



1855 GATEWAY BOULEVARD  
SUITE 770  
CONCORD, CALIFORNIA 94520 510 602-2333 FAX# 510 687-1258

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**Transmittal/Memorandum**

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**To:** Ms. Susan Hugo  
Alameda County Department of Environmental Health  
80 Swan Way, Room 350  
Oakland, California 94621

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**From:** Todd Ramsden

**Date:** February 7, 1994

**Subject:** Fourth Quarter Ground Water Monitoring  
Harcros Pigments Plant  
4650 Shellmound Street  
Emeryville, California

**Job No.:** 19801W

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**Remarks:**

Attached please find a copy of the subject report for your files.

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**cc:** Mr. Wayne Groth, Harcros Pigments, Inc.

**FOURTH QUARTER  
GROUND WATER MONITORING**

**Harcros Pigments Plant**  
4650 Shellmound Street  
Emeryville, California

February 7, 1994

*Prepared for:*

**Harcros Pigments**  
Emeryville, California

*Prepared by:*

**ROUX ASSOCIATES**  
1855 Gateway Boulevard, Suite 770  
Concord, California 94520  
(510) 602-2333

**TITLE:** Fourth Quarter Ground Water Monitoring  
Harcros Pigments Plant  
4650 Shellmound Street  
Emeryville, California


**DATE:** February 7, 1994

**PROJECT NO:** HP19801W

**SUBMITTED BY:** Roux Associates  
1855 Gateway Boulevard, Suite 770  
Concord, California 94520

This work was done under the direction of the undersigned California Registered Geologist.

**PREPARED BY:**

  
\_\_\_\_\_  
Todd Ramsden, R.G.  
Project Geologist

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## 1.0 INTRODUCTION

This report presents the findings of the December 1993 quarterly ground water monitoring activities conducted by Roux Associates, Inc., (Roux) at the Harcros Pigments Plant located at 4650 Shellmound Street in Emeryville, California (Site, Figures 1 and 2).

The scope of work for this quarterly ground water monitoring event included:

- Collection of depth to water measurements in monitoring wells RW-2, RW-3, RW-22, RW-29, RW-30 and RW-31;
- Collection of a ground water sample from monitoring well RW-22;
- Submission of the ground water sample collected from monitoring well RW-22 for analysis of volatile organic compounds (VOCs) by USEPA Method 8240.
- Preparation of this report summarizing the results of the quarterly ground water monitoring.

## 2.0 SITE SETTING

The Harcros Pigments Plant, formerly Pfizer Pigments Plant, is located in a predominantly industrial area of Emeryville, California (Figure 1). The plant produces iron oxide pigments and has been in operation since 1925. The Site is on the east side of the San Francisco Bay at an elevation of about seven feet above mean sea level. The current bay shoreline is about 1,000 ft. west of the Harcros Pigments property (USGS, 1980). A 1936 aerial photograph of the plant shows the former shoreline located along the eastern edge of present day Shellmound Street. The Site is underlain by sandy clay and clay of low estimated permeability (Roux, 1990a). The regional direction of ground water flow is to the west, towards the San Francisco Bay (Roux, 1990a).

### **3.0 BACKGROUND**

A total of 12 underground storage tanks (USTs) have been removed from the Site since 1987. One 350-gallon steel UST which contained waste oil and waste solvents was removed from the Site in December 1987 (Roux, 1988). The waste oil tank was located within the waste oil tank pit immediately east of Service Building No. 10 (Figure 2). A total of nine 10,000-gallon diesel tanks and one 10,000-gallon Bunker C fuel oil tank were removed from the tank pit south of Service Building No. 10 in December 1989, (Roux, 1990a). A 1,000-gallon gasoline tank was removed from a tank pit south of Maintenance Shop Building No. 6 in December 1989 (Roux, 1990a).

Two double-wall fiberglass USTs are currently in place and used at the Site. One 10,000-gallon diesel tank and one 1,000-gallon gasoline tank were installed east of Service Building No. 10 by Diablo Tank & Equipment of Martinez, California in September 1989.

In January 1990, Roux staff discovered diesel fuel floating on top of the water column in monitoring wells RW-4 and RW-11 (Roux, 1990b). Wells RW-4 and RW-11 were located near the northeastern corner of Service Building No. 10 (Figure 3). The monitoring wells were within a former waste oil tank pit and were adjacent to the two recently installed USTs and their associated pipelines.

In March and April, 1990, Roux conducted an additional subsurface investigation to determine the extent of diesel fuel contamination surrounding the former waste oil tank pit. The additional investigation included drilling seven soil borings, installing two monitoring wells (RW-22 and RW-23) in the area surrounding the former waste oil tank pit where free phase product was detected, and collecting ground water samples from the wells at the Site. The analytical results of the soil and ground water sampling indicated that the presence of diesel fuel was restricted to the soil and ground water around the former waste oil tank pit (Roux, 1990b). In August 1990, soil containing diesel fuel in the former tank pit area were excavated and transported to a Class II disposal facility

(Roux, 1991a). Monitoring wells RW-4 and RW-11, located in the former tank pit, were abandoned prior to soil excavation. At the request of the Alameda County Department of Environmental Health, two additional monitoring wells, RW-30 and RW-31, were installed in December 1990. These wells were installed for the purpose of monitoring ground water quality in the vicinity of the former waste oil tank pit. Quarterly ground water monitoring of wells RW-2, RW-3, RW-22, RW-29, RW-30 and RW-31 was initiated in January 1991.

