND	ND	ND	ND	1
MW4-2	E4120910	**65**	**97**	**80**	**341**	10
MW3-1-5'-51/2'	E4120912	ND	ND	ND	ND	1
MW3-2-10-101/2'	E4120913	ND	ND	ND	ND	1
MW2-1-51/2'-6'	E4120915	ND	ND	ND	ND	1
MW2-2-10'-101/2'	E4120916	**15**	**7.5**	**26**	**11**	1
Units		ug/kg	ug/kg	ug/kg	ug/kg	
Method Detection Limits		5.0ug/kg	5.0ug/kg	5.0ug/kg	5.0ug/kg	

ND Not Detected. All analytes recorded as ND were found to be under the limit of detection.
Sample Detection Limit is equal to the Method Detection Limit X the Dilution Factor.

Reviewed By

Lei Chen, Laboratory Manager

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

AMER
Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD 8020

CLIENT:
TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
MATRIX: SOIL
PROJECT MANAGER: Tom Ghigliotto
PROJECT: 4525-4563 Horton St, #1-13093

DATE SAMPLED: 12-09-94
DATE RECEIVED: 12-12-94
DATE REPORTED: 12-29-94
AMER ID: E733

Client I.D.	AMER I.D.	Benzene	Toluene	Ethyl Benzene	Total Xylene	DF
MW5-1	E4121235	**7.5**	**190**	**18**	**94**	1
MW5-2	E4121236	ND	**41**	ND	ND	1
Units		ug/kg	ug/kg	ug/kg	ug/kg	
Method Detection Limits		5.0ug/kg	5.0ug/kg	5.0ug/kg	5.0ug/kg	

ND Not Detected. All analytes recorded as ND were found to be under the limit of detection.
Sample Detection Limit is equal to the Method Detection Limit X the Dilution Factor.

Reviewed By

Kayvan Kimyai, Senior Chemist

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

EPA M. 8015/8020 TEST QA/QC TABLE

AMER WORKORDER: E727

AMER I.D. Number: E727-MSP & E4120912-SP
TMC Project: #1-13093
Ext/Prep. Method: EPA 5030, EPA 3550
Date: 12-15-94
Analyst: BK

Analytical Method: EPA M. 8015/8020
Analysis date: 12-15-94
Analyst: BK
Matrix: Soil
Unit: mg/kg

Analyte	Sample Result	Spike Level	Matrix Spike Result	Ms Recovery %	Matrix Spike Dul. Result	MSD Recovery %	Average Recovery %R	LCL %R	UCL %R	RPD %	UCL %RPD
Benzene	0.0000	0.0500	0.0500	100	0.0540	108	104	66	142	8	21
Toluene	0.0000	0.0500	0.0460	92	0.0490	98	95	59	139	6	21
Chlorobenzene	0.0000	0.0500	0.0410	82	0.0440	88	85	60	133	7	21
THP-g	0.0000	1.2500	0.8250	66	0.8480	68	67	60	130	3	30
THP-d	0.0000	100.0000	81.9000	82	82.9000	83	82	30	130	1	30

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
LCL- Lower Criteria Level
UCL- Upper Criteria Level
RPD- Relative Percent Difference

EPA M. 8015/8020 TEST QA/QC TABLE

AMER WORKORDER: E733

AMER I.D. Number: E733-MSP
Project: 4525-4563 Horton St., #1-13093
Ext/Prep. Method: EPA 5030, EPA 3550
Date: 12-23-94
Analyst: LL

Analytical Method: EPA M. 8015/8020
Analysis date: 12-23-94
Analyst: LL
Matrix: Soil
Unit: mg/kg

Analyte	Sample Result	Spike Level	Matrix Spike Result	Ms Recovery %	Matrix Spike Dul. Result	MSD Recovery %	Average Recovery %R	LCL %R	UCL %R	RPD %	UCL %RPD
Benzene	0.0000	0.050	0.055	110	0.0490	98	104	66	142	12	21
Toluene	0.0000	0.050	0.050	100	0.0460	92	96	59	139	8	21
Chlorobenzene	0.0000	0.050	0.053	106	0.0480	96	101	60	133	10	21
THP-g	0.0000	1.25	1.06	85	1.15	92	88	60	130	8	30
THP-d	0.0000	100.00	81.72	82	98.34	98	90	60	130	18	30

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
LCL- Lower Criteria Level
UCL- Upper Criteria Level
RPD- Relative Percent Difference

AMER

Advanced Materials Engineering Research, Inc.

EPA METHODS 8270 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 2495 Horton St., #1-13093
Sample Name: MW4-1, E4120909

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Reported: 12-22-94
Sample Matrix: SOIL
AMER Report #: E727

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
acenaphthaylene		ND	0.3
acenaphthene		ND	0.3
aniline		ND	0.3
anthracene		ND	0.3
azobenzene		ND	1.5
benzidine		ND	1.5
benzly alcohol		ND	0.3
benzo (a) anthrancene		ND	0.8
benzo(a)pyrene		ND	0.8
benzo(b)fluoranthene		ND	0.8
benzo(g,h,i)perylene		ND	0.8
benzo(k) fluoranthene		ND	0.3
benzoic acid		ND	0.3
bis(2-chloroehthoxy)methane		ND	0.3
bis(2-chloroethyl) ether		ND	0.3
bis(2-chloroisopropyl)ether		ND	0.3
bis(2-ethylhexyl)phthalate		ND	0.3
4-bromophenylphenyl ether		ND	0.3
butyl benzyl phthalate		ND	0.3
4-chloro-3-methylphenol		ND	0.3
4-chloroaniline		ND	0.3
1-chloronaphthalene		ND	0.3
2-chloronaphthalene		ND	0.3
2-chlorophenol		ND	0.3
4-chlorophenyl ether		ND	0.3
chrysene		ND	0.3
di-n-butyl phthalate		ND	0.8
dibenzo(a,h)anthracene		ND	0.3
dibenzo(a,j)acridine		ND	0.3
dibenzofuran		ND	0.3

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

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Advanced Materials Engineering Research, Inc.

EPA METHODS 8270 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 2495 Horton St., #1-13093
Sample Name: MW4-1, E4120909

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Reported: 12-22-94
Sample Matrix: SOIL
AMER Report #: E727

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
1,2-dichlorobenzene		ND	0.3
1,3-dichlorobenzene		ND	0.3
1,4-dichlorobenzene		ND	0.3
3,3-dichlorobenzidine		ND	0.3
2,4-dichlorophenol		ND	0.3
diethyl phthalate		ND	0.3
dimethyl phthalate		ND	0.3
2,4-dimethylphenol		ND	0.3
4,6-dinitro-2-methylphenol		ND	0.3
2,4-dinitrophenol		ND	0.3
2,4-dinitrotoluene		ND	0.8
2,6-dinitrotoluene		ND	0.8
fluoranthene		ND	0.8
fluorene		ND	0.3
hexachlorobenzene		ND	0.3
hexachlorobutadiene		ND	0.3
hexachlorocyclopentadiene		ND	0.3
hexachloroethyane		ND	0.3
indeno(1,2,3-cd)pyrene		ND	0.8
isophorone		ND	0.3
2-methyl phenol		ND	0.3
4-methyl phenol		ND	0.3
2-methyl pyridine		ND	0.3
3-methylcholanthrene		ND	0.3
2-methylnaphthalene		ND	0.3
n-nitroso-di-phenylamine		ND	0.3
n-nitrosodi-n-propylamine		ND	0.3
naphthalene		ND	0.3

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Advanced Materials Engineering Research, Inc.

EPA METHODS 8270 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 2495 Horton St., #1-13093
Sample Name: MW4-1, E4120909

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Reported: 12-22-94
Sample Matrix: SOIL
AMER Report #: E727

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
2-nitroaniline		ND	0.8
3-nitroaniline		ND	0.8
4-nitroaniline		ND	0.8
nitrobenzene		ND	0.3
2-nitrophenol		ND	0.3
4-nitrophenol		ND	0.3
pentachlorobenzene		ND	0.3
pentachlorophenol		ND	0.8
phenanthrene		ND	0.3
phenol		ND	0.3
pyrene		ND	0.3
1,2,4-trichlorobenzene		ND	0.3
2,4,5-trichlorophenol		ND	0.3
2,4,6-trichlorophenol		ND	0.3

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8270 or EPA 625 and EPA 3510
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 8270 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 2495 Horton St., #1-13093
Sample Name: MW4-2, E4120910

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Reported: 12-22-94
Sample Matrix: SOIL
AMER Report #: E727

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
acenaphthaylene		ND	0.3
acenaphthene		ND	0.3
aniline		ND	0.3
anthracene		ND	0.3
azobenzene		ND	1.5
benzidine		ND	1.5
benzly alcohol		ND	0.3
benzo (a) anthrancene		ND	0.8
benzo(a)pyrene		ND	0.8
benzo(b)fluoranthene		ND	0.8
benzo(g,h,i)perylene		ND	0.8
benzo(k) fluoranthene		ND	0.3
benzoic acid		ND	0.3
bis(2-chloroehthoxy)methane		ND	0.3
bis(2-chloroethyl) ether		ND	0.3
bis(2-chloroisopropyl)ether		ND	0.3
bis(2-ethylhexyl)phthalate		ND	0.3
4-bromophenylphenyl ether		ND	0.3
butyl benzyl phthalate		ND	0.3
4-chloro-3-methylphenol		ND	0.3
4-chloroaniline		ND	0.3
1-chloronaphthalene		ND	0.3
2-chloronaphthalene		ND	0.3
2-chlorophenol		ND	0.3
4-chlorophenyl ether		ND	0.3
chrysene		ND	0.3
di-n-butyl phthalate		ND	0.8
dibenzo(a,h)anthracene		ND	0.3
dibenzo(a,j)acridine		ND	0.3
dibenzofuran		ND	0.3

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EPA METHODS 8270 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 2495 Horton St., #1-13093
Sample Name: MW4-2, E4120910

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Reported: 12-22-94
Sample Matrix: SOIL
AMER Report #: E727

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
1,2-dichlorobenzene		ND	0.3
1,3-dichlorobenzene		ND	0.3
1,4-dichlorobenzene		ND	0.3
3,3-dichlorobenzidine		ND	0.3
2,4-dichlorophenol		ND	0.3
diethyl phthalate		ND	0.3
dimethyl phthalate		ND	0.3
2,4-dimethylphenol		ND	0.3
4,6-dinitro-2-methylphenol		ND	0.3
2,4-dinitrophenol		ND	0.3
2,4-dinitrotoluene		ND	0.8
2,6-dinitrotoluene		ND	0.8
fluoranthene		ND	0.8
fluorene		ND	0.3
hexachlorobenzene		ND	0.3
hexachlorobutadiene		ND	0.3
hexachlorocyclopentadiene		ND	0.3
hexachloroethyane		ND	0.3
indeno(1,2,3-cd)pyrene		ND	0.8
isophorone		ND	0.3
2-methyl phenol		ND	0.3
4-methyl phenol		ND	0.3
2-methyl pyridine		ND	0.3
3-methylcholanthrene		ND	0.3
2-methylnaphthalene		ND	0.3
n-nitroso-di-phenylamine		ND	0.3
n-nitrosodi-n-propylamine		ND	0.3
naphthalene		ND	0.3

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 8270 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 2495 Horton St., #1-13093
Sample Name: MW4-2, E4120910

Date Sampled: 12-08-94
Date Received: 12-09-94
Date Reported: 12-22-94
Sample Matrix: SOIL
AMER Report #: E727

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
2-nitroaniline		ND	0.8
3-nitroaniline		ND	0.8
4-nitroaniline		ND	0.8
nitrobenzene		ND	0.3
2-nitrophenol		ND	0.3
4-nitrophenol		ND	0.3
pentachlorobenzene		ND	0.3
pentachlorophenol		ND	0.8
phenanthrene		ND	0.3
phenol		ND	0.3
pyrene		ND	0.3
1,2,4-trichlorobenzene		ND	0.3
2,4,5-trichlorophenol		ND	0.3
2,4,6-trichlorophenol		ND	0.3

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8270 or EPA 625 and EPA 3510
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

AMER

Advanced Materials Engineering Research, Inc.

EPA METHODS 8270 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW5-1, E4121235

Date Sampled: 12-09-94
Date Received: 12-12-94
Date Reported: 12-29-94
Sample Matrix: SOIL
AMER Report #: E733

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
acenaphthaylene		ND	0.3
acenaphthene		ND	0.3
aniline		ND	0.3
anthracene		ND	0.3
azobenzene		ND	1.5
benzidine		ND	1.5
benzly alcohol		ND	0.3
benzo (a) anthrancene		ND	0.8
benzo(a)pyrene		ND	0.8
benzo(b)fluoranthene		ND	0.8
benzo(g,h,i)perylene		ND	0.8
benzo(k) fluoranthene		ND	0.3
benzoic acid		ND	0.3
bis(2-chloroehthoxy)methane		ND	0.3
bis(2-chloroethyl) ether		ND	0.3
bis(2-chloroisopropyl)ether		ND	0.3
bis(2-ethylhexyl)phthalate		ND	0.3
4-bromophenylphenyl ether		ND	0.3
butyl benzyl phthalate		ND	0.3
4-chloro-3-methylphenol		ND	0.3
4-chloroaniline		ND	0.3
1-chloronaphthalene		ND	0.3
2-chloronaphthalene		ND	0.3
2-chlorophenol		ND	0.3
4-chlorophenyl ether		ND	0.3
chrysene		ND	0.3
di-n-butyl phthalate		ND	0.8
dibenzo(a,h)anthracene		ND	0.3
dibenzo(a,j)acridine		ND	0.3
dibenzofuran		ND	0.3

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(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW5-1, E4121235

Date Sampled: 12-09-94
Date Received: 12-12-94
Date Reported: 12-29-94
Sample Matrix: SOIL
AMER Report #: E733

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
1,2-dichlorobenzene		ND	0.3
1,3-dichlorobenzene		ND	0.3
1,4-dichlorobenzene		ND	0.3
3,3-dichlorobenzidine		ND	0.3
2,4-dichlorophenol		ND	0.3
diethyl phthalate		ND	0.3
dimethyl phthalate		ND	0.3
2,4-dimethylphenol		ND	0.3
4,6-dinitro-2-methylphenol		ND	0.3
2,4-dinitrophenol		ND	0.3
2,4-dinitrotoluene		ND	0.8
2,6-dinitrotoluene		ND	0.8
fluoranthene		ND	0.8
fluorene		ND	0.3
hexachlorobenzene		ND	0.3
hexachlorobutadiene		ND	0.3
hexachlorocyclopentadiene		ND	0.3
hexachloroethyane		ND	0.3
indeno(1,2,3-cd)pyrene		ND	0.8
isophorone		ND	0.3
2-methyl phenol		ND	0.3
4-methyl phenol		ND	0.3
2-methyl pyridine		ND	0.3
3-methylcholanthrene		ND	0.3
2-methylnaphthalene		ND	0.3
n-nitroso-di-phenylamine		ND	0.3
n-nitrosodi-n-propylamine		ND	0.3
naphthalene		ND	0.3

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Project Manager: Tom Ghigliotto
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW5-1, E4121235

Date Sampled: 12-09-94
Date Received: 12-12-94
Date Reported: 12-29-94
Sample Matrix: SOIL
AMER Report #: E733

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
2-nitroaniline		ND	0.8
3-nitroaniline		ND	0.8
4-nitroaniline		ND	0.8
nitrobenzene		ND	0.3
2-nitrophenol		ND	0.3
4-nitrophenol		ND	0.3
pentachlorobenzene		ND	0.3
pentachlorophenol		ND	0.8
phenanthrene		ND	0.3
phenol		ND	0.3
pyrene		ND	0.3
1,2,4-trichlorobenzene		ND	0.3
2,4,5-trichlorophenol		ND	0.3
2,4,6-trichlorophenol		ND	0.3

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8270 or EPA 625 and EPA 3510
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 8270 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW5-2, E4121236

Date Sampled: 12-09-94
Date Received: 12-12-94
Date Reported: 12-29-94
Sample Matrix: SOIL
AMER Report #: E733

