



A.L.C.U.  
HAZMAT  
9:11 NOV 18 PM 3:23



**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:** Gregory Murphy, R.G.

**Date:** November 8, 1994

**Subject:** Second Semi-Annual 1994 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.

---

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

ALCO  
HAZMAT

94 NOV 18 PM 3:23

**SECOND SEMI-ANNUAL 1994  
GROUND WATER MONITORING**

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

October 18, 1994

*Prepared for:*

**Harcros Pigments**  
Emeryville, California

*Prepared by:*

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

**ROUX**

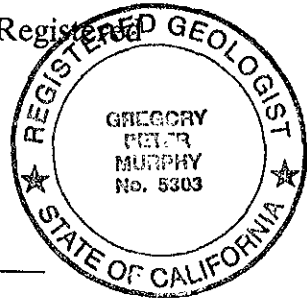
**TITLE:** Second Semi-Annual 1994 Ground Water Monitoring  
Harcros Pigments Plant  
4650 Shellmound Street  
Emeryville, California

**DATE:** October 18, 1994

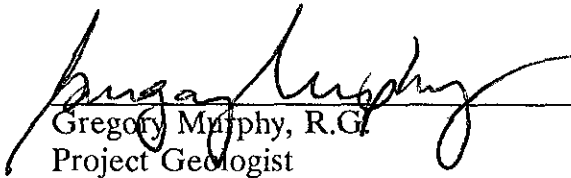
**PROJECT NO:** HP19801W

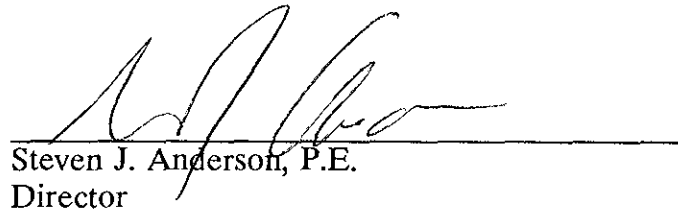
**SUBMITTED BY:** Roux Associates, Inc.  
1855 Gateway Boulevard, Suite 770  
Concord, California 94520

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



**PREPARED BY:**

  
\_\_\_\_\_  
Gregory Murphy, R.G.  
Project Geologist

  
\_\_\_\_\_  
Steven J. Anderson, P.E.  
Director

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## 1.0 INTRODUCTION

This report presents the findings of the September 1994 semi-annual 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 semi-annual 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; and
- Preparation of this report summarizing the results of the semi-annual 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 was 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. In June, 1994, the Alameda County Department of Environmental Health approved a semi-annual monitoring schedule for well RW-22.



#### 4.0 GROUND WATER SAMPLING

Field activities for the second semi-annual 1994 ground water sampling took place on September 27, 1994. 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 needed to purge prior to sampling. Three well casing volumes of water were removed from well RW-22 using a PVC bailer.

A ground water sample was collected in a disposable 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 was recorded on a well sampling data 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 September 27, 1994, 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 September 27, 1994, ranged from 2.53 ft. to 6.32 ft. bgs. Ground water elevations calculated from these water levels indicated the direction of ground water movement at the Site was to the southwest at a gradient of about 0.04 (Figure 4). This flow direction and gradient is generally consistent with historical measurements. The local flow direction towards the southwest 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 September 27, 1994, indicate all volatile organic compounds (VOCs) are 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 1995. 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
	3/4/94	6.84	4.18	2.66
	9/27/94	6.84	4.99	1.85
RW-3	1/8/91	7.38	4.00	3.38
	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
	3/4/94	7.38	3.19	4.19
	9/27/94	7.38	3.74	3.64

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-22	1/8/91	7.42	4.04	3.38
	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
	3/4/94	7.42	3.46	3.96
	9/27/94	7.42	4.09	3.33
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
	3/4/94	7.01	5.36	1.65
	9/27/94	7.01	6.32	0.69

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-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
	3/4/94	7.51	2.71	4.80
	9/27/94	7.51	3.90	3.61
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
	3/4/94	7.08	1.98	5.10
	9/27/94	7.08	2.53	4.55

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
	3/4/94	ND	ND	ND
	9/27/94	ND	ND	ND

Footnotes:

(1) Analyzed by USEPA Method 8240.