Laboratory analyses of ground water samples collected from all six monitoring wells through the four 1991 quarterly sampling events indicated total extractable hydrocarbons, benzene, toluene, ethylbenzene, xylenes, and oil and grease below detection limits for all samples (Table 1). However, unknown hydrocarbons were reported in monitoring wells RW-2, RW-3 and RW-29 during the second quarter sampling event (Roux, 1991b).

All ground water samples collected during the first and third 1991 quarterly sampling events and the ground water sample collected from monitoring well RW-22 during the fourth quarterly sampling event were analyzed for volatile organic compounds (VOCs). Concentrations of VOCs were reported as below the laboratory detection limits from all the ground water samples except RW-22. Cis-1,2-Dichloroethene was detected at a concentration of 5.2 parts per billion ( $\mu\text{g/L}$ ) and 5.3  $\mu\text{g/L}$  in the third and fourth quarters, respectively.

Based on the laboratory data collected during 1991, quarterly sampling was discontinued at this Site with the exception of monitoring well RW-22.

#### **4.0 GROUND WATER SAMPLING**

Field activities for the fourth quarter 1993 ground water sampling took place on December 3, 1993. Depth to ground water measurements were collected from monitoring wells RW-2, RW-3, RW-22, RW-29, RW-30 and RW-31 (Table 2). Data

from RW-22 were used to calculate the volume of water within the well casing. Three well casing volumes of water were removed from well RW-22 using a Teflon bailer prior to collecting a ground water sample.

A ground water sample was collected in a Teflon bailer and poured into two 40-milliliter glass vials for analysis of VOCs. Visual observations of the ground water sample, the measurement of pH, conductivity, and temperature at the time of sample collection were recorded on a well sampling form (Appendix A). The sample vials were labeled and stored on ice in a cooler chest while in transit to the laboratory. Chain-of-Custody documentation was maintained for the sample (Appendix B).

The ground water sample was submitted to Curtis & Tompkins Ltd. Analytical Laboratory of Berkeley, California. The ground water sample was analyzed for Volatile Organic Compounds (VOCs) by USEPA Method 8240.

## **5.0 SUMMARY OF FINDINGS**

### **5.1 Ground Water Flow**

Water levels were measured on December 3, 1993, in six on-site monitoring wells (Table 2). The depth to ground water at the Site has historically been about two to six feet below ground surface (bgs). The depth to ground water measured on December 3, 1993, ranged from 2.60 ft. to 5.90 ft. bgs. Ground water elevations calculated from these water levels indicated the direction of ground water movement at the Site was to the south at a gradient of approximately 0.03 (Figure 4). This flow direction and gradient is generally consistent with historical measurements. The local flow direction towards the south differs from the regional flow direction to the west, possibly due to the influence of Temescal Creek, located about 170 ft. south of Service Building No. 10.



## 5.2 Analytical Results

Laboratory analyses of the ground water sample collected from well RW-22 on December 3, 1993, indicated concentrations of all volatile organic compounds (VOCs) as below the laboratory detection limits.

Table 3 summarizes the laboratory analytical data for the ground water samples collected from well RW-22.

## 5.3 Next Sampling

The next ground water sampling event is tentatively scheduled for March 1994. Ground water samples collected from RW-22 will be analyzed for VOCs by USEPA Method 8240.

## 6.0 REFERENCES

- Roux Associates. 1988. Underground Storage Tank Site Investigation, Pfizer Pigments, Inc., Emeryville, California. August 12, 1988.
- Roux Associates. 1990a. Diesel Fuel Site Investigation, Pfizer Pigments Plant, Emeryville, California. May 2, 1990.
- Roux Associates. 1990b. Work Plan, Site Investigation and Fuel Recovery, Pfizer Pigments Plant, Emeryville, California. March 8, 1990.
- Roux Associates. 1991a. Soil Remediation Report, Harcros Pigments Plant, Emeryville, California. May 6, 1991.
- Roux Associates. 1991b. Second Quarter Ground Water Monitoring, Harcros Pigments Plant, Emeryville, California. July 17, 1991.
- United States Geologic Survey. 1980. Oakland West Quadrangle, California Photo Revised 1980.

## TABLES

**Table 1. Summary of 1991 Quarterly Ground Water Monitoring Analytical Data  
Harcros Pigments Plant, Emeryville, California**