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
acenaphthaylene		ND	0.3
acenaphthene		ND	0.3
aniline		ND	0.3
anthracene		ND	0.3
azobenzene		ND	1.5
benzidine		ND	1.5
benzly alcohol		ND	0.3
benzo (a) anthrancene		ND	0.8
benzo(a)pyrene		ND	0.8
benzo(b)fluoranthene		ND	0.8
benzo(g,h,i)perylene		ND	0.8
benzo(k) fluoranthene		ND	0.3
benzoic acid		ND	0.3
bis(2-chloroehthoxy)methane		ND	0.3
bis(2-chloroethyl) ether		ND	0.3
bis(2-chloroisopropyl)ether		ND	0.3
bis(2-ethylhexyl)phthalate		ND	0.3
4-bromophenylphenyl ether		ND	0.3
butyl benzyl phthalate		ND	0.3
4-chloro-3-methylphenol		ND	0.3
4-chloroaniline		ND	0.3
1-chloronaphthalene		ND	0.3
2-chloronaphthalene		ND	0.3
2-chlorophenol		ND	0.3
4-chlorophenyl ether		ND	0.3
chrysene		ND	0.3
di-n-butyl phthalate		ND	0.8
dibenzo(a,h)anthracene		ND	0.3
dibenzo(a,j)acridine		ND	0.3
dibenzofuran		ND	0.3

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 8270 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW5-2, E4121236

Date Sampled: 12-09-94
Date Received: 12-12-94
Date Reported: 12-29-94
Sample Matrix: SOIL
AMER Report #: E733

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
1,2-dichlorobenzene		ND	0.3
1,3-dichlorobenzene		ND	0.3
1,4-dichlorobenzene		ND	0.3
3,3-dichlorobenzidine		ND	0.3
2,4-dichlorophenol		ND	0.3
diethyl phthalate		ND	0.3
dimethyl phthalate		ND	0.3
2,4-dimethylphenol		ND	0.3
4,6-dinitro-2-methylphenol		ND	0.3
2,4-dinitrophenol		ND	0.3
2,4-dinitrotoluene		ND	0.8
2,6-dinitrotoluene		ND	0.8
fluoranthene		ND	0.8
fluorene		ND	0.3
hexachlorobenzene		ND	0.3
hexachlorobutadiene		ND	0.3
hexachlorocyclopentadiene		ND	0.3
hexachloroethyane		ND	0.3
indeno(1,2,3-cd)pyrene		ND	0.8
isophorone		ND	0.3
2-methyl phenol		ND	0.3
4-methyl phenol		ND	0.3
2-methyl pyridine		ND	0.3
3-methylcholanthrene		ND	0.3
2-methylnaphthalene		ND	0.3
n-nitroso-di-phenylamine		ND	0.3
n-nitrosodi-n-propylamine		ND	0.3
naphthalene		ND	0.3

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 8270 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Tom Ghigliotto
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW5-2, E4121236

Date Sampled: 12-09-94
Date Received: 12-12-94
Date Reported: 12-29-94
Sample Matrix: SOIL
AMER Report #: E733

COMPOUND	CAS #	CONC. (mg/kg)	DETECTION LIMIT (mg/kg)
2-nitroaniline		ND	0.8
3-nitroaniline		ND	0.8
4-nitroaniline		ND	0.8
nitrobenzene		ND	0.3
2-nitrophenol		ND	0.3
4-nitrophenol		ND	0.3
pentachlorobenzene		ND	0.3
pentachlorophenol		ND	0.8
phenanthrene		ND	0.3
phenol		ND	0.3
pyrene		ND	0.3
1,2,4-trichlorobenzene		ND	0.3
2,4,5-trichlorophenol		ND	0.3
2,4,6-trichlorophenol		ND	0.3

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8270 or EPA 625 and EPA 3510
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

EPA 625/8270 TEST QA/QC TABLE

AMER WORKORDER: E727

AMER I.D. Number: E727-MSP
TMC Project:# 1-13093
Ext/Prep. Method: EPA 3550
Date: 12-17-94
Analyst: RL

Analytical Method: EPA M. 625/8270
Analysis date: 12-19-94
Analyst: LC
Matrix: Soil
Unit: mg/kg

Analyte	Sample Result	Spike Level	MS Result	MS %R	MSD Result	MSD %R	AVE. %R	LCL %R	UCL %R	RPD %	UCL %RPD
Phenol	0.00	20.00	12.74	64	15.41	77	70	26	90	19	35
2-Chlorophenol	0.00	20.00	12.35	62	14.81	74	68	25	102	18	50
1,4-Dichlorobenzene	0.00	10.00	5.91	59	7.07	71	65	28	104	18	27
N-Nitroso-Di-n-Propylamine	0.00	10.00	4.67	47	5.70	57	52	41	126	20	38
1,2,4-Trichlorobenzene	0.00	10.00	6.23	62	7.53	75	69	38	107	19	23
4-Chloro-3-Methylphenol	0.00	20.00	13.94	70	16.99	85	77	26	103	20	33
Acenaphthene	0.00	10.00	6.36	64	7.56	76	70	31	137	17	19
4-Nitrophenol	0.00	20.00	8.02	40	9.01	45	43	11	114	12	50
2,4-dinitrotoluene	0.00	10.00	6.12	61	7.38	74	68	28	89	19	47
Pentachlorophenol	0.00	20.00	19.04	95	16.77	84	90	17	109	13	47
Pyrene	0.00	10.00	7.15	72	8.35	84	78	35	142	16	36

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
LCL- Lower Criteria Level
UCL- Upper Criteria Level
RPD- Relative Percent Difference

EPA 625/8270 TEST QA/QC TABLE

AMER WORKORDER: E733

AMER I.D. Number: E733-MSP
TMC Project:# 1-13093
Ext/Prep. Method: EPA 3550
Date: 12-17-94
Analyst: RL

Analytical Method: EPA M. 625/8270
Analysis date: 12-19-94
Analyst: LC
Matrix: Soil
Unit: mg/kg

Analyte	Sample Result	Spike Level	MS Result	MS %R	MSD Result	MSD %R	AVE. %R	LCL %R	UCL %R	RPD %	UCL %RPD
Phenol	0.00	20.00	12.74	64	15.41	77	70	26	90	19	35
2-Chlorophenol	0.00	20.00	12.35	62	14.81	74	68	25	102	18	50
1,4-Dichlorobenzene	0.00	10.00	5.91	59	7.07	71	65	28	104	18	27
N-Nitroso-Di-n-Propylamine	0.00	10.00	4.67	47	5.70	57	52	41	126	20	38
1,2,4-Trichlorobenzene	0.00	10.00	6.23	62	7.53	75	69	38	107	19	23
4-Chloro-3-Methylphenol	0.00	20.00	13.94	70	16.99	85	77	26	103	20	33
Acenaphthene	0.00	10.00	6.36	64	7.56	76	70	31	137	17	19
4-Nitrophenol	0.00	20.00	8.02	40	9.01	45	43	11	114	12	50
2,4-dinitrotoluene	0.00	10.00	6.12	61	7.38	74	68	28	89	19	47
Pentachlorophenol	0.00	20.00	19.04	95	16.77	84	90	17	109	13	47
Pyrene	0.00	10.00	7.15	72	8.35	84	78	35	142	16	36

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
LCL- Lower Criteria Level
UCL- Upper Criteria Level
RPD- Relative Percent Difference

TMC Environmental, Inc.
13908 San Pablo Ave.
Suite 101
San Pablo, California
(510) 232-8366

2425

CHAIN OF CUSTODY RECORD
ANALYSIS REQUEST FORM
FOR
ENVIRONMENTAL SAMPLING

JOB #	JOB ADDRESS:	SAMPLER:
1-130 93	2495 HORTON ST., EMERYVILLE	TOM GHIGLIOTTO DON CHUNG

LABORATORY NAME: CURTIS & TOMPKINS, LTD. 2323 FIFTH STREET, BERKELEY, CA 94710

LAB ID NO.	SAMPLE LABEL	SOIL	WATER	DATE	TIME	TVH-GAS BTEX	TEH-DIESEL	Full Scan 8080	8240 open scan	8270 Priority Pt
	MW1-1	X		12/9/94	1046	X	X			
	MW1-2	X		12/9/94	1055	X	X			
	MW1-3	X		12/9/94	1108	X	X			
	MW4-1	X		12/9/94	1358			XX	X	XX
	MW4-2	X		12/9/94	1405			XX	X	XX
	MW4-3	X		12/9/94	1409			HOLD		

Relinquished By: **Recieved By:**

(Print Name) Tom Ghiglio TTO	Date: 12/9/94	(Print Name) Carina Kistler #560
(Signature) Tom Ghiglio	Time: 1448	(Signature)
(Print Name) Carina Kistler #560	Date: 12/9/94	(Print Name) LISA
(Signature) Carina Kistler #560	Time: 5:21 PM	(Signature) Lisa
(Print Name)	Date:	(Print Name)
(Signature)	Time:	(Signature)
(Print Name)	Date:	(Print Name)
(Signature)	Time:	(Signature)

LABORATORY NOTES: _____ DAYS TURNAROUND TIME FOR ANALYSIS RESULTS
PLEASE INCLUDE SAMPLE CONDITION REPORT WITH RESULTS

PLEASE FAX A COPY OF THE ANALYTICAL RESULTS TO THE FOLLOWING:
TMC ENVIRONMENTAL, INC. AT (510) 232-5133

TMC Environmental, Inc.
13908 San Pablo Ave.
Suite 101
San Pablo, California
(510) 232-8366

TMC

2425

CHAIN OF CUSTODY RECORD
ANALYSIS REQUEST FORM
FOR
ENVIRONMENTAL SAMPLING

JOB #	JOB ADDRESS:	SAMPLER: Tom Ghigliotto & Donald Chung
1-13093	2445 HORTON ST., EMERYVILLE	T.G., D.C.

LABORATORY NAME: CURTIS & TOMPKINS, LTD. 2323 FIFTH STREET, BERKELEY, CA 94710

LAB ID NO.	SAMPLE LABEL	SOIL	WATER	DATE	TIME	TVH-GAS BTEX	TEH-DIESEL BTEX	TPH - FULL SCAN	EPA 8240	EPA 8270	EPA 8080	PRIORITY POLLUTANT METALS	
	MW3-1-5'-5½'	X		12/8/94	0920	X	X	X					
	MW3-2-10'-10½'	X		12/8/94	0945	X	X	X					
	MW3-3-15'-15½'	X		12/8/94	0958								HOLD
	MW2-1-5½'-6'	X		12/8/94	1350	X	X	X					
	MW2-2-10'-10½'	X		12/8/94	1402	X	X	X					
	MW2-3-15½'-16'	X		12/8/94	1416								HOLD

Relinquished By: / **Recieved By:**

(Print Name) Tom Ghigliotto	Date: 12/9/94	(Print Name) Cyrus Kistler 560	
(Signature) Tom Ghigliotto	Time 1449	(Signature)	
(Print Name) Cyrus Kistler *560	Date 12/9/94	(Print Name) LISA	
(Signature)	Time: 5'12 PM	(Signature)	
(Print Name)	Date:	(Print Name)	
(Signature)	Time:	(Signature)	
(Print Name)	Date:	(Print Name)	
(Signature)	Time:	(Signature)	

LABORATORY NOTES: _____ DAYS TURNAROUND TIME FOR ANALYSIS RESULTS
PLEASE INCLUDE SAMPLE CONDITION REPORT WITH RESULTS

PLEASE FAX A COPY OF THE ANALYTICAL RESULTS TO THE FOLLOWING:
TMC ENVIRONMENTAL, INC. AT (510) 232-5133

TMC Environmental, Inc.
13908 San Pablo Ave.
Suite 101
San Pablo, California
(510) 232-8366

CHAIN OF CUSTODY RECORD
ANALYSIS REQUEST FORM
FOR
ENVIRONMENTAL SAMPLING

JOB #	JOB ADDRESS:	SAMPLER:
1-13093	4525-4563 Horton St, Emeryville, CA	Tom Ghigliotto & Donald Cheung

LABORATORY NAME: CURTIS & TOMPKINS, LTD. 2323 FIFTH STREET, BERKELEY, CA 94710

LAB ID NO.	SAMPLE LABEL	SOIL	WATER	DATE	TIME	TVH-GAS BTEX	TEH-DIESEL BTEX	Full scan 8080	8240 open scan	8270 P. metal + Tbt
	MW5-1	X		12/9/94	1542			X X	X	X X
	MW5-2	X		12/9/94	1554			X X	X	X X
	MW5-3	X		12/9/94	1605			hold		

Relinquished By:		Recieved By:
(Print Name) Tom Ghigliotto (Signature) Tom Ghigliotto	Date: 12/12/94 Time: 3:55	(Print Name) Masoud Mirza Lorang (Signature) Masoud Mirza
(Print Name) Masoud Mirza (Signature) Masoud Mirza	Date: 12/12 Time: 5:24	(Print Name) LISA (Signature) Lisa 17:31
(Print Name) (Signature)	Date: Time:	(Print Name) (Signature)
(Print Name) (Signature)	Date: Time:	(Print Name) (Signature)

LABORATORY NOTES: _____ DAYS TURNAROUND TIME FOR ANALYSIS RESULTS
PLEASE INCLUDE SAMPLE CONDITION REPORT WITH RESULTS

PLEASE FAX A COPY OF THE ANALYTICAL RESULTS TO THE FOLLOWING:
TMC ENVIRONMENTAL, INC. AT (510) 232-5133

AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD Proirity Metals

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Laboratory Report ID.: E752
Sample Name: MW 4,E4121616
Project Name: 4525-4563 Horton St., #1-13093

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-22-94
Date Reported: 12-29-94
Matrix: Water

ANALYTES	Prep Method	Analytical Method	Dilution Factor	Results	MDL	Units
Antimony	200.7	200.7	2	ND	120	ug/l
Arsenic	200.7	200.7	5	**8870**	50.0	ug/l
Barium	200.7	200.7	1	**163**	100	ug/l
Beryllium	200.7	200.7	1	ND	5.0	ug/l
Cadmium	200.7	200.7	1	**141**	5.0	ug/l
Chromium	200.7	200.7	1	**35.9**	10.0	ug/l
Copper	200.7	200.7	1	**38.9**	25.0	ug/l
Lead	200.7	200.7	1	**30.4**	3.0	ug/l
Mercury	245.1	245.1	1	ND	0.20	ug/l
Nickel	200.7	200.7	1	**1150**	40.0	ug/l
Selenium	200.7	200.7	1	**27.5**	5.0	ug/l
Silver	200.7	200.7	1	**13.4**	10.0	ug/l
Thallium	200.7	200.7	5	ND	50.0	ug/l
Zinc	200.7	200.7	10	**71000**	200	ug/l

Analytes reported as ND were not present above the stated limit of detection.
MDL: Method Detection Limit.

Reviewed By:

Kayvan Kimyai, Senior Chemist

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

AMER
Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD Proirity Metals

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Laboratory Report ID.: E752
Sample Name: MW 5, E4121617
Project Name: 4525-4563 Horton St., #1-13093

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Analyzed: 12-22-94
Date Reported: 12-29-94
Matrix: Water

ANALYTES	Prep Method	Analytical Method	Dilution Factor	Results	MDL	Units
Antimony	200.7	200.7	1	ND	60.0	ug/l
Arsenic	200.7	200.7	10	**41500**	100	ug/l
Barium	200.7	200.7	1	**236**	100	ug/l
Beryllium	200.7	200.7	1	ND	5.0	ug/l
Cadmium	200.7	200.7	1	**156**	5.0	ug/l
Chromium	200.7	200.7	1	**56.0**	10.0	ug/l
Copper	200.7	200.7	1	**44.8**	25.0	ug/l
Lead	200.7	200.7	1	**31.7**	3.0	ug/l
Mercury	245.1	245.1	1	**0.23**	0.20	ug/l
Nickel	200.7	200.7	1	**449**	40.0	ug/l
Selenium	200.7	200.7	1	**9.0**	5.0	ug/l
Silver	200.7	200.7	1	ND	10.0	ug/l
Thallium	200.7	200.7	10	ND	100	ug/l
Zinc	200.7	200.7	2	**11000**	40.0	ug/l

Analytes reported as ND were not present above the stated limit of detection.
MDL: Method Detection Limit.

