ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES

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

Transmittal/Memorandum

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

From: Todd Ramsden

Date: April 1, 1993

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

Job No.: 19801W

Remarks:

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

---

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

FIRST QUARTER
GROUND WATER MONITORING

Harcros Pigments Plant
4650 Shellmound Street
Emeryville, California

April 1, 1993

Prepared for:

Harcros Pigments
Emeryville, California

Prepared by:

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

Doc #HP19801W.3.7

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

DATE: April 1, 1993

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 W Ramsden

Todd Ramsden
Project Geologist

Gregory Murphy
California Registered Geologist No. 5303

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1.0 INTRODUCTION

This report presents the findings of the March 1993 quarterly ground water monitoring activities conducted by Roux Associates (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 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 formerly 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, the soil with concentrations of 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 (μg/L) and 5.3 μg/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 first quarter 1993 ground water sampling took place on March 2, 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 needed to purge prior to sampling. A minimum of three well casing volumes of water was removed from well RW-22 using a PVC bailer.

A ground water sample was collected using 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 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 March 2, 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 March 2, 1993, ranged from 1.83 ft. to 4.83 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 about 0.02 (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 March 2, 1993 indicate 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 in 1992 and first quarter in 1993.

5.3 Next Sampling

The next ground water sampling event is tentatively scheduled for the week of June 21, 1993. 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.

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**
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**
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**

Footnotes:
(1) Depth 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**
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**
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**

Table notes:
(1) Depth 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	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

Footnotes:

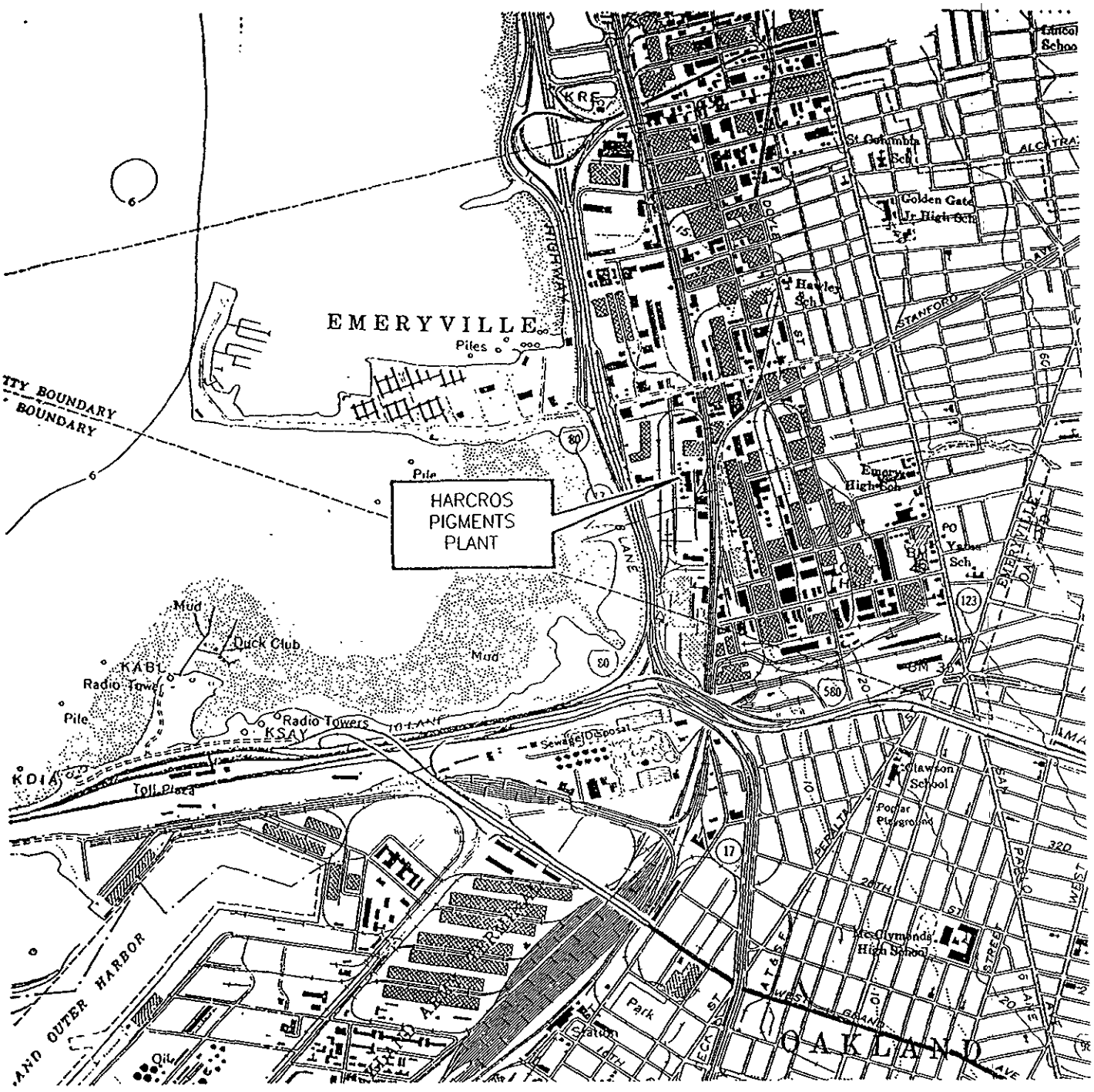
(1) Analyzed by USEPA Method 8240.