Monitoring Well Number	Date	TEH-K	TEH-D	TEH-M	BTEX	VOCs	O&G
RW-2	1/8/91	ND	ND	NA	NA	ND	NA
	4/9/91	ND	ND	ND	ND	NA	NA
	7/11/91	ND	ND	NA	NA	ND	NA
	10/3/91	ND	ND	NA	ND	NA	NA
RW-3	1/8/91	ND	ND	NA	NA	ND	NA
	4/9/91	ND	ND	ND	ND	NA	NA
	7/11/91	ND	ND	NA	NA	ND	NA
	10/3/91	ND	ND	NA	ND	NA	NA
RW-22	1/8/91	ND	ND	NA	NA	ND	NA
	4/9/91	ND	ND	ND	ND	NA	NA
	7/11/91	ND	ND	NA	NA	5.2*	NA
	10/3/91	ND	ND	NA	NA	5.3*	NA
RW-29	1/8/91	NA	NA	NA	NA	ND	NA
	4/9/91	ND	ND	ND	ND	NA	ND
	7/11/91	ND	ND	NA	NA	ND	NA
	10/3/91	ND	ND	NA	ND	NA	NA
RW-30	1/8/91	NA	NA	NA	NA	ND	NA
	4/9/91	ND	ND	ND	ND	NA	NA
	7/11/91	ND	ND	NA	NA	ND	NA
	10/3/91	ND	ND	NA	ND	NA	NA
RW-31	1/8/91	NA	NA	NA	NA	ND	NA
	4/9/91	ND	ND	ND	ND	ND	NA
	7/11/91	ND	ND	NA	NA	ND	NA
	10/3/91	ND	ND	NA	ND	NA	NA

**Footnotes:**

All detected concentrations reported in micrograms per liter (= parts per billion).

TEH-K = Total Extractable Hydrocarbons as Kerosene by USEPA Method 8015.

TEH-D = Total Extractable Hydrocarbons as Diesel by USEPA Method 8015.

TEH-M = Total Extractable Hydrocarbons as Motor Oil by USEPA Method 8015.

BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes by USEPA Method 8020.

VOCs = Volatile Organic Compounds by USEPA Method 8240.

O&G = Oil and Grease by Standard Method 5520 B&F.

ND = Not detected.

NA = Not analyzed.

\*Analytical result for cis-1,2-Dichloroethene. No other VOC analytes detected.

Quarterly monitoring for all wells except RW-22 was discontinued after 1991.

Analytical data for RW-22 is summarized on Table 3.

**Table 2. Summary of Ground Water Elevation Data  
Harcros Pigments Plant, Emeryville, California**

Monitoring Well Number	Date	Measuring Point Elevation (1)	Depth to Water (2)	Ground Water Elevation (1)
RW-2	1/8/91	6.84	4.93	1.91
	4/9/91	6.84	3.50	3.34
	7/11/91	6.84	4.05	2.79
	10/3/91	6.84	4.14	2.70
	2/14/92	6.84	3.00	3.84
	5/13/92	6.84	4.42	2.42
	8/28/92	6.84	4.43	2.41
	11/30/92	6.84	4.55	2.29
	3/2/93	6.84	3.93	2.91
	5/19/93	6.84	4.63	2.21
	9/2/93	6.84	-	-
	12/3/93	6.84	4.60	2.24
	RW-3	1/8/91	7.38	4.00
4/9/91		7.38	3.13	4.25
7/11/91		7.38	3.58	3.80
10/3/91		7.38	3.60	3.78
2/14/92		7.38	2.93	4.45
5/13/92		7.38	3.68	3.70
8/28/92		7.38	3.69	3.69
11/30/92		7.38	3.43	3.95
3/2/93		7.38	2.86	4.52
5/19/93		7.38	3.10	4.28
9/2/93		7.38	3.59	3.79
12/3/93		7.38	3.29	4.09
RW-22		1/8/91	7.42	4.04
	4/9/91	7.42	3.53	3.89
	7/11/91	7.42	4.02	3.40
	10/3/91	7.42	3.92	3.50
	2/14/92	7.42	3.06	4.36
	5/13/92	7.42	3.96	3.46
	8/28/92	7.42	3.95	3.47
	11/30/92	7.42	3.79	3.63
	3/2/93	7.42	3.06	4.36
	5/19/93	7.42	4.49	2.93
	9/2/93	7.42	3.95	3.47
	12/3/93	7.42	3.72	3.70

Footnotes:

- (1) Elevation in feet relative to Emeryville datum.
- (2) Depth in feet below measuring point.

**Table 2. Summary of Ground Water Elevation Data  
Harcros Pigments Plant, Emeryville, California**

Monitoring Well Number	Date	Measuring Point Elevation (1)	Depth to Water (2)	Ground Water Elevation (1)
RW-29	1/8/91	7.01	5.68	1.33
	4/9/91	7.01	3.95	3.06
	7/11/91	7.01	4.63	2.38
	10/3/91	7.01	4.71	2.30
	2/14/92	7.01	3.68	3.33
	5/13/92	7.01	5.55	1.46
	8/28/92	7.01	5.62	1.39
	11/30/92	7.01	5.78	1.23
	3/2/93	7.01	4.83	2.18
	5/19/93	7.01	5.90	1.11
	9/2/93	7.01	6.13	0.88
	12/3/93	7.01	5.90	1.11
RW-30	1/8/91	7.51	4.23	3.28
	4/9/91	7.51	3.24	4.27
	7/11/91	7.51	3.80	3.71
	10/3/91	7.51	3.93	3.58
	2/14/92	7.51	2.99	4.52
	5/13/92	7.51	3.36	4.15
	8/28/92	7.51	3.83	3.68
	11/30/92	7.51	3.09	4.42
	3/2/93	7.51	3.02	4.49
	5/19/93	7.51	3.05	4.46
	9/2/93	7.51	3.81	3.70
	12/3/93	7.51	3.20	4.31
RW-31	1/8/91	7.08	3.43	3.65
	4/9/91	7.08	2.57	4.51
	7/11/91	7.08	3.07	4.01
	10/3/91	7.08	3.13	3.95
	2/14/92	7.08	2.14	4.94
	5/13/92	7.08	3.11	3.97
	8/28/92	7.08	3.16	3.92
	11/30/92	7.08	2.83	4.25
	3/2/93	7.08	1.83	5.25
	5/19/93	7.08	2.40	4.68
	9/2/93	7.08	2.90	4.18
	12/3/93	7.08	2.60	4.48

**Footnotes:**

- (1) Elevation in feet relative to Emeryville datum.
- (2) Depth in feet below measuring point.