Reviewed By:

Kayvan Kimyai, Senior Chemist

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD PROIRITY METALS
MATRIX SPIKE REPORT

Laboratory I.D.: E752
Sample Name: E752-MSP
Project Name: 4525-4563 Horton St., #1-13093

ANALYTES	Prep Method	Analytical Method	Dilution Factor	Units	Spike Level	Sample Conc.	MS Conc.	MS % R.	MSD Conc.	MSD % R.	Average % Rec.	RPD %
Antimony	200.7	200.7	1	ug/l	500	0.0	431	86.2	437	87.4	86.8	1.4
Arsenic	200.7	200.7	1	ug/l	100	0.0	104	104	104	104	104	0.0
Barium	200.7	200.7	1	ug/l	2000	80.0	1800	86	1810	86.5	86.3	0.6
Beryllium	200.7	200.7	1	ug/l	50.0	0.0	51.9	103.8	52.0	104	104	0.2
Cadmium	200.7	200.7	1	ug/l	50.0	0.0	47.2	94.4	46.2	92.4	93.4	2.1
Chromium	200.7	200.7	1	ug/l	200	23.6	209	92.7	208	92.2	92.5	0.5
Copper	200.7	200.7	1	ug/l	250	0.0	261	104.4	260	104	104	0.4
Lead	200.7	200.7	1	ug/l	50.0	5.7	49.7	88	49.6	87.8	87.9	0.2
Mercury	245.1	245.1	1	ug/l	1.0	0.0	1.1	110	1.1	110	110	0.0
Nickel	200.7	200.7	1	ug/l	500	44.8	525	96.04	530	97.0	96.5	1.0
Selenium	200.7	200.7	1	ug/l	50.0	0.0	57.1	114.2	57.9	116	115	1.6
Silver	200.7	200.7	1	ug/l	50.0	0.0	46.9	93.8	48.8	97.6	95.7	4.0
Thallium	200.7	200.7	1	ug/l	100	0.0	96.3	96.3	96.7	96.7	96.5	0.4
Zinc	200.7	200.7	1	ug/l	500	63.3	541	95.54	528	92.9	94.2	2.8

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
RPD- Relative Percent Difference

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW1, E4121614

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
acetone		ND	4.2
benzene		**13**	0.8
bromomethane		ND	1.3
bromodichloromethane		ND	0.7
bromoform (SPCC)		ND	1.2
2-butanone		ND	1.1
carbon disulfide		ND	1.2
carbon tetrachloride		ND	1.5
chlorobenzene (SPCC)		ND	0.6
chlorodibromomethane		ND	1.6
chloroethane		ND	0.8
2-chloro-ethyl-vinyl ether		ND	1.7
chloroform (CCC)		**1.0**	0.8
chloromethane		ND	1.3
1,2-dichlorobenzene		ND	0.6
1,3-dichlorobenzene		ND	0.5
1,4-dichlorobenzene		ND	0.5
dichlorodifluoromethane		ND	1.6
1,1 -dichloroethane (SPCC)		ND	1.3
1,2-dichloroethane		ND	0.9
1,1 -dichloroethene (CCC)		ND	0.7
1,2-dichloropropane		**32**	2.2
cis-1,3-dichloropropene		ND	0.8
trans-1,3-dichlorpropene		ND	1.0
ethylbenzene		ND	0.4
2-hexanone		**2.8**	1.8
4-methyl-2-pentanone		ND	1.4

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW1, E4121614

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
methylene dichloride		ND	6.7
styrene		ND	0.8
1,1,2,2-tetrachloroethane		ND	0.8
tetrachloroethylene		ND	1.7
toluene		ND	0.4
trans- 1,2-dichloroethlene		ND	1.1
1,1,1-trichloroethane		ND	0.8
1,1,2-trichloroethane		ND	1.3
trichloroethylene		2.8	0.8
trichlorofluoromethane		ND	1.5
o-xylene		1.0	0.3
p/m-xylene		2.0	0.4
vinyl acetate		ND	2.6
vinyl chloride		2.2	1.4

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8240 or EPA 624 and EPA 5030
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW2, E4121615

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
methylene dichloride		ND	6.7
styrene		ND	0.8
1,1,2,2-tetrachloroethane		ND	0.8
tetrachloroethylene		ND	1.7
toluene		ND	0.4
trans- 1,2-dichloroethlene		ND	1.1
1,1,1-trichloroethane		ND	0.8
1,1,2-trichloroethane		ND	1.3
trichloroethylene		1.8	0.8
trichlorofluoromethane		ND	1.5
o-xylene		1.1	0.3
p/m-xylene		ND	0.4
vinyl acetate		ND	2.6
vinyl chloride		ND	1.4

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8240 or EPA 624 and EPA 5030
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW3, E4121613

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
acetone		ND	4.2
benzene		ND	0.8
bromomethane		ND	1.3
bromodichloromethane		ND	0.7
bromoform (SPCC)		ND	1.2
2-butanone		ND	1.1
carbon disulfide		3.4	1.2
carbon tetrachloride		ND	1.5
chlorobenzene (SPCC)		ND	0.6
chlorodibromomethane		ND	1.6
chloroethane		ND	0.8
2-chloro-ethyl-vinyl ether		ND	1.7
chloroform (CCC)		ND	0.8
chloromethane		ND	1.3
1,2-dichlorobenzene		ND	0.6
1,3-dichlorobenzene		ND	0.5
1,4-dichlorobenzene		ND	0.5
dichlorodifluoromethane		ND	1.6
1,1 -dichloroethane (SPCC)		ND	1.3
1,2-dichloroethane		ND	0.9
1,1 -dichloroethene (CCC)		ND	0.7
1,2-dichloropropane		ND	2.2
cis-1,3-dichloropropene		ND	0.8
trans-1,3-dichlorpropene		ND	1.0
ethylbenzene		ND	0.4
2-hexanone		ND	1.8
4-methyl-2-pentanone		ND	1.4

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW3, E4121613

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
methylene dichloride		ND	6.7
styrene		ND	0.8
1,1,2,2-tetrachloroethane		18	0.8
tetrachloroethylene		ND	1.7
toluene		ND	0.4
trans- 1,2-dichloroethlene		2.8	1.1
1,1,1-trichloroethane		ND	0.8
1,1,2-trichloroethane		ND	1.3
trichloroethylene		ND	0.8
trichlorofluoromethane		ND	1.5
o-xylene		ND	0.3
p/m-xylene		ND	0.4
vinyl acetate		ND	2.6
vinyl chloride		ND	1.4

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8240 or EPA 824 and EPA 5030
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW4, E4121616

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
acetone		ND	4.2
benzene		ND	0.8
bromomethane		ND	1.3
bromodichloromethane		ND	0.7
bromoform (SPCC)		ND	1.2
2-butanone		ND	1.1
carbon disulfide		ND	1.2
carbon tetrachloride		ND	1.5
chlorobenzene (SPCC)		ND	0.6
chlorodibromomethane		ND	1.6
chloroethane		ND	0.8
2-chloro-ethyl-vinyl ether		ND	1.7
chloroform (CCC)		ND	0.8
chloromethane		ND	1.3
1,2-dichlorobenzene		ND	0.6
1,3-dichlorobenzene		ND	0.5
1,4-dichlorobenzene		ND	0.5
dichlorodifluoromethane		ND	1.6
1,1 -dichloroethane (SPCC)		ND	1.3
1,2-dichloroethane		ND	0.9
1,1 -dichloroethene (CCC)		ND	0.7
1,2-dichloropropane		ND	2.2
cis-1,3-dichloropropene		ND	0.8
trans-1,3-dichlorpropene		ND	1.0
ethylbenzene		ND	0.4
2-hexanone		ND	1.8
4-methyl-2-pentanone		ND	1.4

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EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW4, E4121616

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
methylene dichloride		ND	6.7
styrene		ND	0.8
1,1,2,2-tetrachloroethane		ND	0.8
tetrachloroethylene		ND	1.7
toluene		ND	0.4
trans- 1,2-dichloroethlene		ND	1.1
1,1,1-trichloroethane		ND	0.8
1,1,2-trichloroethane		ND	1.3
trichloroethylene		**13**	0.8
trichlorofluoromethane		ND	1.5
o-xylene		**1.9**	0.3
p/m-xylene		ND	0.4
vinyl acetate		ND	2.6
vinyl chloride		ND	1.4

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8240 or EPA 624 and EPA 5030
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW5, E4121617

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
acetone		**1300000**	84
benzene		**430**	16
bromomethane		ND	26
bromodichloromethane		ND	14
bromoform (SPCC)		ND	24
2-butanone		**1700000**	22
carbon disulfide		ND	24
carbon tetrachloride		ND	30
chlorobenzene (SPCC)		ND	12
chlorodibromomethane		ND	32
chloroethane		ND	16
2-chloro-ethyl-vinyl ether		ND	34
chloroform (CCC)		ND	16
chloromethane		ND	26
1,2-dichlorobenzene		ND	12
1,3-dichlorobenzene		ND	10
1,4-dichlorobenzene		ND	10
dichlorodifluoromethane		ND	32
1,1 -dichloroethane (SPCC)		ND	26
1,2-dichloroethane		ND	18
1,1 -dichloroethene (CCC)		ND	14
1,2-dichloropropane		ND	44
cis-1,3-dichloropropene		ND	16
trans-1,3-dichlorpropene		ND	20
ethylbenzene		**1300**	8.0
2-hexanone		ND	36
4-methyl-2-pentanone		**130**	28

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EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: MW5, E4121617

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
methylene dichloride		ND	134
styrene		ND	16
1,1,2,2-tetrachloroethane		ND	16
tetrachloroethylene		ND	34
toluene		**330000**	8.0
trans- 1,2-dichloroethlene		ND	22
1,1,1-trichloroethane		ND	16
1,1,2-trichloroethane		ND	26
trichloroethylene		ND	16
trichlorofluoromethane		ND	30
o-xylene		**1300**	6.0
p/m-xylene		**21000**	8.0
vinyl acetate		ND	52
vinyl chloride		ND	28

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8240 or EPA 624 and EPA 5030
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: OB-1, E4121618

Date Sampled: 12-15-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
acetone		**1300**	4.2
benzene		ND	0.8
bromomethane		ND	1.3
bromodichloromethane		ND	0.7
bromoform (SPCC)		ND	1.2
2-butanone		**570**	1.1
carbon disulfide		ND	1.2
carbon tetrachloride		ND	1.5
chlorobenzene (SPCC)		ND	0.6
chlorodibromomethane		ND	1.6
chloroethane		ND	0.8
2-chloro-ethyl-vinyl ether		ND	1.7
chloroform (CCC)		ND	0.8
chloromethane		ND	1.3
1,2-dichlorobenzene		ND	0.6
1,3-dichlorobenzene		ND	0.5
1,4-dichlorobenzene		ND	0.5
dichlorodifluoromethane		ND	1.6
1,1 -dichloroethane (SPCC)		ND	1.3
1,2-dichloroethane		ND	0.9
1,1 -dichloroethene (CCC)		ND	0.7
1,2-dichloropropane		ND	2.2
cis-1,3-dichloropropene		ND	0.8
trans-1,3-dichlorpropene		ND	1.0
ethylbenzene		**1.9**	0.4
2-hexanone		ND	1.8
4-methyl-2-pentanone		**370**	1.4

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EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: OB-1, E4121618

Date Sampled: 12-15-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
methylene dichloride		ND	6.7
styrene		ND	0.8
1,1,2,2-tetrachloroethane		ND	0.8
tetrachloroethylene		ND	1.7
toluene		**93**	0.4
trans- 1,2-dichloroethlene		ND	1.1
1,1,1-trichloroethane		ND	0.8
1,1,2-trichloroethane		ND	1.3
trichloroethylene		ND	0.8
trichlorofluoromethane		ND	1.5
o-xylene		**2.4**	0.3
p/m-xylene		**8.0**	0.4
vinyl acetate		ND	2.6
vinyl chloride		ND	1.4

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multipled to the DF
Procedures:
This analysis was performed in using EPA Method 8240 or EPA 624 and EPA 5030
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: OB-2, E4121619

Date Sampled: 12-15-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
acetone		ND	4.2
benzene		**8.1**	0.8
bromomethane		ND	1.3
bromodichloromethane		ND	0.7
bromoform (SPCC)		ND	1.2
2-butanone		ND	1.1
carbon disulfide		**2.6**	1.2
carbon tetrachloride		ND	1.5
chlorobenzene (SPCC)		ND	0.6
chlorodibromomethane		ND	1.6
chloroethane		ND	0.8
2-chloro-ethyl-vinyl ether		ND	1.7
chloroform (CCC)		ND	0.8
chloromethane		ND	1.3
1,2-dichlorobenzene		ND	0.6
1,3-dichlorobenzene		ND	0.5
1,4-dichlorobenzene		ND	0.5
dichlorodifluoromethane		ND	1.6
1,1 -dichloroethane (SPCC)		ND	1.3
1,2-dichloroethane		ND	0.9
1,1 -dichloroethene (CCC)		ND	0.7
1,2-dichloropropane		ND	2.2
cis-1,3-dichloropropene		ND	0.8
trans-1,3-dichlorpropene		ND	1.0
ethylbenzene		ND	0.4
2-hexanone		**3.6**	1.8
4-methyl-2-pentanone		ND	1.4

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Advanced Materials Engineering Research, Inc.

EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: OB-2, E4121619

Date Sampled: 12-15-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
methylene dichloride		ND	6.7
styrene		ND	0.8
1,1,2,2-tetrachloroethane		ND	0.8
tetrachloroethylene		ND	1.7
toluene		**8.4**	0.4
trans- 1,2-dichloroethlene		ND	1.1
1,1,1-trichloroethane		ND	0.8
1,1,2-trichloroethane		ND	1.3
trichloroethylene		ND	0.8
trichlorofluoromethane		ND	1.5
o-xylene		ND	0.3
p/m-xylene		**1.2**	0.4
vinyl acetate		ND	2.6
vinyl chloride		ND	1.4

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8240 or EPA 624 and EPA 5030
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

624/8240 TEST QA/QC TABLE

AMER WORKORDER: E752

AMER I.D. Number: E752-MSP
Project: # 1-13093
Ext/Prep. Method: EPA 5030
Date: 12-21-94
Analyst: LC

Analytical Method EPA 624/8240
Analysis date: 12-21-94
Analyst: LC
Matrix: Water
Unit: ug/L

Analyte	Sample Result	Spike Level	Matrix Spike Result	Ms Recovery %	Matrix Spike Dul. Result	MSD Recovery %	Average Recovery %R	LCL %R	UCL %R	RPD %	UCL %RPD
1,1-Dichloroethene	0	50	48.57	97	52.40	105	101	61	145	8	14
Trichloroethene	0	50	49.21	98	49.33	99	99	71	120	0	14
Chlorobenzene	0	50	49.10	98	49.78	100	99	75	130	1	13
Toluene	0	50	47.44	95	48.57	97	96	76	125	2	13
Benzene	0	50	43.89	88	46.66	93	91	76	127	6	11

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spik
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
LCL- Lower Criteria Level
UCL- Upper Criteria Level
RPD- Relative Percent Difference

AMER

Advanced Materials Engineering Research, Inc.

EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: EQB-3, E4121612

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
acetone		ND	4.2
benzene		ND	0.8
bromomethane		ND	1.3
bromodichloromethane		ND	0.7
bromoform (SPCC)		ND	1.2
2-butanone		ND	1.1
carbon disulfide		ND	1.2
carbon tetrachloride		ND	1.5
chlorobenzene (SPCC)		ND	0.6
chlorodibromomethane		ND	1.6
chloroethane		ND	0.8
2-chloro-ethyl-vinyl ether		ND	1.7
chloroform (CCC)		ND	0.8
chloromethane		ND	1.3
1,2-dichlorobenzene		ND	0.6
1,3-dichlorobenzene		ND	0.5
1,4-dichlorobenzene		ND	0.5
dichlorodifluoromethane		ND	1.6
1,1 -dichloroethane (SPCC)		ND	1.3
1,2-dichloroethane		ND	0.9
1,1 -dichloroethene (CCC)		ND	0.7
1,2-dichloropropane		ND	2.2
cis-1,3-dichloropropene		ND	0.8
trans-1,3-dichlorpropene		ND	1.0
ethylbenzene		ND	0.4
2-hexanone		ND	1.8
4-methyl-2-pentanone		ND	1.4

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AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 624 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton St., #1-13093
Sample Name: EQB-3, E4121612

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: Water
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
methylene dichloride		ND	6.7
styrene		ND	0.8
1,1,2,2-tetrachloroethane		ND	0.8
tetrachloroethylene		ND	1.7
toluene		ND	0.4
trans- 1,2-dichloroethlene		ND	1.1
1,1,1-trichloroethane		ND	0.8
1,1,2-trichloroethane		ND	1.3
trichloroethylene		ND	0.8
trichlorofluoromethane		ND	1.5
o-xylene		ND	0.3
p/m-xylene		ND	0.4
vinyl acetate		ND	2.6
vinyl chloride		ND	1.4

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8240 or EPA 624 and EPA 5030
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

AMER
Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD 8015M

CLIENT:
TMC Environmental, Inc
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
MATRIX: WATER
PROJECT MANAGER: Mark Youngkin
PROJECT: 4525-4563 Horton Street, #1-13093

DATE SAMPLED: 12-15,16-94
DATE RECEIVED: 12-16-94
DATE REPORTED: 12-29-94
AMER ID: E752

Client I.D.	AMER I.D.	8015M/ TPH-FULL SCAN	DF
EQB-3	E4121612	ND	1
MW3	E4121613	**27000**	1
MW1	E4121614	**16000**	1
MW2	E4121615	**12000**	1
MW4	E4121616	**2700**	1
MW5	E4121617	**510000**	1
OB-1	E4121618	**300**	1
OB-2	E4121619	**1400**	1
Units		ug/l	
Method Detection Limits		50ug/l	

ND Not Detected. All analytes recorded as ND were found to be under the limit of detection.
Sample Detection Limit is equal to the Method Detection Limit X the Dilution Factor.