All detected concentrations reported in micrograms per liter.

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

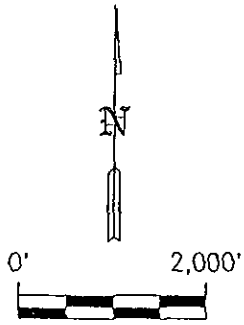
NA = Not analyzed.

**FIGURES**



**SOURCE:**

USGS 7.5 MINUTE QUADRANGLE  
OAKLAND WEST, CALIFORNIA, 1980.



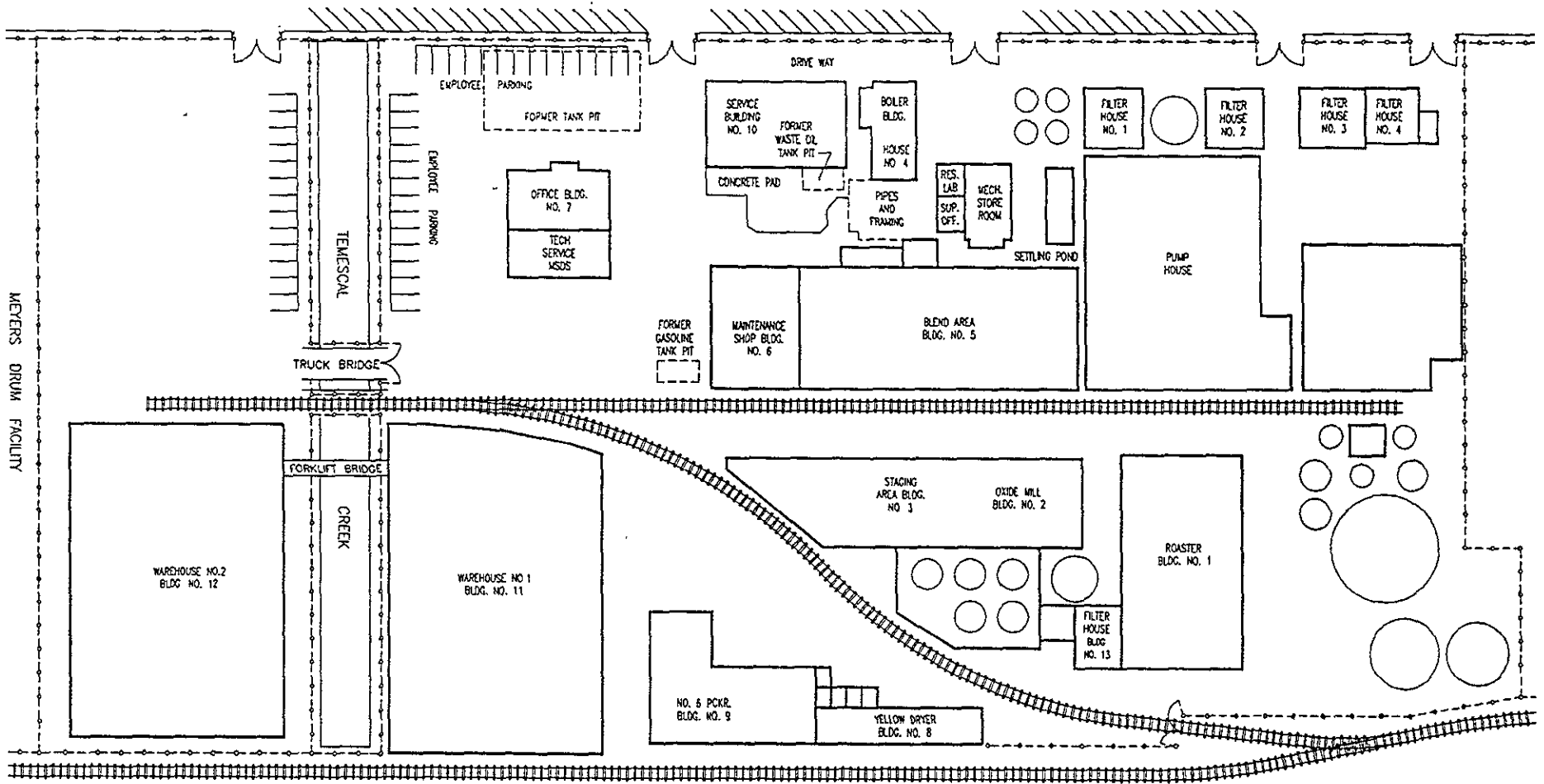
TITLE:

**LOCATION OF SITE**

PREPARED FOR:  
**HARCROS PIGMENTS, INC.**

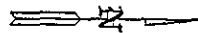
<b>ROUX</b> ROUX ASSOCIATES ENVIRONMENTAL CONSULTING & MANAGEMENT	COMPILED BY: J.F.	DATE: 01/92	FIGURE <b>1</b>
	PREPARED BY: R.P.	SCALE: AS SHOWN	
	PROJECT MANAGER: P.S.	REVISION: 0	
	PROJECT NO. 19801W	FILE #: 19801W01	

SHELLMOUND STREET



SOUTHERN PACIFIC RAILROAD PROPERTY

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



**ROUX**  
 ROUX ASSOCIATES  
 ENVIRONMENTAL CONSULTING  
 & MANAGEMENT

COMPILED BY: P.S.  
 PREPARED BY: D.D.  
 PROJECT MNGR. P.S.  
 DATE: 07/92  
 SCALE: AS SHOWN  
 PROJECT NO. 19801W01  
 FILE NAME: 19801W2B

PREPARED FOR:  
 HARCROS PIGMENTS INC.  
 EMERYVILLE, CA  
 TITLE:

HARCROS PIGMENTS INC.  
 EMERYVILLE, CA

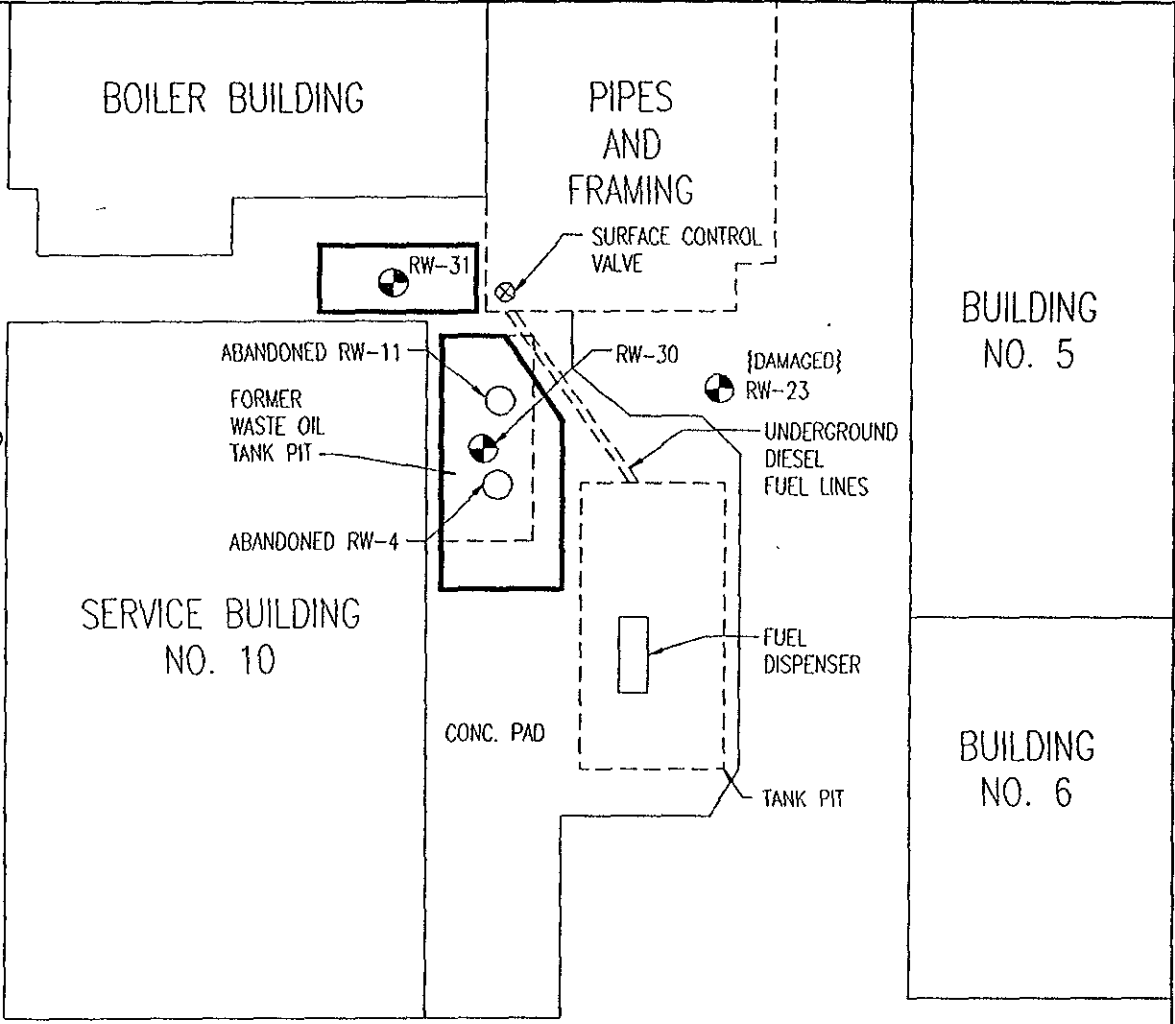
SITE PLAN  
 EMERYVILLE, CA

FIGURE

2

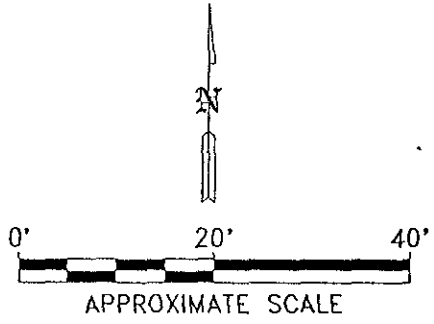
SHELLMOUND STREET

DRIVE WAY



EXPLANATION

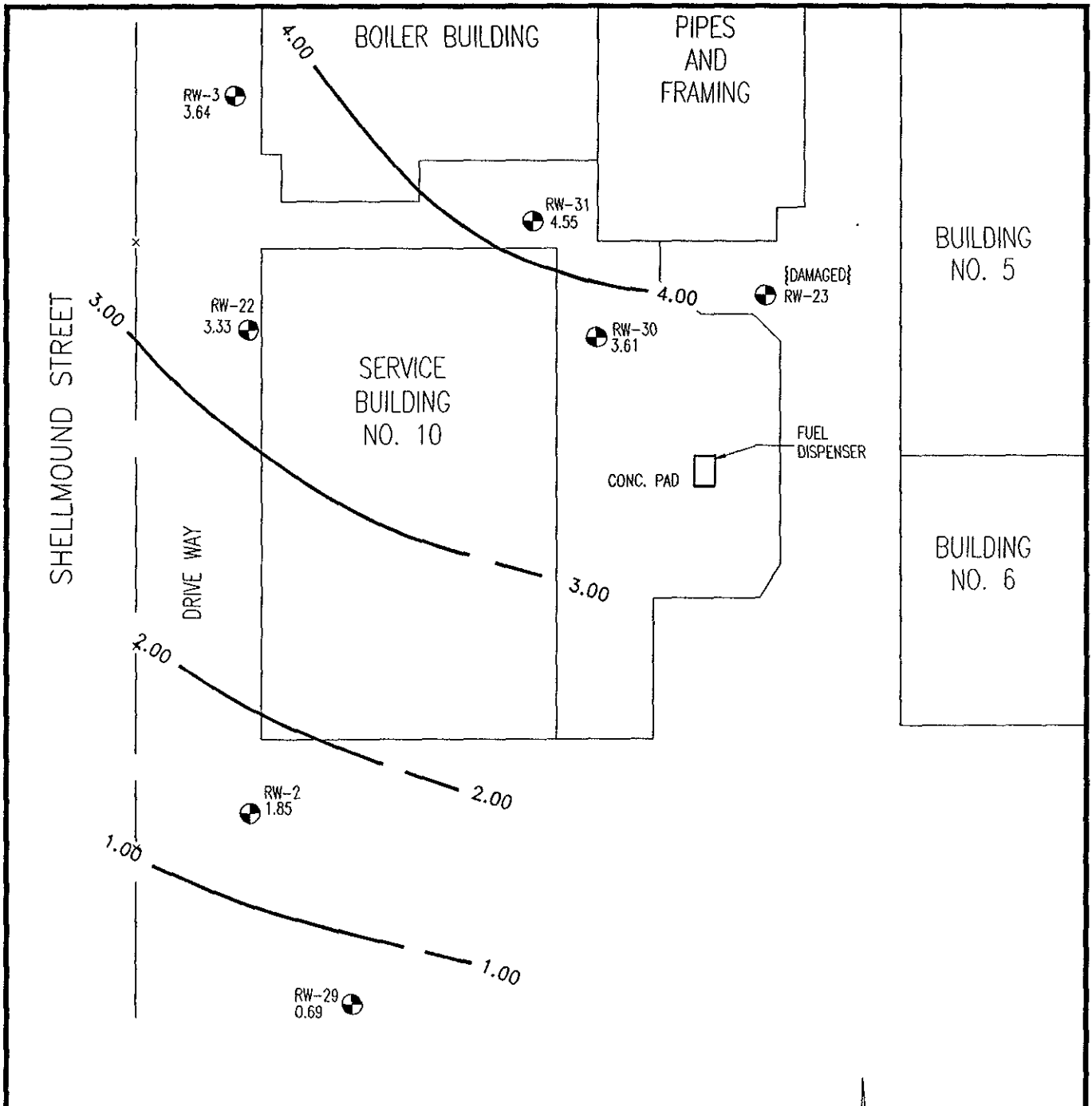
- RW-2 MONITORING WELL LOCATION AND DESIGNATION
- RW-11 FORMER MONITORING WELL LOCATION AND DESIGNATION
- APPROXIMATE AREA OF EXCAVATION



COMPILED BY:	K.B
PREPARED BY:	R.P
PROJECT MNGR.	T.R.
DATE:	03/93
SCALE:	AS SHOWN
PROJECT NO.	19801W
FILE NAME:	198010M1

PREPARED FOR:	HARCROS PIGMENTS, INC.
TITLE:	LOCATION OF MONITORING WELLS AND FORMER TANK PITS

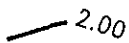
FIGURE  
**3**



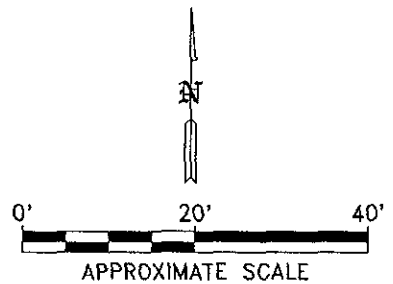
**EXPLANATION:**



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



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



<p>ROUX ASSOCIATES INC Environmental Consulting &amp; Management</p>	Compiled by: T.R.	Prepared For:	<p>HARCROS PIGMENTS, INC.</p> <p>ELEVATION OF GROUND WATER SEPTEMBER 27, 1994</p>	<p>FIGURE</p> <p>4</p>
	Prepared by: S.G.P.	Title:		
	Project Mgr: T.R.			
	Date: 3/94			
	Scale: AS SHOWN			
	Revision: 0			
Project No: 19801W				
File No: 19801001				