**Table 3. Summary of Monitoring Well RW-22 Ground Water Analytical Data  
Harcros Pigments Plant, Emeryville, California**

Monitoring Well Number	Date	cis-1,2-Dichloroethene (1)	trans-1,2-Dichloroethene (1)	Volatile Organic Compounds (1)
RW-22	1/8/91	ND	ND	ND
	4/9/91	NA	NA	NA
	7/11/91	5.2	ND	ND
	10/3/91	5.3	ND	ND
	2/14/92	5.6	5.3	ND
	5/13/92	ND	ND	ND
	8/28/92	7.0	6.0	ND
	11/30/92	6.0	5.0	ND
	3/2/93	ND	ND	ND
	5/19/93	ND	ND	ND
	9/2/93	ND	ND	ND
	12/3/93	ND	ND	ND

**Footnotes:**

(1) Analyzed by USEPA Method 8240.

All detected concentrations reported in micrograms per liter.

ND = Not detected. Detection limit = 5 ug/L.

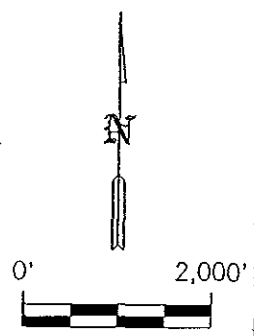
NA = Not analyzed.

**FIGURES**

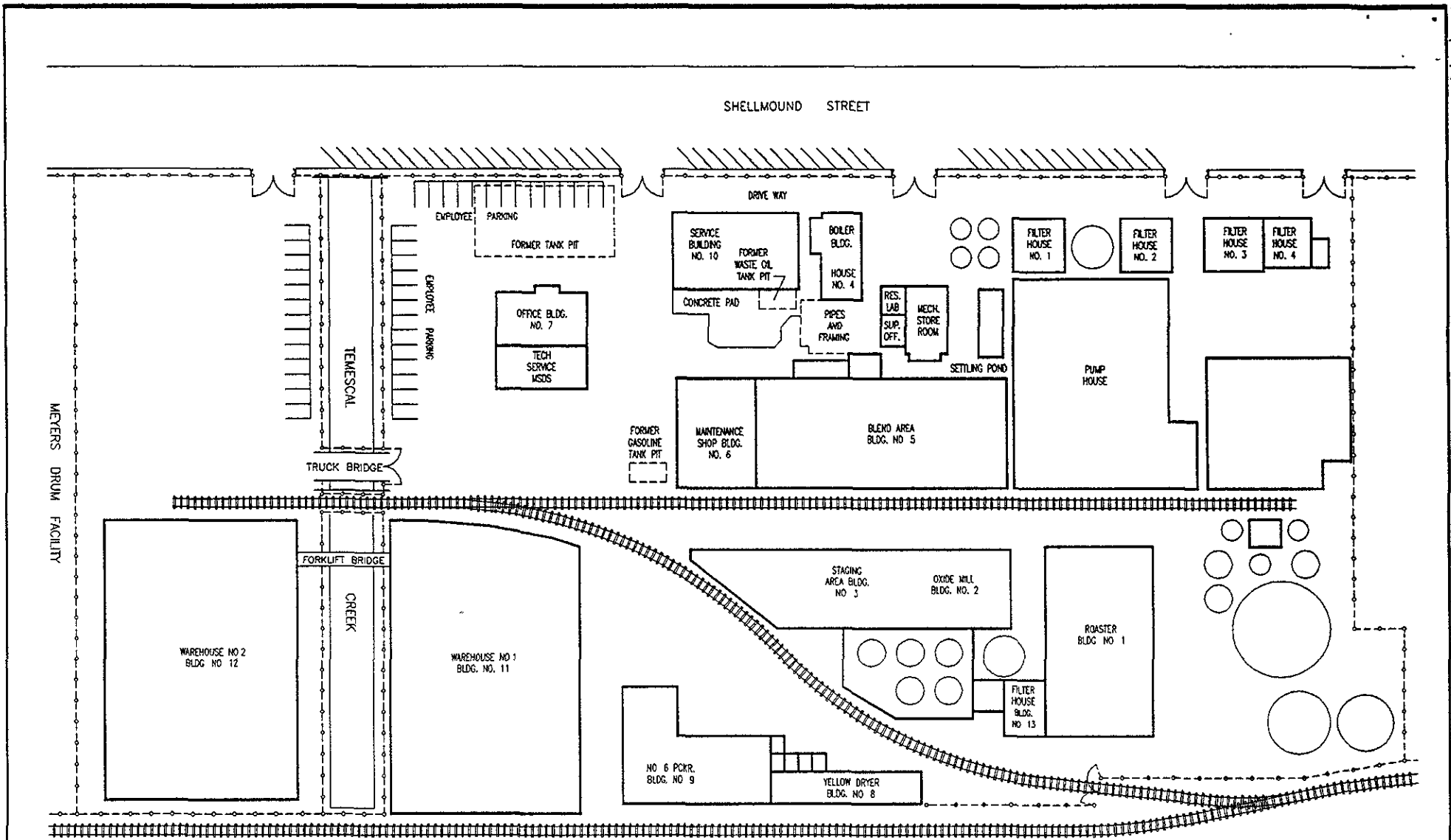




SOURCE:  
 USGS 7.5 MINUTE QUADRANGLE  
 OAKLAND WEST, CALIFORNIA, 1980.