Reviewed By

Kayvan Kimyai, Senior Chemist

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AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHOD 8020

CLIENT:
TMC Environmental, Inc
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
MATRIX: WATER
PROJECT MANAGER: Mark Youngkin
PROJECT: 4525-4563 Horton Street, #1-13093

DATE SAMPLED: 12-15,16-94
DATE RECEIVED: 12-16-94
DATE REPORTED: 12-29-94
AMER ID: E752

Client I.D.	AMER I.D.	Benzene	Toluene	Ethyl Benzene	Total Xylene	DF
EQB-3	E4121612	ND	ND	ND	ND	1
MW3	E4121613	ND	ND	ND	ND	1
MW1	E4121614	**16**	**2.7**	ND	**3.1**	1
MW2	E4121615	**17**	**1.9**	ND	**1.2**	1
MW4	E4121616	**1.4**	**2.1**	**0.6**	**2.3**	1
MW5	E4121617	**570**	**73000**	**1800**	**7800**	1
OB-1	E4121618	ND	**39**	**1.8**	**8.8**	1
OB-2	E4121619	**9.4**	**12**	ND	**2.7**	1
Units		ug/l	ug/l	ug/l	ug/l	
Method Detection Limits		0.5ug/l	0.5ug/l	0.5ug/l	0.5ug/l	

ND Not Detected. All analytes recorded as ND were found to be under the limit of detection.
Sample Detection Limit is equal to the Method Detection Limit X the Dilution Factor.

Reviewed By

Kayvan Kimyai, Senior Chemist

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

EPA M. 8015/8020 TEST QA/QC TABLE

AMER WORKORDER: E752

AMER I.D. E4121612-SP
Project: #1-13093
Ext/Prep. Method: EPA 5030, EPA 3510
Date: 12-20-94
Analyst: BK

Analytical Method: EPA M. 8015/8020
Analysis date: 12-20-94
Analyst: BK
Matrix: Water
Unit: ug/l

Analyte	Sample Result	Spike Level	Matrix Spike Result	Ms Recovery %	Matrix Spike Dul. Result	MSD Recovery %	Average Recovery %R	LCL %R	UCL %R	RPD %	UCL %RPD
Benzene	0.00	20.00	20.35	102	19.72	99	100	76	127	3	11
Toluene	0.00	20.00	19.24	96	18.49	92	94	76	125	4	13
Chlorobenzene	0.00	20.00	18.09	90	17.59	88	89	75	130	3	13
TPH-Gasoline	0.00	500.00	498.79	100	483.68	97	98	70	130	3	30
THP-Diesel	0.00	1000.00	773.83	77	700.75	70	74	70	130	10	30

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
LCL- Lower Criteria Level
UCL- Upper Criteria Level
RPD- Relative Percent Difference

AMER

Advanced Materials Engineering Research, Inc.

EPA METHODS 625 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton Street, #1-13093
Sample Name : MW4, E4121616

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: WATER
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
acenaphthaylene		ND	2.70
acenaphthene		ND	2.80
aniline		ND	5.00
anthracene		ND	3.40
azobenzene		ND	2.20
benzidine		ND	4.70
benzly alcohol		ND	2.90
benzo (a) anthrancene		ND	2.90
benzo(a)pyrene		ND	1.70
benzo(b)fluoranthene		ND	2.00
benzo(g,h,i)perylene		ND	2.50
benzo(k) fluoranthene		ND	2.00
benzoic acid		ND	2.50
bis(2-chloroehthoxy)methane		ND	2.50
bis(2-chloroethyl) ether		ND	2.70
bis(2-chloroisopropyl)ether		ND	6.20
bis(2-ethylhexyl)phthalate		ND	2.10
4-bromophenylphenyl ether		ND	2.90
butyl benzyl phthalate		ND	2.60
4-chloro-3-methylphenol		ND	2.20
4-chloroaniline		ND	2.40
1-chloronaphthalene		ND	5.00
2-chloronaphthalene		ND	3.00
2-chlorophenol		ND	2.60
4-chlorophenyl ether		ND	2.80
chrysene		ND	2.40
di-n-butyl phthalate		ND	3.00
dibenzo(a,h)anthracene		ND	2.60
dibenzo(a,j)acridine		ND	5.00
dibenzofuran		ND	2.60

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Advanced Materials Engineering Research, Inc.

EPA METHODS 625 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton Street, #1-13093
Sample Name : MW4, E4121616

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: WATER
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
1,2-dichlorobenzene		ND	2.90
1,3-dichlorobenzene		ND	2.70
1,4-dichlorobenzene		ND	3.10
3,3-dichlorobenzidine		ND	3.30
2,4-dichlorophenol		ND	2.70
diethyl phthalate		ND	2.60
dimethyl phthalate		ND	2.60
2,4-dimethylphenol		ND	2.50
4,6-dinitro-2-methylphenol		ND	3.30
2,4-dinitrophenol		ND	2.80
2,4-dinitrotoluene		ND	2.50
2,6-dinitrotoluene		ND	2.20
fluoranthene + A98		ND	3.20
fluorene		ND	2.70
hexachlorobenzene		ND	3.50
hexachlorobutadiene		ND	3.00
hexachlorocyclopentadiene		ND	2.30
hexachloroethyane		ND	3.20
indeno(1,2,3-cd)pyrene		ND	2.30
isophorone		ND	2.80
2-methyl phenol		ND	2.70
4-methyl phenol		ND	2.80
2-methyl pyridine		ND	5.00
3-methylcholanthrene		ND	5.00
2-methylnaphthalene		ND	3.00
n-nitroso-di-phenylamine		ND	2.50
n-nitrosodi-n-propylamine		ND	3.20
naphthalene		ND	2.90

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 625 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton Street, #1-13093
Sample Name : MW4, E4121616

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: WATER
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
2-nitroaniline		ND	2.30
3-nitroaniline		ND	2.50
4-nitroaniline		ND	3.50
nitrobenzene		ND	2.50
2-nitrophenol		ND	2.80
4-nitrophenol		ND	2.90
pentachlorobenzene		ND	2.90
pentachlorophenol		ND	2.90
phenanthrene		ND	3.00
phenol		ND	2.50
pyrene		ND	3.30
1,2,4-trichlorobenzene		ND	2.90
2,4,5-trichlorophenol		ND	2.40
2,4,6-trichlorophenol		ND	2.40

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8270 or EPA 625 and EPA 3510
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 625 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton Street, #1-13093
Sample Name : MW5, E4121617

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: WATER
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
acenaphthaylene		ND	2.70
acenaphthene		ND	2.80
aniline		ND	5.00
anthracene		ND	3.40
azobenzene		ND	2.20
benzidine		ND	4.70
benzly alcohol		ND	2.90
benzo (a) anthrancene		ND	2.90
benzo(a)pyrene		ND	1.70
benzo(b)fluoranthene		ND	2.00
benzo(g,h,i)perylene		ND	2.50
benzo(k) fluoranthene		ND	2.00
benzoic acid		ND	2.50
bis(2-chloroehthoxy)methane		ND	2.50
bis(2-chloroethyl) ether		ND	2.70
bis(2-chloroisopropyl)ether		ND	6.20
bis(2-ethylhexyl)phthalate		ND	2.10
4-bromophenylphenyl ether		ND	2.90
butyl benzyl phthalate		ND	2.60
4-chloro-3-methylphenol		ND	2.20
4-chloroaniline		ND	2.40
1-chloronaphthalene		ND	5.00
2-chloronaphthalene		ND	3.00
2-chlorophenol		ND	2.60
4-chlorophenyl ether		ND	2.80
chrysene		ND	2.40
di-n-butyl phthalate		ND	3.00
dibenzo(a,h)anthracene		ND	2.60
dibenzo(a,j)acridine		ND	5.00
dibenzofuran		ND	2.60

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 625 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton Street, #1-13093
Sample Name : MW5, E4121617

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: WATER
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
1,2-dichlorobenzene		ND	2.90
1,3-dichlorobenzene		ND	2.70
1,4-dichlorobenzene		ND	3.10
3,3-dichlorobenzidine		ND	3.30
2,4-dichlorophenol		ND	2.70
diethyl phthalate		ND	2.60
dimethyl phthalate		ND	2.60
2,4-dimethylphenol		ND	2.50
4,6-dinitro-2-methylphenol		ND	3.30
2,4-dinitrophenol		ND	2.80
2,4-dinitrotoluene		ND	2.50
2,6-dinitrotoluene		ND	2.20
fluoranthene + A98		ND	3.20
fluorene		ND	2.70
hexachlorobenzene		ND	3.50
hexachlorobutadiene		ND	3.00
hexachlorocyclopentadiene		ND	2.30
hexachloroethyane		ND	3.20
indeno(1,2,3-cd)pyrene		ND	2.30
isophorone		ND	2.80
2-methyl phenol		ND	2.70
4-methyl phenol		ND	2.80
2-methyl pyridine		ND	5.00
3-methylcholanthrene		ND	5.00
2-methylnaphthalene		ND	3.00
n-nitroso-di-phenylamine		ND	2.50
n-nitrosodi-n-propylamine		ND	3.20
naphthalene		ND	2.90

AMER
Advanced Materials Engineering Research, Inc.

EPA METHODS 625 ANALYSIS REPORT
(ELAP CERTIFICATE NO. 1909)

Client: TMC Environmental, Inc
13908 San Pablo Avenue, Suite #101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Project: 4525-4563 Horton Street, #1-13093
Sample Name : MW5, E4121617

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Reported: 12-29-94
Sample Matrix: WATER
AMER Report #: E752

COMPOUND	CAS #	CONC. (ug/l)	DETECTION LIMIT (ug/l)
2-nitroaniline		ND	2.30
3-nitroaniline		ND	2.50
4-nitroaniline		ND	3.50
nitrobenzene		ND	2.50
2-nitrophenol		ND	2.80
4-nitrophenol		ND	2.90
pentachlorobenzene		ND	2.90
pentachlorophenol		ND	2.90
phenanthrene		ND	3.00
phenol		ND	2.50
pyrene		ND	3.30
1,2,4-trichlorobenzene		ND	2.90
2,4,5-trichlorophenol		ND	2.40
2,4,6-trichlorophenol		ND	2.40

Notes
*Indicates extra compound requested by the client.
NR-Analysis not requested.
COC-Chain of Custody
ND-Analytes not detected at, or above the stated detection limit.
ppb-ug/l for waters; ug/kg for soils
DL-Detection Limit Factor
SDL-Sample Detection Limit-Multiply DL by the DL Factor to obtain the detection limit for a specific analyte
MDL- Method Detection Limit
Sample Detection Limit is equal to the MDL multiplied to the DF
Procedures:
This analysis was performed in using EPA Method 8270 or EPA 625 and EPA 3510
Certification:
California Department of Health Services ELAP Certificate #1909

Reviewed By:

Kayvan Kimyai, Senior Chemist

EPA 625/8270 TEST QA/QC TABLE

AMER WORKORDER: E752

AMER I.D. Number: E752-MSP
Project: # 1-13093
Ext/Prep. Method: EPA 3510
Date: 12-19-94
Analyst: LC

Analytical Method: EPA M. 625/8270
Analysis date: 12-19-94
Analyst: LC
Matrix: Water
Unit: ug/l

Analyte	Sample Result	Spike Level	MS Result	MS %R	MSD Result	MSD %R	AVE. %R	LCL %R	UCL %R	RPD %	UCL %RPD
Phenol	0.00	200.00	41.56	21	37.48	19	20	12	89	10	42
2-Chlorophenol	0.00	200.00	159.82	80	132.14	66	73	27	123	19	40
1,4-Dichlorobenzene	0.00	100.00	75.42	75	62.76	63	69	36	97	18	28
N-Nitroso-Di-n-Propylamine	0.00	100.00	65.96	66	50.82	51	58	41	116	26	38
1,2,4-Trichlorobenzene	0.00	100.00	75.76	76	63.58	64	70	39	98	17	28
4-Chloro-3-Methylphenol	0.00	200.00	168.48	84	128.54	64	74	23	97	27	42
Acenaphthene	0.00	100.00	88.64	89	66.92	67	78	46	118	28	31
4-Nitrophenol	0.00	200.00	24.86	12	20.98	10	11	10	80	17	50
2,4-dinitrotoluene	0.00	100.00	91.04	91	66.40	66	79	24	96	31	38
Pentachlorophenol	0.00	200.00	182.32	91	172.60	86	89	9	103	5	50
Pyrene	0.00	100.00	92.72	93	68.76	69	81	26	127	30	31

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
LCL- Lower Criteria Level
UCL- Upper Criteria Level
RPD- Relative Percent Difference

AMER
Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT

(ELAP CERTIFICATE NO. 1909)
EPA METHOD 8080
Polychlorinated Biphenyls (PCBs)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Laboratory Report ID.: E752
Sample Name: MW-4, E4121616
Project Name: 4525-4563 Horton St., #1-13093

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Analyzed: 12-22-94
Date Reported: 12-29-94
Matrix: WATER
Dilution Factor: 1

COMPOUND	CAS #	CONCENTRATION ug/l	LIMIT OF DETECTION ug/l
AROCLOR 1016	12674-11-2	ND	30
AROCLOR 1221	11104-28-2	ND	30
AROCLOR 1232	11141-16-5	ND	30
AROCLOR 1242	53469-21-9	ND	30
AROCLOR 1248	12672-29-3	ND	30
AROCLOR 1254	11097-69-1	ND	30
AROCLOR 1260	11096-82-5	ND	30

ND = NOT DETECTED. Concentration is at or lower than the detection limit.

Reported By:

Kayvan Kimyai, Senior Chemist

AMER
Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT

(ELAP CERTIFICATE NO. 1909)
EPA METHOD 8080
Polychlorinated Biphenyls (PCBs)

Client: TMC Environmental, Inc.
13908 San Pablo Avenue, Suite 101
San Pablo, CA 94806
Project Manager: Mark Youngkin
Laboratory Report ID.: E752
Sample Name: MW-5, E4121617
Project Name: 4525-4563 Horton St., #1-13093

Date Sampled: 12-16-94
Date Received: 12-16-94
Date Analyzed: 12-22-94
Date Reported: 12-29-94
Matrix: WATER
Dilution Factor: 1

COMPOUND	CAS #	CONCENTRATION ug/l	LIMIT OF DETECTION ug/l
AROCLOR 1016	12674-11-2	ND	30
AROCLOR 1221	11104-28-2	ND	30
AROCLOR 1232	11141-16-5	ND	30
AROCLOR 1242	53469-21-9	ND	30
AROCLOR 1248	12672-29-3	ND	30
AROCLOR 1254	11097-69-1	ND	30
AROCLOR 1260	11096-82-5	ND	30

ND = NOT DETECTED. Concentration is at or lower than the detection limit.