**APPENDIX C**  
**Laboratory Analytical Reports**

RECEIVED OCT 12 1994



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

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

A N A L Y T I C A L   R E P O R T

Prepared for:

Roux Associates  
1855 Gateway Boulevard  
Suite 770  
Concord, CA 94520

Date: 08-OCT-94  
Lab Job Number: 117694  
Project ID: 19801W  
Location: Harcros Diesel

Reviewed by:

*Teresa K Morris*

Reviewed by:

*[Signature]*

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LABORATORY NUMBER: 117694-1  
CLIENT: ROUX ASSOCIATES  
PROJECT ID: 19801W  
LOCATION: HARCROS  
SAMPLE ID: RW-22

DATE SAMPLED: 09/27/94  
DATE RECEIVED: 09/27/94  
DATE ANALYZED: 10/04/94  
DATE REPORTED: 10/08/94

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	94 %
Toluene-d8	101 %
Bromofluorobenzene	99 %

LABORATORY NUMBER: 117694  
 CLIENT: ROUX ASSOCIATES  
 PROJECT ID: 19801W  
 LOCATION: HARCROS  
 SAMPLE ID: METHOD BLANK

DATE ANALYZED: 10/04/94  
 DATE REPORTED: 10/08/94

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	96 %
Toluene-d8	101 %
Bromofluorobenzene	101 %



## MS/MSD Report

Matrix Sample Number: 117587-010

Date Analyzed: 04-OCT-94

Lab No: QC74010 QC74011

Spike File: &gt;BJ320

Matrix: WATER

Spike Dup File: &gt;BJ321

Batch No: 16710 414277040020 414277048021 414277004015 Analyst: TW

	Instrdgc	SpikeAmt	% Rec	Limits
<u>MS RESULTS</u>				
1,1-Dichloroethene	49.73	50	100 %	61-145%
Trichloroethene	43.35	50	87 %	71-120%
Benzene	46.3	50	93 %	76-127%
Toluene	51.96	50	103 %	76-125%
Chlorobenzene	45.3	50	91 %	75-130%
Surrogate Recoveries				
1,2-Dichloroethane-d4	46.34	50	93 %	76-114%
Toluene-d8	51.97	50	104 %	88-110%
Bromofluorobenzene	49.59	50	99 %	86-115%
<u>MSD RESULTS</u>				
1,1-Dichloroethene	51.13	50	102 %	61-145%
Trichloroethene	45.28	50	91 %	71-120%
Benzene	48.6	50	97 %	76-127%
Toluene	48.78	50	97 %	76-125%
Chlorobenzene	45.57	50	91 %	75-130%
Surrogate Recoveries				
1,2-Dichloroethane-d4	50.21	50	100 %	70-121%
Toluene-d8	51.58	50	103 %	84-138%
Bromofluorobenzene	49.9	50	100 %	59-113%
<u>MATRIX RESULTS</u>				
1,1-Dichloroethene	0			
Trichloroethene	0			
Benzene	0			
Toluene	.47			
Chlorobenzene	0			
<u>RPD DATA</u>				
1,1-Dichloroethene	3 %			< 14%
Trichloroethene	4 %			< 14%
Benzene	5 %			< 11%
Toluene	6 %			< 13%
Chlorobenzene	1 %			< 13%

Results within Specifications - PASS

TW  
10/4/94



## CLP VOC Laboratory Control Sample Report

Lab No: QC74009  
 Date Analyzed: 03-OCT-94  
 Matrix: WATER  
 Batch No: 16710 414276173007