TITLE:		LOCATION OF SITE	
PREPARED FOR:		HARCROS PIGMENTS, INC.	
<b>ROUX</b> ROUX ASSOCIATES ENVIRONMENTAL CONSULTING & MANAGEMENT	COMPILED BY:	J.F.	DATE: 01/92
	PREPARED BY:	R.P.	SCALE: AS SHOWN
	PROJECT MANAGER:	P.S.	REVISION: 0
	PROJECT NO.	19801W	FILE #, 19801W01
			FIGURE <b>1</b>

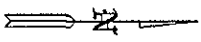



SHELLMOUND STREET

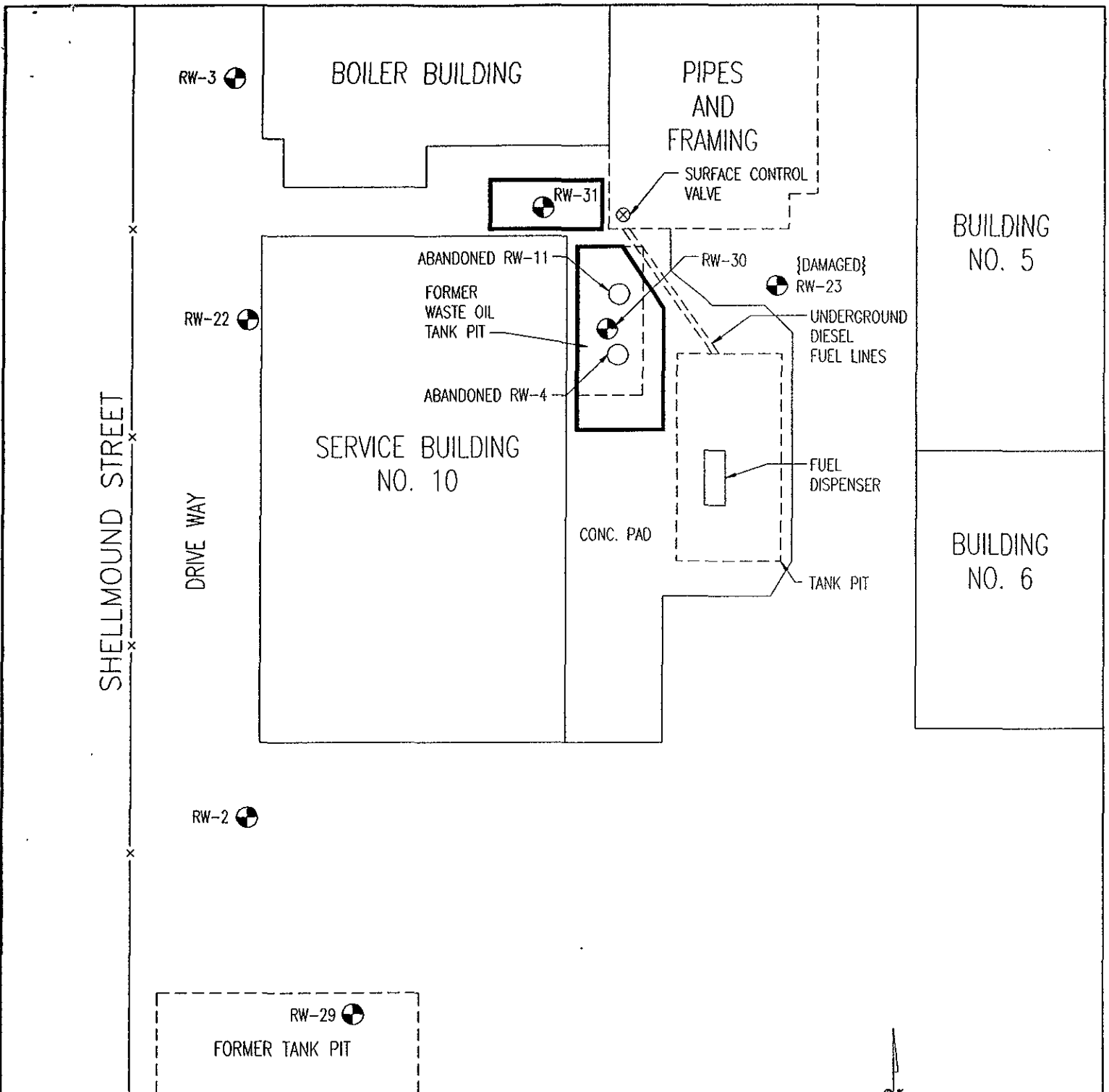
MEYERS DRUM FACILITY

SOUTHERN PACIFIC RAILROAD PROPERTY