Reported By:

Kayvan Kimyai, Senior Chemist

EPA 608/8080 TEST QA/QC TABLE

AMER WORKORDER: E752

AMER I.D. Number: E4121616-MSP
TMC Project: # 1-13093
Ext/Prep. Method: EPA 3510
Date: 12-22-94
Analyst: BK

Analytical Method: EPA 608/8080
Analysis date: 12-22-94
Analyst: LC
Matrix: Water
Unit: ug/l

Analyte	Sample Result	Spike Level	MS Result	MS %R	MSD Result	MSD %R	AVE. %R	LCL %R	UCL %R	RPD %	UCL %RPD
Lindane	0.000	0.200	0.213	107	0.216	108	107	56	123	1	15
Heptachlor	0.000	0.200	0.247	124	0.254	127	125	40	131	3	20
Aldrin	0.000	0.200	0.223	112	0.231	116	114	40	120	4	22
Dieldrin	0.000	0.200	0.223	112	0.230	115	113	52	126	3	18
Endrin	0.000	0.200	0.201	101	0.212	106	103	56	121	5	21
4,4'-DDT	0.000	0.200	0.202	101	0.196	98	100	38	127	3	27

Notes:
Spike Level- Level of Concentration Added to the Sample
MS Result- Matrix Spike Result
MS %R- Matrix Spike Percent Recovery
MSD Result- Matrix Spike Duplicate Result
MSD %R- Matrix Spike Dublicate Percent Recovery
LCL- Lower Criteria Level
UCL- Upper Criteria Level
RPD- Relative Percent Difference

AMER

Advanced Materials Engineering Research, Inc.

ANALYSIS REPORT
(ELAP Certificate No. 1909)
EPA METHODS

CLIENT:
TMC Environmental, Inc.
13908 San Pablo Ave., Suite 101
San Pablo, CA 94806
MATRIX: Water
PROJECT MANAGER: Mark Youngkin
PROJECT: 4525-4563 Horton St., #1-13903

DATE SAMPLED: 12-16-94
DATE RECEIVED: 12-16-94
DATE REPORTED: 12-29-94
AMER ID: E752

Client I.D.	AMER I.D.	REP. LIMIT	RESULT
MW5	E4121617	+/-0.1	**4.7**

Reviewed By

Kayvan Kimyai, Senior Chemist

783 East Evelyn Ave., Sunnyvale, CA 94086 Tel. (408) 738-3033 Fax. (408) 738-3035

0122-0111

TMC ENVIRONMENTAL, INC.
(415) 232-8366 / FAX 232-5133

CHAIN OF CUSTODY RECORD
ANALYSIS REQUEST FORM

Project No. 1-13093	Project Name: RIFKIN	Project Contact: MARK YOUNGKIN	Sampler: Tom Ghiglotto	Page of
Project Address: 4525-4563 HORTON STREET; EMERYVILLE, CA			Turnaround Time: 5 days	

LAB ID NO.	DATE	TIME	SOIL	WATER	SAMPLE LABEL	TPH FULL SCAN	TEH-DIESEL	EPA 8080	OPEN SCAN EPA 8240	EPA 8270	PRIORITY POLLUTANT METALS + BARIUM		REMARKS ADDITIONAL ANALYSIS
	12/16/94	1358		X	EQB-3	X			X				
	12/16/94	1423		X	MW3	X			X				
	12/16/94	1505		X	MW1	X			X				
	12/16/94	1545		X	MW2	X			X				NO LABLES ON CONTAINERS
	12/16/94	1155		X	MW4	X		X	X	X	X		
	12/16/94	1145		X	MW5	X		X	X	X	X		ANALIZE FOR PH ALSO
	12/15/94	1448		X	OB-1	X			X				
	12/15/94	1550		X	OB-2	X			X				

Relinquished by, Print Name: TOM GHIGLIOTTO
Signature: [signature]
Date: 12/16/94
Time: 3:30

Received by, Print name: MASOUD MIRZAI
Signature: [signature]
Date: 12/16
Time: 3:30

Relinquished by, Print name: MASOUD MIRZAI
Signature: [signature]
Date: 12/16
Time: 5

Received by, Print name: KAMRAN KIANI
Signature: [signature]
Date: 12/16/94
Time: 5 PM

Relinquished by, Print name:
Signature:
Date:
Time:

By signature the laboratory accepts the listed samples in good condition with appropriate containers, temperatures, and intact custody seals.

Received by Laboratory, Print Name of Laboratory:
Laboratory Certification Number:

Received by Laboratory personnel, Print Name:
Signature:
Date:
Time:

ATTACHMENT 2

BORING LOGS

SUBSURFACE LOG OF BORING NUMBER MW-1

PROJECT NAME: RIFKIN PROPERTIES	PROJECT #: 1-13093	SHEET 1 OF 1
LOCATION: 4525-4563 HORTON STREET, EMERYVILLE, CA		DATE: 12/9/94
DRILLER: BAY AREA EXPLORATION / SCOTT FITCHIE		LICENSE #: C57 - 522125
DRILL METHOD: HOLLOW STEM AUGER	SAMPLE METHOD: CALIFORNIA STANDARD SAMPLER	
AGENCY: ALAMEDA COUNTY ZONE 7	INSPECTOR: SUSAN HUGO	BORING DIA.: 8'
LOGGER: TOM GHIGLIOTTO	AGENCY PERMIT #: 94800	CASING DIA.: 2" / TOTAL DEPTH: 19'

NOTICE- CONDITIONS APPLY TO THIS LOG - SEE EXPLANATION OF LIMITATIONS

SAMPLE NUMBER	SAMPLE DEPTH	% REC.	BLOWS / FT.	VAPOR PPM	H2O LOG	SAMPLE INTERVAL	DEPTH FEET	USCS	DESCRIPTION	STAIN/ ODOR
							0		CONCRETE	
							2		FILL-sandy-CLAY; Dk.brown/black, w/rock,brick and concrete debris,moist	NO /NO
							4			
MW1-1	5' - 5.5'	100	3 6 9	10.9			6		sandy/silty CLAY; some pebble mottles, black,med-stiff,med-plasticity,moist	NO /YES
					7.81' ▼		8			
MW1 -2	10' - 10.5'	100	1 4 9	600			10		SAND;black w/ oil stains, med. to fine grain,well sorted,wet	YES /YES
							12		SILT-CLAY; black with pebble mottles, med. stiff, med to low plasiticity, moist	YES /YES
MW1 -3	15' - 15.5'	100	1 4 6	11.0			14			
							16		SILT-CLAY w/ angular rock and pebble mottles;brown w/ tan,grey and grey/blue sreaking,very stiff, plastic, moist	NO /NO
									silty/clayey-SAND;brown, med.grain, low density,sorted,wet	NO /NO
							18		sandy/SILT-CLAY w/ angular rock and pebble mottles; dk. brown w/ grey sreaking, stiff, moist	NO /NO
									Native CLAY;brown-grey, very stiff, moist	NO /NO
							20		BOTTOM OF HOLE	
							22			
							24			
							26			
							28			
							30			

THIS LOG OF SUBSURFACE CONDITIONS APPLIES TO THE SPECIFIC LOCATION AND DATE INDICATED. THIS LOG IS NOT WARRENTED TO REPRESENT CONDITIONS AT OTHER LOCATIONS OR OTHER DATES

SUBSURFACE LOG OF BORING NUMBER MW-2

PROJECT NAME: RIFKIN PROPERTIES	PROJECT #: 1-13093	SHEET 1 OF 1
LOCATION: 4525-4563 HORTON STREET, EMERYVILLE, CA		DATE: 12/8/94
DRILLER: BAY AREA EXPLORATION / SCOTT FITCHIE		LICENSE #: C57 - 522125
DRILL METHOD: HOLLOW STEM AUGER	SAMPLE METHOD: CALIFORNIA STANDARD SAMPLER	
AGENCY: ALAMEDA COUNTY ZONE 7	INSPECTOR: SUSAN HUGO	BORING DIA.: 8"
LOGGER: TOM GHIGLIOTTO	AGENCY PERMIT #: 94800	CASING DIA.: 2" / TOTAL DEPTH: 19'

"NOTICE- CONDITIONS APPLY TO THIS LOG - SEE EXPLANATION OF LIMITATIONS"

SAMPLE NUMBER	SAMPLE DEPTH	% REC.	BLOWS / FT.	VAPOR PPM	H2O LOG	SAMPLE INTERVAL	DEPTH FEET	USCS	DESCRIPTION	STAIN/ ODOR
							0		CONCRETE	
							2		FILL-sandy-CLAY; Dk.brown/black, w/large concrete and rock debris,moist	NO /NO
							4			
MW2-1	5.5' - 6'	100	2 4 6	550	7.88' ▼		6		sandy/silty CLAY; some pebble mottles, black,med-stiff,med-to low plasticity, moist	NO /YES
							8			
MW2 -2	10' - 10.5'	100	1 2 2	850			10		clayey/SAND; black, oil on sampler,wet	YES /YES
							12		black SILT-CLAY; Oil on outside of sampler	YES /YES
							14		sandy/silty-CLAY FILL w/ brick and angular rock,black,very stiff, plastic, moist	YES /YES
MW2 -3	15.5' - 16'	100	2 3 13	30			16		SAND; grey, med.grain, low density, sorted,wet	NO /NO
							18		sandy/silty-CLAY FILL w/ brick and angular rock,brown w/ grey mottling,very stiff, plastic, moist	NO /NO
									BOTTOM OF HOLE (19')	
							20		sandy/SILT-CLAY w/ angular rock and pebble mottles; dk. brown w/ grey streaking, stiff, moist	NO /NO
							22			
							24			
							26			
							28			
							30			

THIS LOG OF SUBSURFACE CONDITIONS APPLIES TO THE SPECIFIC LOCATION AND DATE INDICATED. THIS LOG IS NOT WARRENTED TO REPRESENT CONDITIONS AT OTHER LOCATIONS OR OTHER DATES

SUBSURFACE LOG OF BORING NUMBER MW-3

PROJECT NAME: RIFKIN PROPERTIES	PROJECT #: 1-13093	SHEET 1 OF 1
LOCATION: 4525-4563 HORTON STREET, EMERYVILLE, CA		DATE: 12/8/94
DRILLER: BAY AREA EXPLORATION / SCOTT FITCHIE		LICENSE #: C57 - 522125
DRILL METHOD: HOLLOW STEM AUGER	SAMPLE METHOD: CALIFORNIA STANDARD SAMPLER	
AGENCY: ALAMEDA COUNTY ZONE 7	INSPECTOR: SUSAN HUGO	BORING DIA.: 8"
LOGGER: TOM GHIGLIOTTO	AGENCY PERMIT #: 94800	CASING DIA.: 2" / TOTAL DEPTH: 19.5'

"NOTICE- CONDITIONS APPLY TO THIS LOG - SEE EXPLANATION OF LIMITATIONS"

SAMPLE NUMBER	SAMPLE DEPTH	% REC.	BLOWS / FT.	VAPOR PPM	H2O LOG	SAMPLE INTERVAL	DEPTH FEET	USCS	DESCRIPTION	STAIN/ ODOR
							0		CONCRETE	
MW3 -1	5' - 5.5'	100	3 3 5	1			2		FILL-sandy-CLAY; Dk.brown/black, w/rock,brick and concrete debris,moist	NO /NO
					7.90' ▼		4			
							6			
							8		clayey-SAND; with pebble mottles,grey, wet	NO /NO
MW3 -2	10' - 10.5'	100	0 1 1	190			10		sandy/ SILT-CLAY; dk. brown/grey, soft, wet	NO /NO
							12			
MW3 -3	15' - 15.5'	100	0 1 1	40			14		clayey-SAND;brown w/ grey mottles, fine grain,med. density, wet	NO /NO
							16			
							18		silty-CLAY ; CLAY-MUD; black, sticky, wet	NO /NO
MW3 -4	19' - 19.5'	100	2 4 6	23			20		silty-SAND; brown with tan mottles, med. density, moist	NO /NO
							22		BOTTOM OF HOLE	
							24			
							26			
							28			
							30			

THIS LOG OF SUBSURFACE CONDITIONS APPLIES TO THE SPECIFIC LOCATION AND DATE INDICATED. THIS LOG IS NOT WARRENTED TO REPRESENT CONDITIONS AT OTHER LOCATIONS OR OTHER DATES

SUBSURFACE LOG OF BORING NUMBER MW-4

PROJECT NAME: RIFKIN PROPERTIES	PROJECT #: 1-13093	SHEET 1 OF 1
LOCATION: 4525-4563 HORTON STREET, EMERYVILLE, CA		DATE: 12/9/94
DRILLER: BAY AREA EXPLORATION / SCOTT FITCHIE		LICENSE #: C57 - 522125
DRILL METHOD: HOLLOW STEM AUGER	SAMPLE METHOD: CALIFORNIA STANDARD SAMPLER	
AGENCY: ALAMEDA COUNTY ZONE 7	INSPECTOR: SUSAN HUGO	BORING DIA.: 8"
LOGGER: TOM GHIGLIOTTO	AGENCY PERMIT #: 94800 / CASING DIA.: 2"	TOTAL DEPTH: 18.5'

****NOTICE- CONDITIONS APPLY TO THIS LOG - SEE EXPLANATION OF LIMITATIONS****

SAMPLE NUMBER	SAMPLE DEPTH	% REC.	BLOWS / FT.	VAPOR PPM	H2O LOG	SAMPLE INTERVAL
MW4 -1	5' - 5.5'	100	5 6 11	69		
					9.08' ▼	
MW4 -2	10' - 10.5'	100	5 5 6	190		
MW4 -3	15' - 15.5'	100	1 3 5	8.4		
no liners	18' - 18.5'	100	2 3 3	80		

DEPTH FEET: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30

USCS	DESCRIPTION	STAIN/ ODOR
	CONCRETE	
	COBBLESTONE/CONCRETE	
	CONCRETE	
	sandy-SILT/silty-SAND; brown with, tiny white mottles, loose, dry	NO /NO
	gravely-SAND; lt. brown, poorly sorted, strong odor, wet	NO /YES
	sandy/ SILT-CLAY; dk. brown/grey, soft, wet	NO /YES
	gravely-SAND; dk. brown/grey w/ tiny black pebble mottles, med. to course, wet	NO /YES
	BOTTOM OF HOLE	

THIS LOG OF SUBSURFACE CONDITIONS APPLIES TO THE SPECIFIC LOCATION AND DATE INDICATED. THIS LOG IS NOT WARRENTED TO REPRESENT CONDITIONS AT OTHER LOCATIONS OR OTHER DATES

SUBSURFACE LOG OF BORING NUMBER MW-5

PROJECT NAME: RIFKIN PROPERTIES	PROJECT #: 1-13093	SHEET 1 OF 1
LOCATION: 4525-4563 HORTON STREET, EMERYVILLE, CA		DATE: 12/9/94
DRILLER: BAY AREA EXPLORATION / SCOTT FITCHIE		LICENSE #: C57 - 522125
DRILL METHOD: HOLLOW STEM AUGER	SAMPLE METHOD: CALIFORNIA STANDARD SAMPLER	
AGENCY: ALAMEDA COUNTY ZONE 7	INSPECTOR: SUSAN HUGO	BORING DIA.: 8"
LOGGER: TOM GHIGLIOTTO	AGENCY PERMIT #: 94800	CASING DIA.: 2" / TOTAL DEPTH: 17'

"NOTICE- CONDITIONS APPLY TO THIS LOG - SEE EXPLANATION OF LIMITATIONS"

SAMPLE NUMBER	SAMPLE DEPTH	% REC.	BLOWS / FT.	VAPOR PPM	H2O LOG	SAMPLE INTERVAL	DEPTH FEET	USCS	DESCRIPTION	STAIN/ ODOR
							0		CONCRETE	
							2		sandy-SILT/silty-SAND; Dk.brown/brown, loose, slightly moist	NO /NO
MW5 -1	5' - 5.5'	100	2 4 4	>1000			4			
					7.50' ▼		6		silty/sandy-CLAY/ SILT-CLAY; brown to dk. brown, firm, med. plasicity, moist, odor noticed	NO /YES
							8			
MW5 -2	10' - 10.5'	100	1 2 5	>1000			10		SAND; black,med.grain w/ angular rock,wet	NO /YES
									SILT-CLAY; black w/small pebble mottles, firm to stiff, very moist	NO /YES
							12		SAND; black, med.to course grain, poorly sorted,wet	NO /YES
							14		CLAY-SILT; brown with grey and dk. grey streaking and clas t, firm, high plasicity	NO /YES
MW5 -3	15' - 15.5'	100	2 2 3	190			16		gravely-SAND; w/ angular rock, poorly sorted, dk. brown and grey, wet	NO /YES
no liners	17' - 18'	100	3 2 2	89			18		CLAY-SILT; grey w/ black mottles, dk. grey streaking, firm to stiff, high plasicity, moist	NO /YES
									BOTTOM OF HOLE	
							20			
							22			
							24			
							26			
							28			
							30			

THIS LOG OF SUBSURFACE CONDITIONS APPLIES TO THE SPECIFIC LOCATION AND DATE INDICATED. THIS LOG IS NOT WARRENTED TO REPRESENT CONDITIONS AT OTHER LOCATIONS OR OTHER DATES

******* IMPORTANT NOTICE *******

LIMITATIONS APPLY TO THIS LOG THAT ARE UNIQUE TO ENVIRONMENTAL INVESTIGATIONS. THE BORING LOGS, CROSS SECTIONS, AND MAPS OF SUBSURFACE CONDITIONS APPLY ONLY AT THE SPECIFIC LOCATION AND TIME INDICATED. LOGS, CROSS SECTIONS, AND MAPS ARE NOT WARRANTED TO BE REPRESENTATIVE OF CONDITIONS AT OTHER LOCATIONS AND TIMES. THE FOLLOWING LIMITATIONS APPLY TO ALL BORING LOGS, CROSS SECTIONS, AND MAPS.