LCS Datafile: &gt;BJ307

Operator: TW

Compound	Instrdrg	SpikeAmt	% Rec	Limits
1,1-Dichloroethene	51.22	50	102 %	61-145%
Trichloroethene	43.29	50	87 %	71-120%
Benzene	48.54	50	97 %	76-127%
Toluene	47.24	50	94 %	76-125%
Chlorobenzene	46.66	50	93 %	75-130%

## Surrogate Recoveries

1,2-Dichloroethane-d4	50.84	50	102 %	76-114%
Toluene-d8	48.85	50	98 %	88-110%
Bromofluorobenzene	50.55	50	101 %	86-115%

Results within Specifications - PASS

Note: Instrument C and D surrogates based on LCS data

*PW*  
10/4/94

**APPENDICES**

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

# ROUX ASSOCIATES, INC. GROUND WATER SAMPLE FIELD DATA SHEET

Project No: 19801W  
Client: HARBERS

Well ID: RW-22  
Location: Shellmound Ave  
Emeryville CA

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 \_\_\_\_\_

13.9 <sup>-DTW</sup> 4.09 X  $\frac{\text{Gallon}}{\text{Linear Ft.}}$  .66 X  $\frac{\text{Casing}}{\text{Volume}}$  3 =  $\frac{\text{Calculated}}{\text{Purge}}$  19.4    Actual Purge 20

Date Purged: 9/27/94 Start (2400 Hr) 1330h End (2400 Hr) 1400h  
Date Sampled: 9/27/94 Time (2400 Hr) 1400h

Time (2400 Hr)	Volume (gal)	pH (units)	E.C. ( $\mu\text{mhos/cm@25}^\circ$ )	Temperature ( $^\circ\text{F}$ )	Color (visual)	Turbidity (visual)
<u>1340</u>	<u>5</u>	<u>6.77</u>	<u>1790</u>	<u>69</u>	<u>tan</u>	<u>sl. turbid</u>
<u>1350</u>	<u>10</u>	<u>6.72</u>	<u>1780</u>	<u>69</u>	<u>"</u>	<u>clear</u>
<u>1400</u>	<u>20</u>	<u>6.72</u>	<u>1780</u>	<u>69</u>	<u>"</u>	<u>clear</u>

Samples Collected at this Well (i.e. FB-1, XDUP-1): \_\_\_\_\_

### Purging Equipment

2" Bladder Pump     Bailer (Teflon®)  
 Centrifugal Pump     Bailer (PVC)  
 Submersible Pump     Bailer (Stainless Steel)  
 Dedicated

### Sampling Equipment

2" Bladder Pump     Bailer (Teflon®)  
 Centrifugal Pump     Bailer (PVC)  
 Submersible Pump     Bailer (Stainless Steel)  
 Dedicated

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

Print Name GREGORY MURPHY


Signature: Gregory Murphy

**APPENDIX B**

**Chain-of-Custody Documentation**



**Curtis & Tompkins, Ltd.**  
 2323 Fifth Street  
 Berkeley, CA 94710  
 (510) 486-0900 Phone  
 (510) 486-0532 Fax



Sampler: GREG MURPHY  
 Report to: LI  
 Company: Roux ASSOCIATES  
 Telephone: 510 602-2333  
 Fax: 510 687-1258

Project No: 19801W  
 Project Name: HARCROS  
 Turnaround Time: Standard

**Analyses**

Laboratory Number	Sample ID.	Sampling Date	Time	Matrix			# of Containers	Preservative				Field Notes	Analyses																											
				Soil	Water	Waste		HCL	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	ICE																													
	RW-22	9/27/94	1400	X			3																																	

VOCs USEPA 8240

NOTES:	RELINQUISHED BY:		RECEIVED BY:	
	<i>Greg Murphy</i>	9/27/94 1405h		
			<i>Teresa K Morris</i>	9/27/94