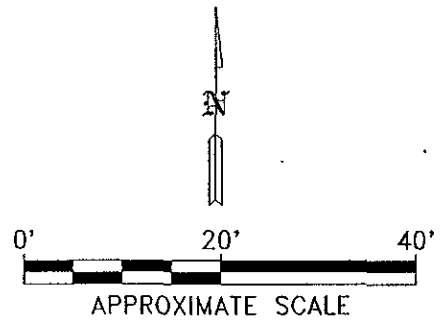
SOURCE NOTE:  
 MAP MODIFIED FROM EMERYVILLE PAINT MAP  
 PROVIDED BY HARCROS PIGMENTS, INC.



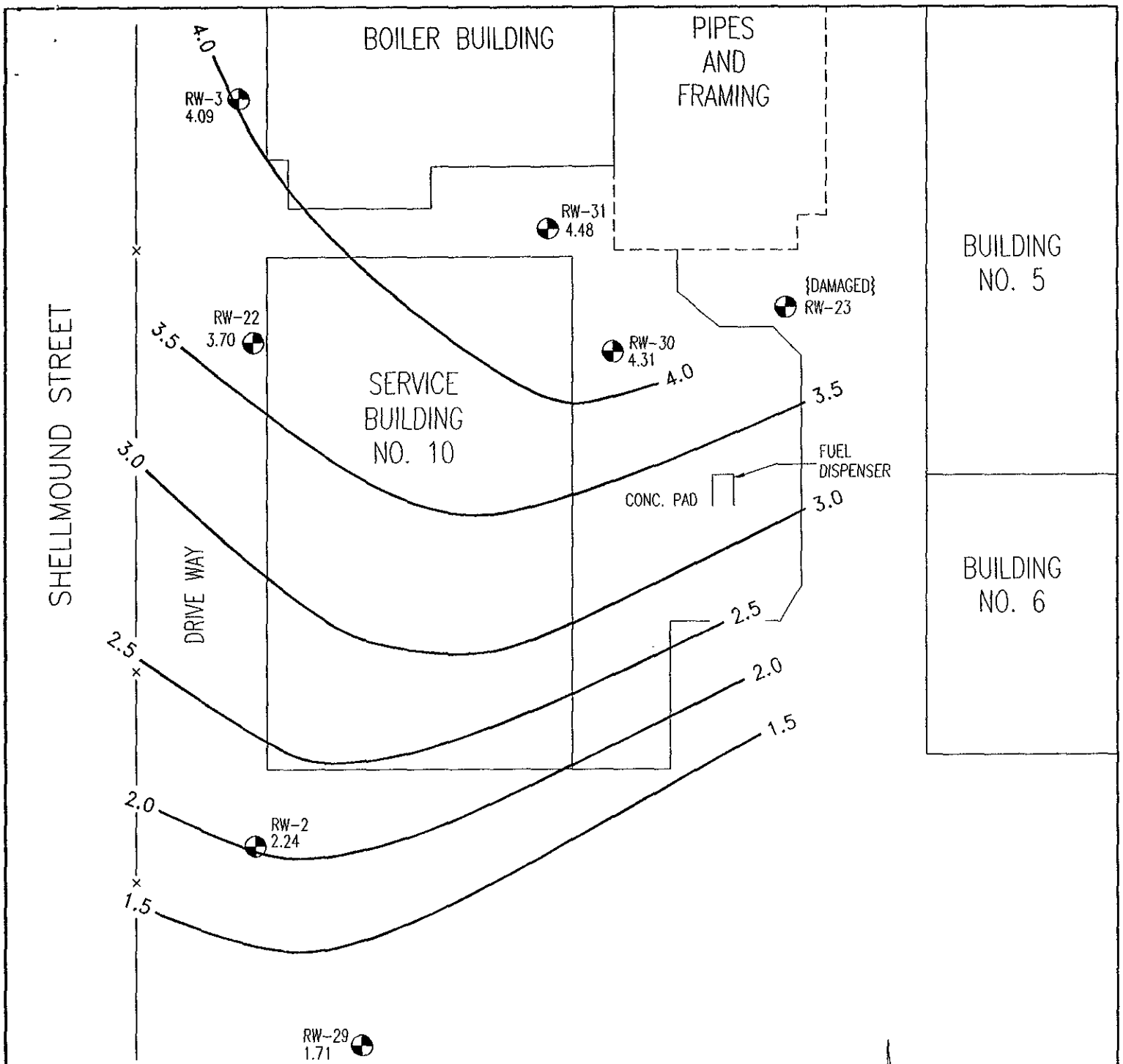
 <b>ROUX ASSOCIATES</b> ENVIRONMENTAL CONSULTING & MANAGEMENT	COMPILED BY: P.S.	PREPARED FOR:	HARCROS PIGMENTS INC.	FIGURE	
	PREPARED BY: O.D.		EMERYVILLE, CA		
	PROJECT MNGR. P.S.	TITLE:	SITE PLAN		2
	DATE: 07/92		EMERYVILLE, CA		
	SCALE: AS SHOWN				
	PROJECT NO. 19801W01				
FILE NAME: 19801W2B					