SUBSURFACE LOG, CROSS SECTION, AND MAP LIMITATIONS

The boring logs, cross sections, and maps are intended solely for use in environmental investigation. The data in these logs, cross sections, and maps is prohibited from use in other geologic, geotechnical, soil, foundation, fault, and landslide studies or designs. The methods used to acquire the data in these logs, cross sections, and maps are insufficient for these other purposes. The property lines shown on maps, figures, plates, and cross sections with boring locations, are not warranted to be accurate. These property lines are inadequate for purposes of future engineering design and construction. The accurate location of wells are only shown on plans surveyed and drawn by a licensed surveyor.

The techniques and methods used to construct the boring logs, cross sections, and maps have been modified specifically for use in environmental chemical investigation. Accordingly, variations in the techniques commonly used in other geologic, geotechnical, soil, foundation, fault, and landslide studies have been made in these boring logs, cross sections, and maps to acquire information applicable to chemical investigations.

Chemical data, environmental conditions, odors, vapor readings, staining, etc. are transient and temporary features that change considerably with time. These features as shown on the boring logs, cross sections, and maps are not warranted at other locations or times. The descriptions as shown, refer only to the depth interval of the sample collected for inspection or laboratory analyses. No interpretation or extrapolation of data between sampling intervals is implied by the boring logs, cross sections, and maps.

Chemical investigations are designed only for the target chemical compounds of concern to the study or investigation. Other unknown or non targeted chemicals may exist within the soil that are beyond the scope of this specific study or investigation. The information in the boring logs, cross sections, and maps is provided to client in order that client may make a more informed decision as to the subsurface environmental condtions in the study area. No warranty is implied or stated that the samples, borings, wells, study area, site, or property is or is not free of environmental damage or impairment.

ATTACHMENT 3

RECORDS OF WATER SAMPLE COLLECTION

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL:	DATE COLLECTED:	JOB NUMBER:
MW-1	12/16/94	1-13093

JOB NAME:	SAMPLER'S NAME(S):
RIFKIN PROPERTIES	T. GHIGLIOTTO AND D. CHUNG

LOCATION: 4525 - 4563 HORTON STREET, EMERYVILLE, CALIFORNIA

WELL HEAD CONDITIONS:	X	CAPPED	X	LOCKED	X	DRY		WATER		DEBRIS
		REPLACE CAP				REPLACE LOCK				
		OTHER:								

TIME MEASURED	0942	1021				
DEPTH (FT.)	6.19	6.19				

WELL PURGING METHOD

TOTAL DEPTH OF WELL:	DEPTH TO WATER:	DIAMETER OF WELL:
16.24'	6.19'	2"

PURGE VOLUME = 5.1 GALLONS

PURGE VOLUME = 3 WELL VOLS.= {(TOTAL DEPTH - DEPTH TO WATER) X VOLUME FACTOR} X 3
VOLUME FACTOR = **0.17** FOR A 2" CASING; **0.65** FOR A 4" CASING; **1.47** FOR A 6" CASING

PURGE METHOD:	OVA-FID READING (ppm):
NEW DISPOSABLE BAILER	150

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE (°F)	CONDUCTIVITY X1000	pH	VISUAL TURBIDITY
0	1442	61.1	0.73	7.00	CLEAR
1.7	1445	62.0	0.60	7.09	DARK BROWN WITH SHEEN
3.5	1449	62.1	0.61	7.14	DARK BROWN WITH SHEEN
5.2	1453	61.9	0.61	7.24	DARK BROWN WITH SHEEN

SAMPLING METHOD:	SAMPLE TURBIDITY (NTU):	TIME COLLECTED:
NEW DISPOSABLE BAILER	44.6	1505

PURGE WATER DESCRIPTION:	X	SHEEN		NO SHEEN	X	ODOR		NO ODOR
		SILTY		CLEAR				
	X	OTHER: SOME PRODUCT ON BAILER						

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL:	DATE COLLECTED:	JOB NUMBER:
MW-2	12/16/94	1-13093
JOB NAME: RIFKIN PROPERTIES	SAMPLER'S NAME(S): T. GHIGLIOTTO AND D. CHUNG	
LOCATION: 4525 - 4563 HORTON STREET, EMERYVILLE, CALIFORNIA		

WELL HEAD CONDITIONS:	X	CAPPED	X	LOCKED	X	DRY		WATER		DEBRIS
		REPLACE CAP				REPLACE LOCK				
		OTHER:								

TIME MEASURED	0940	1025	1042			
DEPTH (FT.)	5.92	6.04	6.04			

WELL PURGING METHOD

TOTAL DEPTH OF WELL:	DEPTH TO WATER:	DIAMETER OF WELL:
15.81'	6.04'	2"
PURGE VOLUME = 5.0 GALLONS		

PURGE VOLUME = 3 WELL VOLS.= {(TOTAL DEPTH - DEPTH TO WATER) X VOLUME FACTOR} X 3
VOLUME FACTOR = 0.17 FOR A 2" CASING; 0.65 FOR A 4" CASING; 1.47 FOR A 6" CASING

PURGE METHOD:	OVA-FID READING (ppm):
NEW DISPOSABLE BAILER	> 1000*

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE (°F)	CONDUCTIVITY X1000	pH	VISUAL TURBIDITY
0	1522	59.6	0.79	8.00	CLEAR
1.5	1527	60.5	0.72	8.83	VERY TURBID, BROWN
3.0	1531	60.4	0.73	8.05	VERY TURBID, BROWN
4.5	1534	60.4	0.65	7.69	VERY TURBID, BROWN
5.0	1537	60.9	0.74	7.67	VERY TURBID, BROWN

SAMPLING METHOD:	SAMPLE TURBIDITY (NTU):	TIME COLLECTED:
NEW DISPOSABLE BAILER	23.9	1545

PURGE WATER DESCRIPTION:	X	SHEEN		NO SHEEN		ODOR		NO ODOR
	X	SILTY		CLEAR				
		OTHER:						

* > 1000ppm WHEN BOX TOP WAS OPENED, PRIOR TO UNCAPPING WELL

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL:	DATE COLLECTED:	JOB NUMBER:
MW-3	12/16/94	1-13093

JOB NAME:	SAMPLER'S NAME(S):
RIFKIN PROPERTIES	T. GHIGLIOTTO AND D. CHUNG

LOCATION: 4525 - 4563 HORTON STREET, EMERYVILLE, CALIFORNIA

WELL HEAD CONDITIONS:										
	X	CAPPED		LOCKED	X	DRY		WATER		DEBRIS
		REPLACE CAP			X	REPLACE LOCK				
		OTHER:								

TIME MEASURED	0929	1016				
DEPTH (FT.)	6.55	6.55				

WELL PURGING METHOD

TOTAL DEPTH OF WELL:	DEPTH TO WATER:	DIAMETER OF WELL:
18.84'	6.55'	2"

PURGE VOLUME = 6.2 GALLONS

PURGE VOLUME = 3 WELL VOLS.= {(TOTAL DEPTH - DEPTH TO WATER) X VOLUME FACTOR} X 3
VOLUME FACTOR = 0.17 FOR A 2" CASING; 0.65 FOR A 4" CASING; 1.47 FOR A 6" CASING

PURGE METHOD:	OVA-FID READING (ppm):
NEW DISPOSABLE BAILER	> 1000

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE (°F)	CONDUCTIVITY X1000	pH	VISUAL TURBIDITY
0	1405	61.1	0.21	6.31	CLEAR
2.0	1409	60.2	0.26	6.52	SLIGHTLY TURBID
4.0	1413	60.6	0.26	6.51	SLIGHTLY TURBID
6.5	1416	59.5	0.21	6.68	SLIGHTLY TURBID

SAMPLING METHOD:	SAMPLE TURBIDITY (NTU):	TIME COLLECTED:
NEW DISPOSABLE BAILER	167.7	1423

PURGE WATER DESCRIPTION:								
		SHEEN	X	NO SHEEN		ODOR	X	NO ODOR
		SILTY		CLEAR				
		OTHER:						

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL:	DATE COLLECTED:	JOB NUMBER:
MW-4	12/16/94	1-13093

JOB NAME:	SAMPLER'S NAME(S):
RIFKIN PROPERTIES	T. GHIGLIOTTO AND D. CHUNG

LOCATION: 4525 - 4563 HORTON STREET, EMERYVILLE, CALIFORNIA

WELL HEAD CONDITIONS:										
	X	CAPPED	X	LOCKED	X	DRY		WATER		DEBRIS
		REPLACE CAP				REPLACE LOCK				
		OTHER:								

TIME MEASURED	0957	1030	1048			
DEPTH (FT.)	7.46	7.45	7.45			

WELL PURGING METHOD

TOTAL DEPTH OF WELL:	DEPTH TO WATER:	DIAMETER OF WELL:
16.05'	7.45'	2"

PURGE VOLUME = 4.5 GALLONS

PURGE VOLUME = 3 WELL VOLS.= {(TOTAL DEPTH - DEPTH TO WATER) X VOLUME FACTOR} X 3
VOLUME FACTOR = 0.17 FOR A 2" CASING; 0.65 FOR A 4" CASING; 1.47 FOR A 6" CASING

PURGE METHOD:	OVA-FID READING (ppm):
NEW DISPOSABLE BAILER	35

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE (°F)	CONDUCTIVITY X1000	pH	VISUAL TURBIDITY
0	1114	60.7	3.20	5.38	CLEAR
1.5	1120	62.3	3.43	5.03	TURBID, TAN / LIGHT BROWN
3.0	1125	63.1	3.70	4.90	TURBID TAN / LIGHT BROWN
4.5	1129	62.9	3.77	4.72	TURBID TAN / LIGHT BROWN

SAMPLING METHOD:	SAMPLE TURBIDITY (NTU):	TIME COLLECTED:
NEW DISPOSABLE BAILER	177.3	1155

PURGE WATER DESCRIPTION:								
	X	SHEEN		NO SHEEN		ODOR		NO ODOR
	X	SILTY		CLEAR				
	X	OTHER: SHEEN WAS VERY SLIGHT						

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL:	DATE COLLECTED:	JOB NUMBER:
OB-1	12/15/94	1-13093

JOB NAME:	SAMPLER'S NAME(S):
RIFKIN PROPERTIES	T. GHIGLIOTTO AND D. CHUNG

LOCATION: 4525 - 4563 HORTON STREET, EMERYVILLE, CALIFORNIA

WELL HEAD CONDITIONS:										
	X	CAPPED	X	LOCKED	X	DRY		WATER		DEBRIS
		REPLACE CAP				REPLACE LOCK				
		OTHER:								

TIME MEASURED	1357					
DEPTH (FT.)	6.13					

WELL PURGING METHOD

TOTAL DEPTH OF WELL:	DEPTH TO WATER:	DIAMETER OF WELL:
11.20'	6.13'	4"

PURGE VOLUME = 9.9 GALLONS

PURGE VOLUME = 3 WELL VOLS.= {(TOTAL DEPTH - DEPTH TO WATER) X VOLUME FACTOR} X 3
VOLUME FACTOR = 0.17 FOR A 2" CASING; 0.65 FOR A 4" CASING; 1.47 FOR A 6" CASING

PURGE METHOD:	OVA-FID READING (ppm):
HONDA PUMP	N/A

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE (°F)	CONDUCTIVITY X1000	pH	VISUAL TURBIDITY
0	1426	56.8	0.12	N/A	CLEAR
3	1428	57.0	0.11	N/A	SLIGHTLY TURBID, LIGHT BROWN
6	1430	56.5	0.12	N/A	SLIGHTLY TURBID, LIGHT BROWN
9	1432	56.1	0.12	N/A	SLIGHTLY TURBID, LIGHT BROWN
10	1433	56.2	0.12	N/A	SLIGHTLY TURBID, LIGHT BROWN

SAMPLING METHOD:	SAMPLE TURBIDITY (NTU):	TIME COLLECTED:
NEW DISPOSABLE BAILER	23.5	1448

PURGE WATER DESCRIPTION:								
		SHEEN	X	NO SHEEN		ODOR	X	NO ODOR
		SILTY	X	CLEAR				
		OTHER:						

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL:	DATE COLLECTED:	JOB NUMBER:
OB-2	12/15/94	1-13093
JOB NAME: RIFKIN PROPERTIES	SAMPLER'S NAME(S): T. GHIGLIOTTO AND D. CHUNG	
LOCATION: 4525 - 4563 HORTON STREET, EMERYVILLE, CALIFORNIA		

WELL HEAD CONDITIONS:	X	CAPPED	X	LOCKED	X	DRY		WATER		DEBRIS
		REPLACE CAP				REPLACE LOCK				
		OTHER:								

TIME MEASURED	1451					
DEPTH (FT.)	6.05					

WELL PURGING METHOD

TOTAL DEPTH OF WELL:	DEPTH TO WATER:	DIAMETER OF WELL:
12.42'	6.05'	4"
PURGE VOLUME = 3.5 GALLONS		

PURGE VOLUME = 3 WELL VOLS.= {(TOTAL DEPTH - DEPTH TO WATER) X VOLUME FACTOR} X 3
VOLUME FACTOR = 0.17 FOR A 2" CASING; 0.65 FOR A 4" CASING; 1.47 FOR A 6" CASING

PURGE METHOD:	OVA-FID READING (ppm):
NEW DISPOSABLE BAILER	N/A

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE (°F)	CONDUCTIVITY X1000	pH	VISUAL TURBIDITY
0	1507	59.3	0.44	N/A	SLIGHTLY TURBID, LIGHT BROWN
1.0	1515	60.0	0.45	N/A	SLIGHTLY TURBID, LIGHT BROWN
2.0	1519	60.4	0.55	N/A	TURBID, LIGHT BROWN
3.0	1525	60.3	0.51	N/A	TURBID, LIGHT BROWN
3.5	1528	60.9	0.51	N/A	TURBID, LIGHT BROWN

SAMPLING METHOD:	SAMPLE TURBIDITY (NTU):	TIME COLLECTED:
NEW DISPOSABLE BAILER	99.8	1550

PURGE WATER DESCRIPTION:		SHEEN	X	NO SHEEN	X	ODOR		NO ODOR
	X	SILTY		CLEAR				
		OTHER:						

RECORD OF WATER SAMPLE COLLECTION

WELL LABEL:	DATE COLLECTED:	JOB NUMBER:
MW-5	12/16/94	1-13093

JOB NAME:	SAMPLER'S NAME(S):
RIFKIN PROPERTIES	T. GHIGLIOTTO AND D. CHUNG

LOCATION: 4525 - 4563 HORTON STREET, EMERYVILLE, CALIFORNIA

WELL HEAD CONDITIONS:										
	X	CAPPED	X	LOCKED	X	DRY		WATER		DEBRIS
		REPLACE CAP				REPLACE LOCK				
		OTHER:								

TIME MEASURED	1002	1036	1051			
DEPTH (FT.)	6.48	6.45	6.45			

WELL PURGING METHOD

TOTAL DEPTH OF WELL:	DEPTH TO WATER:	DIAMETER OF WELL:
16.54'	6.45'	2"

PURGE VOLUME = 5.1 GALLONS

PURGE VOLUME = 3 WELL VOLS.= {(TOTAL DEPTH - DEPTH TO WATER) X VOLUME FACTOR} X 3
VOLUME FACTOR = **0.17** FOR A 2" CASING; **0.65** FOR A 4" CASING; **1.47** FOR A 6" CASING