- EXPLANATION**
- RW-2 MONITORING WELL LOCATION AND DESIGNATION
  - RW-11 FORMER MONITORING WELL LOCATION AND DESIGNATION
  - APPROXIMATE AREA OF EXCAVATION



	COMPILED BY: K.B	PREPARED FOR: HARCROS PIGMENTS, INC.	FIGURE  3
	PREPARED BY: R.P.	TITLE:	
	PROJECT MNGR. T.R.	LOCATION OF MONITORING WELLS AND FORMER TANK PITS	
	DATE: 03/93		
	SCALE: AS SHOWN		
	PROJECT NO. 19801W		
FILE NAME: 19801QM1			



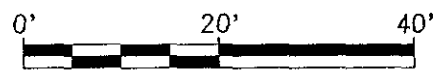
**EXPLANATION:**



RW-2 3.47 MONITORING WELL LOCATION AND DESIGNATION WITH GROUND WATER ELEVATIONS IN FEET (ABOVE MEAN SEA LEVEL).



4.0 LINE OF EQUAL GROUND WATER ELEVATION.(DASHED WHERE INFERRED).



APPROXIMATE SCALE



COMPILED BY:	T.R.
PREPARED BY:	R.P.
PROJECT MNGR.	T.R.
DATE:	05/93
SCALE:	AS SHOWN
PROJECT NO.	19801W
FILE NAME:	19801QM1

PREPARED FOR:	HARCROS PIGMENTS, INC.
TITLE	ELEVATION OF GROUND WATER DECEMBER 3, 1993

FIGURE

4

## **APPENDICES**

**APPENDIX A**  
**Well Sampling Data Forms**

# GROUND WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 1980W  
 CLIENT/STATION #: Hercros Pigments

WELL ID: RW-22  
 ADDRESS: 4650 Shellmound St.

CASING DIAMETER (inches):    2    3    4    6    8    12    Other \_\_\_\_\_  
 GALLON/LINEAR FOOT:        0.17    0.38    0.66    1.5    2.6    5.8    Other \_\_\_\_\_

TD 13.4 - DTW 3.72 X  $\frac{\text{GALLON}}{\text{LINEAR FT.}}$  .66 X  $\frac{\text{CASING VOLUME}}{\text{VOLUME}}$  3 =  $\frac{\text{CALCULATED PURGE}}$  19.5    ACTUAL PURGE 20

DATE PURGED: 12/3/93    START (2400 Hr) 1155    END (2400 Hr) 1220  
 DATE SAMPLED: 12/3/93    START (2400 Hr) 1225    END (2400 Hr) \_\_\_\_\_

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1155</u>	<u>5</u>	<u>7.30</u>	<u>1440</u>	<u>66</u>	<u>Slightly cloudy</u>	<u>low</u>
<u>1203</u>	<u>10</u>	<u>6.93</u>	<u>1480</u>	<u>65.2</u>	<u>11</u>	<u>low</u>
<u>1210</u>	<u>15</u>	<u>6.97</u>	<u>1500</u>	<u>64.8</u>	<u>11</u>	<u>low</u>
<u>1220</u>	<u>20</u>	<u>6.96</u>	<u>1450</u>	<u>66.6</u>	<u>clear</u>	<u>low</u>

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): \_\_\_\_\_

**PURGING EQUIPMENT**

- 2" Bladder Pump
- Centrifugal Pump
- Submersible Pump
- Dedicated

- Bailer (Teflon®)
- Bailer (PVC)
- Bailer (Stainless Steel)

Other: \_\_\_\_\_

**SAMPLING EQUIPMENT**

- 2" Bladder Pump
- DDL Sampler
- Dipper
- Bailer Disposable

- Bailer (Teflon®)
- Bailer (Stainless Steel)
- Submersible Pump
- Dedicated

Other: \_\_\_\_\_

REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

PRINT NAME: Linda Dorn  
 SIGNATURE: Linda Dorn

**APPENDIX B**

**Chain-of-Custody Documentation**



11-424



### CHAIN OF CUSTODY

No 00578

Ground-Water Consultants <b>ROUX ASSOCIATES INC</b>		1855 Graveney Blvd. Suite 770 Concord, MA 01740 517/687/2333 517/687/1258		ANALYSES					PAGE	OF
PROJECT NAME Harcros		PROJECT NUMBER 19801W		SAMPLE MATRIX USEPA Method 8040					TOTAL BOTTLES	
PROJECT LOCATION Emergville										
SAMPLER(S) L. Down										
SAMPLE DESIGNATION/LOCATION	DATE COLLECTED	TIME COLLECTED							PRESERVATION	
RW22	12/3/93	12:45	water	X					2 HCL	
SAMPLER'S RELINQUISHED BY: (SIGNATURE) <i>Todd Humsden</i>		FOR	DATE	TIME	SEAL INTACT Y OR N	RECEIVED BY: (SIGNATURE) <i>May Plesian</i>	FOR	DATE	TIME	SEAL INTACT Y OR N
RELINQUISHED BY: (SIGNATURE)		FOR	DATE	TIME	SEAL INTACT Y OR N	RECEIVED BY: (SIGNATURE)	FOR	DATE	TIME	SEAL INTACT Y OR N
RELINQUISHED BY: (SIGNATURE)		FOR	DATE	TIME	SEAL INTACT Y OR N	RECEIVED BY: (SIGNATURE)	FOR	DATE	TIME	SEAL INTACT Y OR N
DELIVERY METHOD		COMMENTS Please report ND if results are lower than Reporting Limit. Project Manager is Todd Humsden 10 Day TAT								
ANALYTICAL LABORATORY										

**APPENDIX C**

**Laboratory Analytical Reports**

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Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

Roux Associates  
1855 Gateway Boulevard  
Suite 770  
Concord, CA 94520

Date: 16-DEC-93  
Lab Job Number: 113424  
Project ID: 19801W  
Location: Harcos Diesel

Reviewed by: 

Reviewed by: 

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LABORATORY NUMBER: 113424-001  
 CLIENT: ROUX ASSOCIATES  
 PROJECT ID: 19801W  
 LOCATION: HARCROS DIESEL  
 SAMPLE ID: RW22

DATE SAMPLED: 12/03/93  
 DATE RECEIVED: 12/03/93  
 DATE ANALYZED: 12/06/93  
 DATE REPORTED: 12/16/93

EPA METHOD 8240: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Reporting Limit (ug/L)
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	20
Acetone	ND	20
Carbon disulfide	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
trans-1,2-Dichloroethene	ND	5
cis-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
2-Butanone	ND	10
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Vinyl acetate	ND	50
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethene	ND	5
Dibromochloromethane	ND	5
1,1,2-Trichloroethane	ND	5
Benzene	ND	5
trans-1,3-Dichloropropene	ND	5
Bromoform	ND	5
2-Hexanone	ND	10
4-Methyl-2-pentanone	ND	10
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
Chlorobenzene	ND	5
Ethyl benzene	ND	5
Styrene	ND	5
Total xylenes	ND	5

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

---

1,2-Dichloroethane-d4	104 %
Toluene-d8	97 %
Bromofluorobenzene	92 %



LABORATORY NUMBER: 113424 METHOD BLANK  
CLIENT: ROUX ASSOCIATES  
PROJECT ID: 19801W  
LOCATION: HARCROS DIESEL

DATE SAMPLED: N/A  
DATE RECEIVED: N/A  
DATE ANALYZED: 12/06/93  
DATE REPORTED: 12/16/93

## EPA METHOD 8240: VOLATILE ORGANICS IN WATER

COMPOUND	Result ug/L	Reporting Limit (ug/L)
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	20
Acetone	ND	20
Carbon disulfide	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
trans-1,2-Dichloroethene	ND	5
cis-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
2-Butanone	ND	10
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Vinyl acetate	ND	50
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethene	ND	5
Dibromochloromethane	ND	5
1,1,2-Trichloroethane	ND	5
Benzene	ND	5
trans-1,3-Dichloropropene	ND	5
Bromoform	ND	5
2-Hexanone	ND	10
4-Methyl-2-pentanone	ND	10
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
Chlorobenzene	ND	5
Ethyl benzene	ND	5
Styrene	ND	5
Total xylenes	ND	5

ND = Not detected at or above reporting limit

## QA/QC SUMMARY: SURROGATE RECOVERIES

---

1,2-Dichloroethane-d4	100 %
Toluene-d8	102 %
Bromofluorobenzene	99 %



## MS/MSD Report

Matrix Sample Number: 113420-001  
 Lab No: QC53662 QC53663  
 Matrix: WATER  
 Batch No: 11761 939587 939588 939581

Date Analyzed: 06-DEC-93  
 Spike File: >BL614  
 Spike Dup File: >BL615  
 Analyst: CW

	Instrdrg	SpikeAmt	% Rec	Limits
<u>MS RESULTS</u>				
1,1-Dichloroethene	45.39	50	91 %	61-145%
Trichloroethene	49.13	50	98 %	71-120%
Benzene	47.81	50	94 %	76-127%
Toluene	42.47	50	85 %	76-125%
Chlorobenzene	49.74	50	100 %	75-130%
Surrogate Recoveries				
1,2-Dichloroethane-d4	52.51	50	105 %	76-114%
Toluene-d8	47.53	50	95 %	88-110%
Bromofluorobenzene	47.54	50	95 %	86-115%
<u>MSD RESULTS</u> <i>outside 12 hours</i>				
1,1-Dichloroethene	50.43	50	101 %	61-145%
Trichloroethene	48.72	50	97 %	71-120%
Benzene	45.81	50	90 %	76-127%
Toluene	45.64	50	91 %	76-125%
Chlorobenzene	48.88	50	98 %	75-130%
Surrogate Recoveries				
1,2-Dichloroethane-d4	52.2	50	104 %	76-114%
Toluene-d8	50.28	50	101 %	88-110%
Bromofluorobenzene	49.02	50	98 %	86-115%
<u>MATRIX RESULTS</u>				
1,1-Dichloroethene	0			
Trichloroethene	0			
Benzene	.708			
Toluene	0			
Chlorobenzene	0			
<u>RPD DATA</u>				
1,1-Dichloroethene	11 %			< 14%
Trichloroethene	1 %			< 14%
Benzene	4 %			< 11%
Toluene	7 %			< 13%
Chlorobenzene	2 %			< 13%

Results within Specifications - PASS

CW 12/7/93