PURGE METHOD:	OVA-FID READING (ppm):
NEW DISPOSABLE BAILER	> 1000

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE (°F)	CONDUCTIVITY X1000	pH	VISUAL TURBIDITY

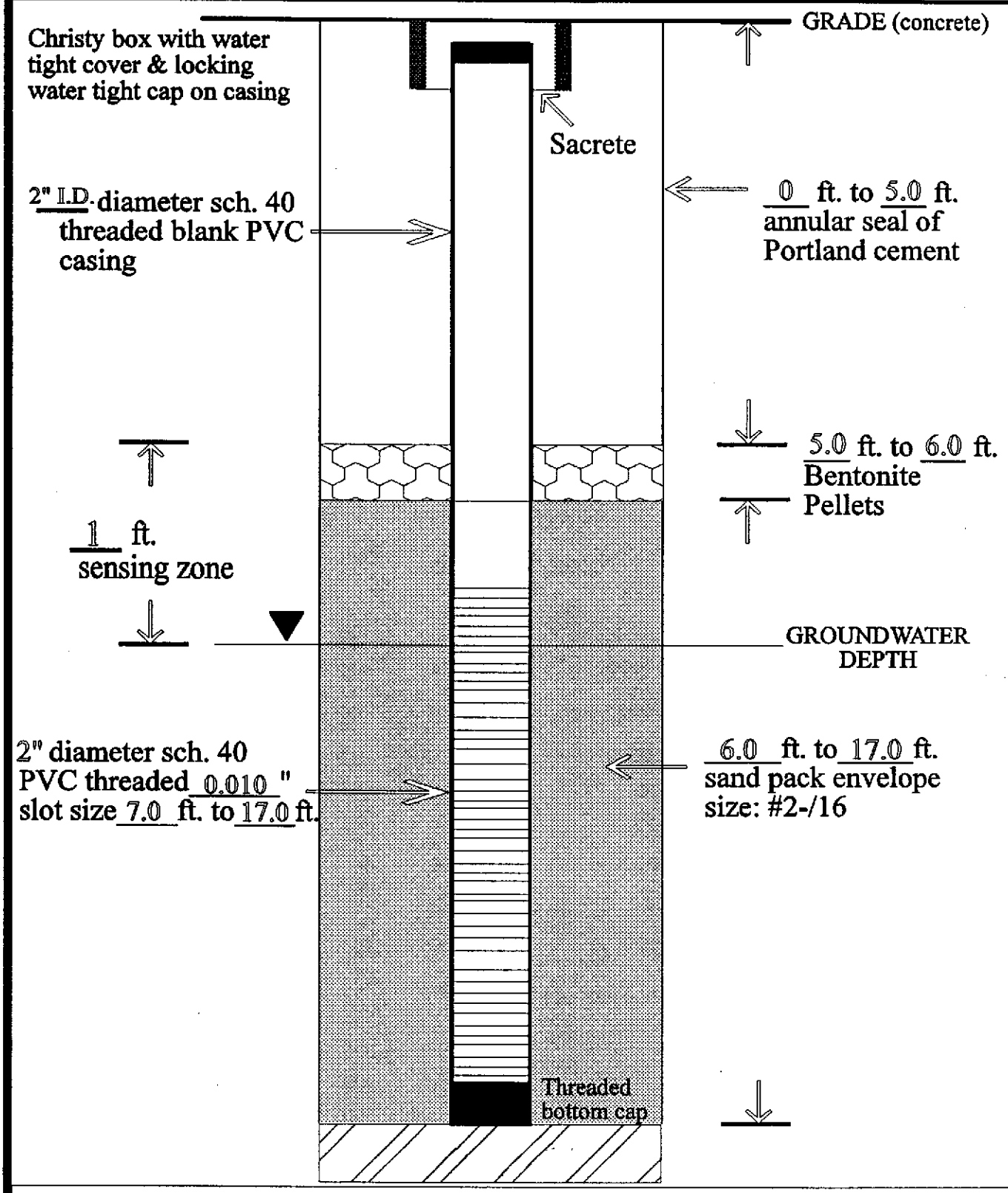
SAMPLING METHOD:	SAMPLE TURBIDITY (NTU):	TIME COLLECTED:
NEW DISPOSABLE BAILER	18.6	1145

PURGE WATER DESCRIPTION:								
	X	SHEEN		NO SHEEN	X	ODOR		NO ODOR
	X	SILTY		CLEAR				
	X	OTHER: SHEEN WAS VERY SLIGHT, ODOR WAS VERY STRONG						

ATTACHMENT 4

MONITORING WELL CONSTRUCTION DIAGRAMS

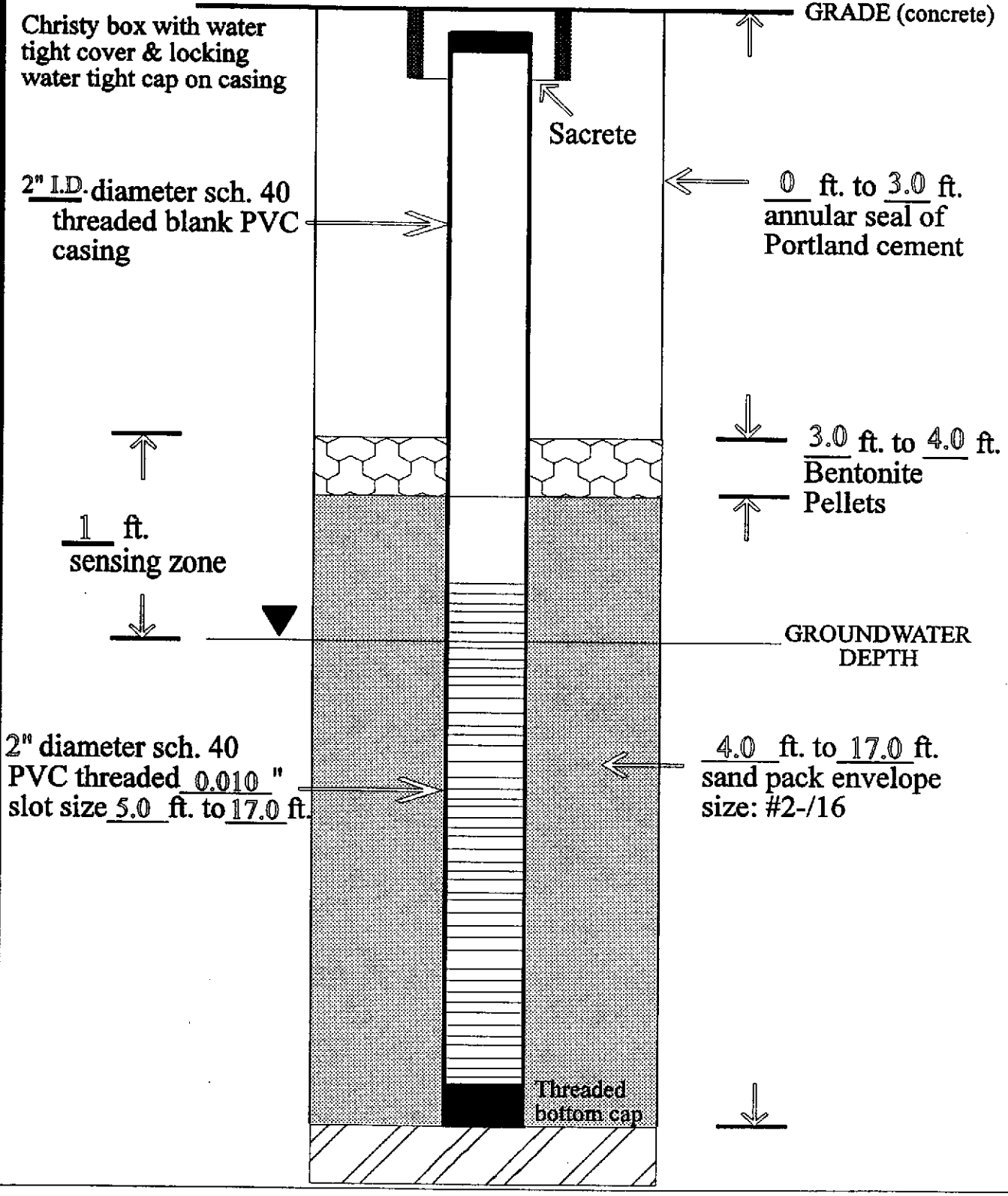
Project # 1-13093 ***Well I.D.*** MW-1 ***Date*** 12/9/94 ***Logger*** TOM GHIGLIOTTO



TMC Environmental, Inc.

WELL CONSTRUCTION DIAGRAM

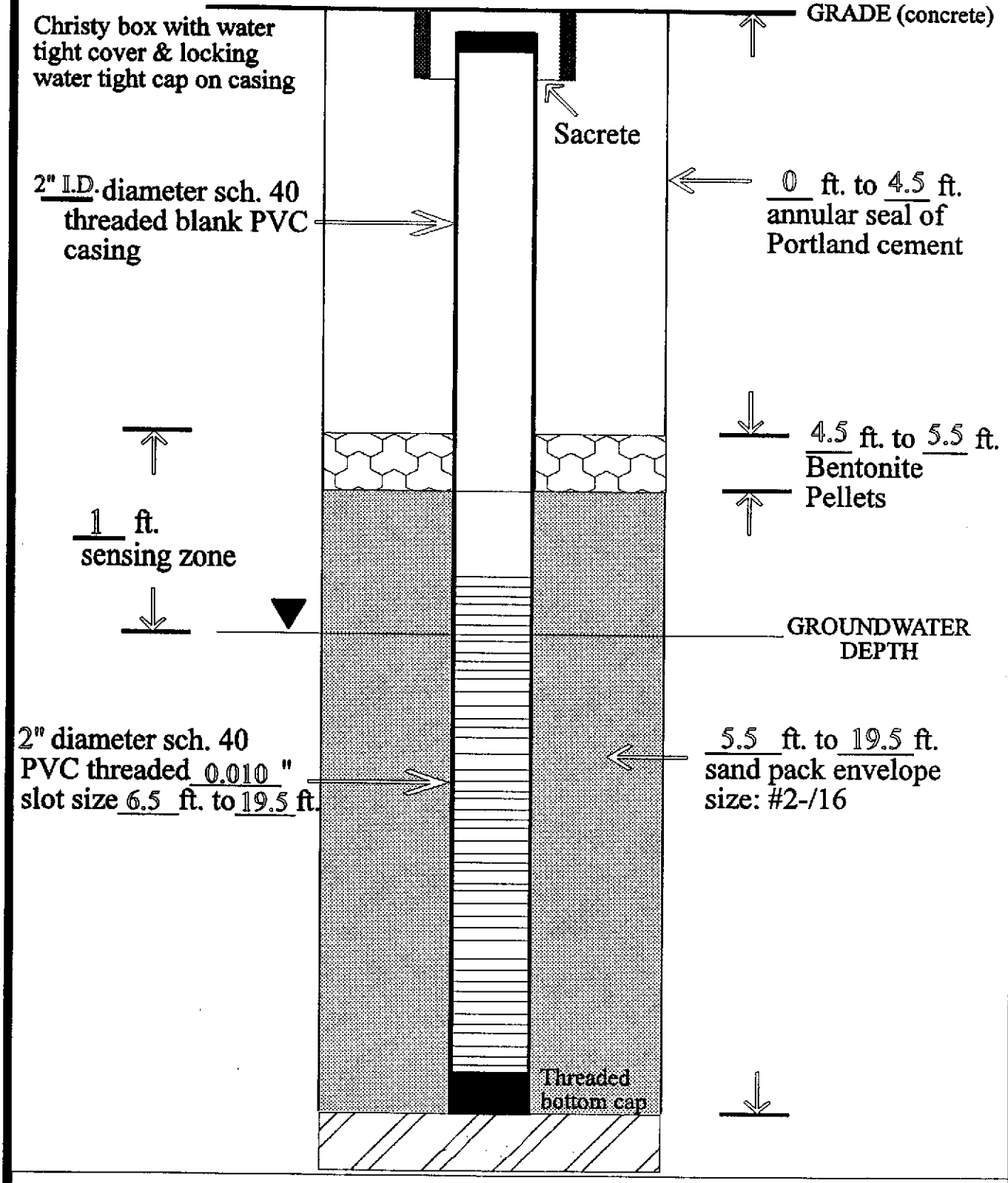
Project # 1-13093 ***Well I.D.*** MW-2 ***Date*** 12/8/94 ***Logger*** TOM GHIGLIOTTO



TMC
Environmental, Inc.

WELL CONSTRUCTION DIAGRAM

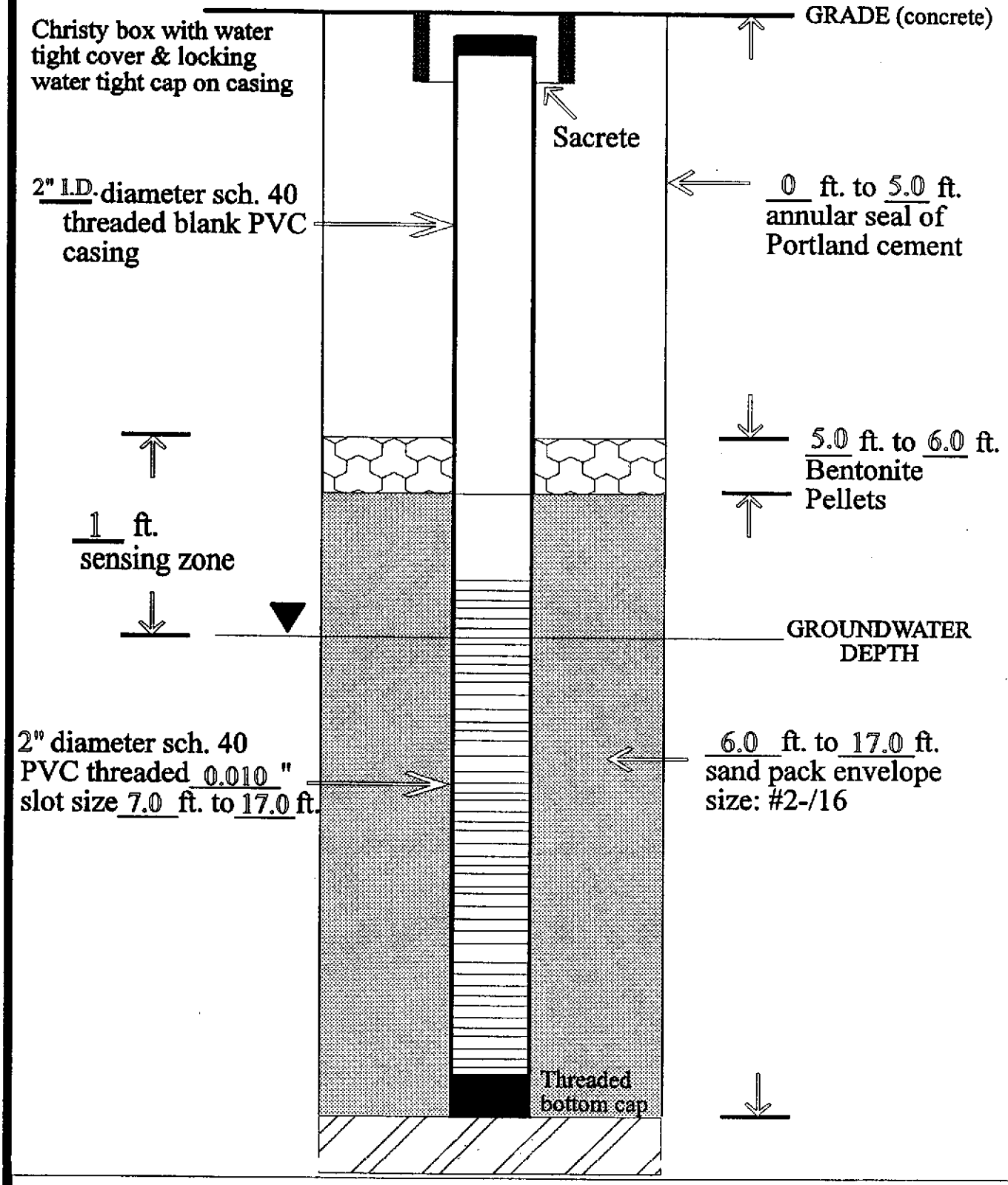
Project # 1-13093 ***Well I.D.*** MW-3 ***Date*** 12/9/94 ***Logger*** TOM GHIGLIOTTO



TMC
Environmental, Inc.

WELL CONSTRUCTION DIAGRAM

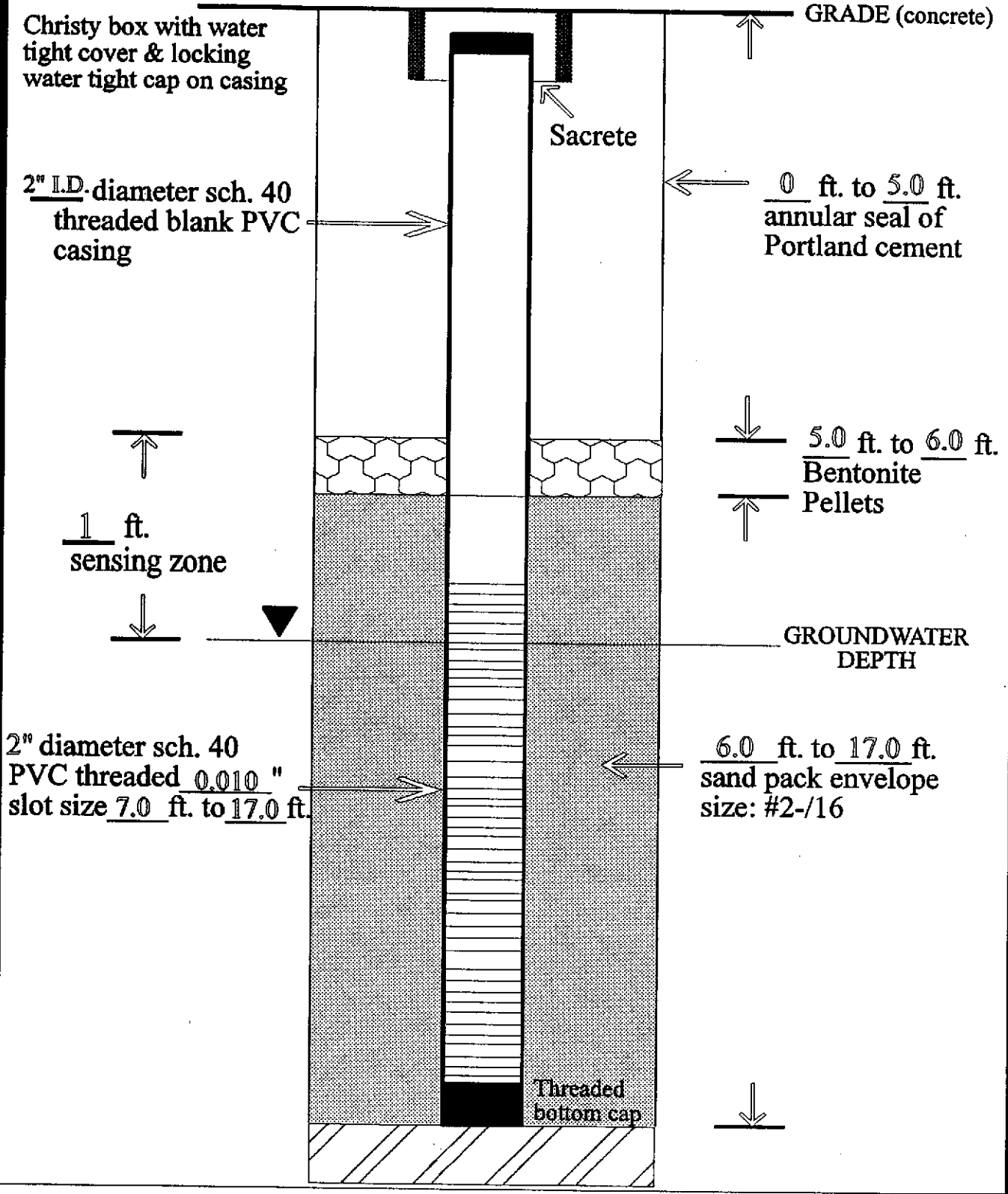
Project # 1-13093 ***Well I.D.*** MW-4 ***Date*** 12/9/94 ***Logger*** TOM GHIGLIOTTO



TMC
Environmental, Inc.

WELL CONSTRUCTION DIAGRAM

Project # 1-13093 ***Well I.D.*** MW-5 ***Date*** 12/9/94 ***Logger*** TOM GHIGLIOTTO



TMC
Environmental, Inc.

WELL CONSTRUCTION DIAGRAM

ATTACHMENT 5

MONITORING WELL DEVELOPMENT RECORDS

RECORD OF WELL DEVELOPEMENT

WELL LABEL: MW-1	DATE DEVELOPED: 12/13/94	JOB NUMBER: 1-13093
JOB NAME: RIFKIN PROPERTY	DEVELOPERS NAME: TOM GHIGLIOTTO & DONALD CHUNG	
LOCATION: 4525-4563 HORTON STREET, EMERYVILLE, CA		

WELL COND: [ ] NEW (PRIOR TO BENTONITE AND GROUT SEAL) [ ] OTHER (describe)
[X] NEW (72 HOURS AFTER CONTRUCTION)

TIME MEASURED	1044					
DEPTH IN FEET (MEASURE TO 0.01')	6.00					

WELL PURGING METHOD

TOTAL DEPTH OF WELL: 15.73	**DEPTH TO WATER:** 6.00	**DIAMETER OF WELL:** 2"

PURGE VOLUME= TOTAL DEPTH- WATER DEPTH X VOLUME FACTOR X 10 VOLUMES = 16.5 GALLONS
VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: NEW DISPOSABLE BAILER	OVA-FID VAPOR READING, ppm :

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY X 1000	VISUAL TURBIDITY	pH
14	1107	59.4	0.80	VERY DARK BROWN, CLOUDY, SHEEN	METER MALFUCNTIONING

PURGE WATER DESCIPTION: [X] SHEEN [X] ODOR [ ] SILTY [ ] CLEAR [ ] OTHER (describe)
[ ] NO SHEEN [ ] NO ODOR

RECORD OF WELL DEVELOPEMENT

WELL LABEL: MW-2	DATE DEVELOPED: 12/13/94	JOB NUMBER: 1-13093
JOB NAME: RIFKIN PROPERTY	DEVELOPERS NAME: TOM GHIGLIOTTO & DONALD CHUNG	
LOCATION: 4525-4563 HORTON STREET, EMERYVILLE, CA		

WELL COND: [ ] NEW (PRIOR TO BENTONITE AND GROUT SEAL) [ ] OTHER (describe)
[X] NEW (72 HOURS AFTER CONTRUCTION)

TIME MEASURED	1156					
DEPTH IN FEET (MEASURE TO 0.01')	6.22					

WELL PURGING METHOD

TOTAL DEPTH OF WELL: 15.04	**DEPTH TO WATER:** 6.22	**DIAMETER OF WELL:** 2"

PURGE VOLUME= TOTAL DEPTH- WATER DEPTH X VOLUME FACTOR X 10 VOLUMES = 15.0 GALLONS
VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: NEW DISPOSABLE BAILER	OVA-FID VAPOR READING, ppm :

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY X 1000	VISUAL TURBIDITY	pH
0	1129	63.1	2.78	TURBID WITH BLACK GLOBS	8.18
8	1209	63.7	1.39	TURBID WITH BLACK GLOBS	METER MALFUNCTIONED

PURGE WATER DESCIPTION: [X] SHEEN [X] ODOR [ ] SILTY [ ] CLEAR [X] OTHER (describe): PRODUCT MIXED WITH WATER
[ ] NO SHEEN [ ] NO ODOR

RECORD OF WELL DEVELOPEMENT

WELL LABEL: MW-3	DATE DEVELOPED: 12/13/94	JOB NUMBER: 1-13093
JOB NAME: RIFKIN PROPERTY	DEVELOPERS NAME: TOM GHIGLIOTTO & DONALD CHUNG	
LOCATION: 4525-4563 HORTON STREET, EMERYVILLE, CA		

WELL COND: [ ] NEW (PRIOR TO BENTONITE AND GROUT SEAL) [ ] OTHER (describe)
[X] NEW (72 HOURS AFTER CONTRUCTION)

TIME MEASURED	1016					
DEPTH IN FEET (MEASURE TO 0.01')	6.41					

WELL PURGING METHOD

TOTAL DEPTH OF WELL: 18.85	**DEPTH TO WATER:** 6.41	**DIAMETER OF WELL:** 2"

PURGE VOLUME= TOTAL DEPTH- WATER DEPTH X VOLUME FACTOR X 10 VOLUMES = 21.1 GALLONS
VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: HONDA PUMP	OVA-FID VAPOR READING, ppm :

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY X 1000	VISUAL TURBIDITY	pH
0	1430	55.9	0.29	CLEAR	6.93
5	1433	59.3	0.48	DARK BROWN	6.96
10	1434	61.6	0.56	DARK BROWN	6.99
15	1436	61.8	0.56	DARK BROWN	7.15
20	1438	62.3	0.60	DARK BROWN	7.35
22	1439	62.8	0.57	DARK BROWN	7.67

PURGE WATER DESCIPTION: [ ] SHEEN [ ] ODOR [X] SILTY [ ] CLEAR [ ] OTHER (describe):
[ ] NO SHEEN [X] NO ODOR

RECORD OF WELL DEVELOPEMENT

WELL LABEL: MW-4	DATE DEVELOPED: 12/13/94	JOB NUMBER: 1-13093
JOB NAME: RIFKIN PROPERTY	DEVELOPERS NAME: TOM GHIGLIOTTO & DONALD CHUNG	
LOCATION: 4525-4563 HORTON STREET, EMERYVILLE, CA		

WELL COND: [ ] NEW (PRIOR TO BENTONITE AND GROUT SEAL) [ ] OTHER (describe)
[X] NEW (72 HOURS AFTER CONTRUCTION)

TIME MEASURED	1522					
DEPTH IN FEET (MEASURE TO 0.01')	7.52					

WELL PURGING METHOD

TOTAL DEPTH OF WELL: 15.92	**DEPTH TO WATER:** 7.52	**DIAMETER OF WELL:** 2"

PURGE VOLUME= TOTAL DEPTH- WATER DEPTH X VOLUME FACTOR X 10 VOLUMES = 14.2 GALLONS
VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: HONDA PUMP	OVA-FID VAPOR READING, ppm :

WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY X 1000	VISUAL TURBIDITY	pH
0	1536	59.3	5.74	CLOUDY, TURBID	METER MALFUNCTIONED
4	1544	61.7	5.90	VERY TURBID	METER MALFUNCTIONED
*6	1548	57.6	7.06	VERY TURBID	METER MALFUNCTIONED
*8	1551	61.8	6.72	VERY TURBID	METER MALFUNCTIONED
*12	1556	62.9	6.64	VERY TURBID	METER MALFUNCTIONED

PURGE WATER DESCIPTION: [ ] SHEEN [X] ODOR [ ] SILTY [ ] CLEAR [*] OTHER (describe): WELL DEWATERED
[ ] NO SHEEN [ ] NO ODOR

RECORD OF WELL DEVELOPEMENT

WELL LABEL: MW-5	DATE DEVELOPED: 12/13/94	JOB NUMBER: 1-13093
JOB NAME: RIFKIN PROPERTY	DEVELOPERS NAME: TOM GHIGLIOTTO & DONALD CHUNG	
LOCATION: 4525-4563 HORTON STREET, EMERYVILLE, CA		

WELL COND: [ ] NEW (PRIOR TO BENTONITE AND GROUT SEAL) [ ] OTHER (describe)
[X] NEW (72 HOURS AFTER CONTRUCTION)

TIME MEASURED	1601					
DEPTH IN FEET (MEASURE TO 0.01')	6.56					

WELL PURGING METHOD

TOTAL DEPTH OF WELL: 16.04	DEPTH TO WATER: 6.56	DIAMETER OF WELL: 2"

PURGE VOLUME= TOTAL DEPTH- WATER DEPTH X VOLUME FACTOR X 10 VOLUMES = 16.1 GALLONS
VOLUME FACTOR = 0.17 FOR 2" CASING; 0.65 FOR 4" CASING; 1.47 FOR 6" CASING

PURGE METHOD: HONDA PUMP AND NEW DISPOSABLE BAILER	OVA-FID VAPOR READING, ppm :

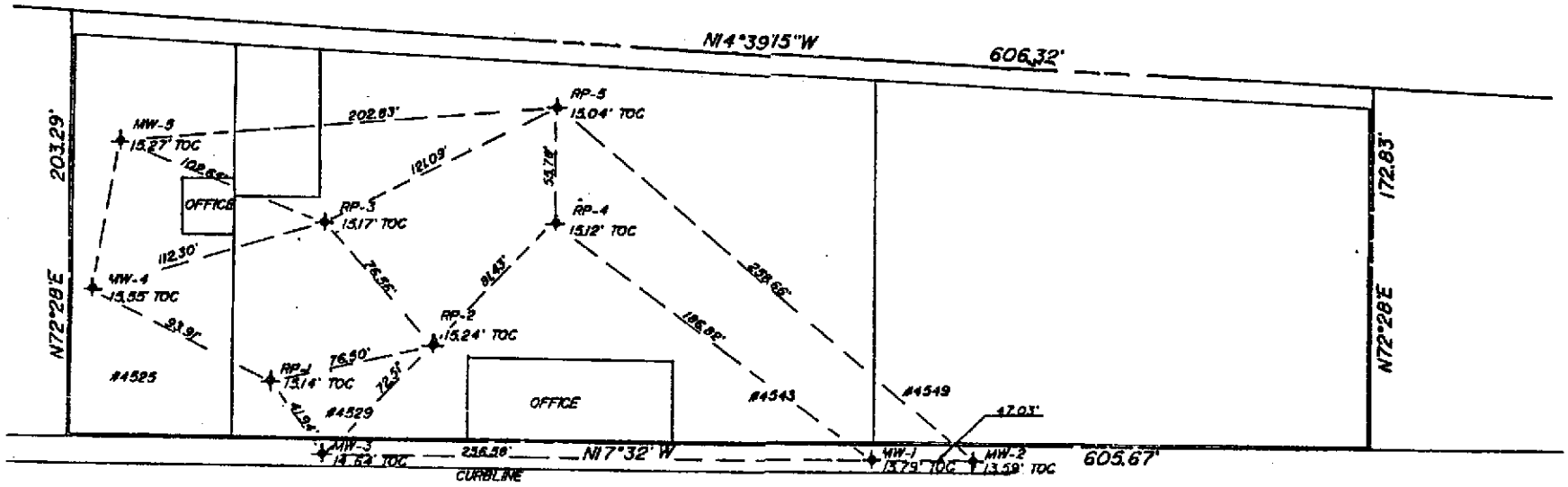
WELL PURGING PARAMETERS

GALLONS	TIME	TEMPERATURE degrees F	CONDUCTIVITY X 1000	VISUAL TURBIDITY	pH
0	1628	57.9	4.12	VERY TURBID	6.93
4	1639	63.4	3.43	EXTREMELY SILTY, TURBID	6.96
12	1644	62.1	3.94	EXTREMELY SILTY, TURBID	6.99
16	1652	61.1	3.36	EXTREMELY SILTY, TURBID	7.15
17	1701	61.3	3.44	EXTREMELY SILTY, TURBID	7.35

PURGE WATER DESCIPTION: [X] SHEEN [X] ODOR [ ] SILTY [ ] CLEAR [X] OTHER (describe): PRODUCT MIXED WITH WATER
[ ] NO SHEEN [ ] NO ODOR

ATTACHMENT 6

MONITORING WELL SURVEY



MONITOR WELLS

4525 - 4549 HORTON ST.
EMERYVILLE, CALIFORNIA

APN - 49 - 1041 - 005

DATE - DECEMBER 19, 1994

SCALE - 1" = 40'

SURVEYOR -
DAVID LOGAN, L.S.5003
(707) 745-5053

BENCHMARK ELEVATION - 13.09' (U.S.G.S.), CAP IN A MONUMENT CASING - SOUTHEAST CORNER OF 53RD ST AND HORTON ST.

LEGEND -

- PROPERTY LINE
- 6" DIAM. WELL
- SURVEY MONUMENT

LICENSED LAND SURVEYOR
DAVID M. LOGAN
STATE OF CALIFORNIA