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

ND = Not detected.

Detection limit = 5 ug/L.

FIGURES



SOURCE:

USGS 7.5 MINUTE QUADRANGLE
OAKLAND WEST, CALIFORNIA, 1980.

N

0' 2,000'

TITLE:

LOCATION OF SITE

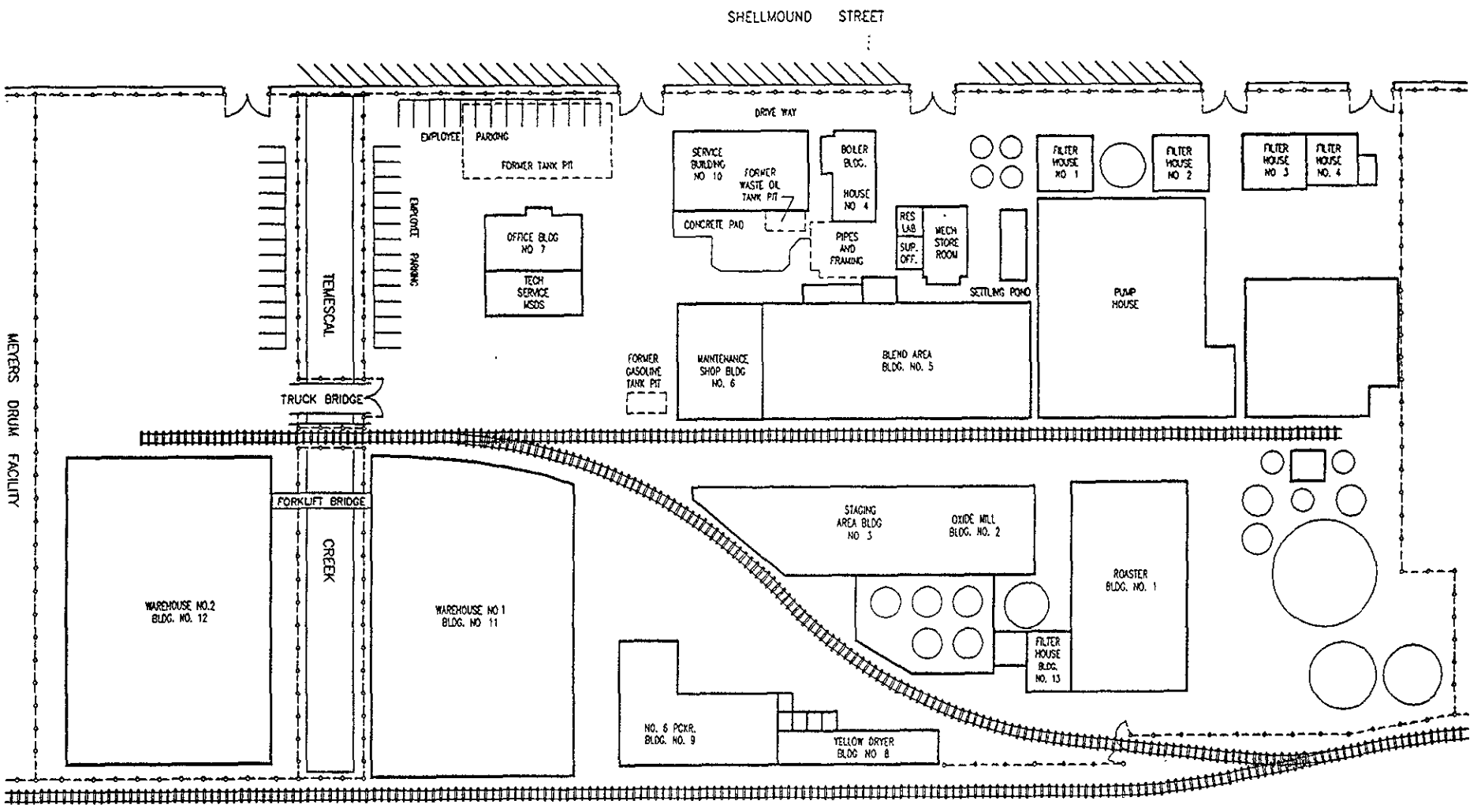
PREPARED FOR:

HARCROS PIGMENTS, INC.

ROUX
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 1



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

ROUX
ROUX ASSOCIATES
ENVIRONMENTAL CONSULTING & MANAGEMENT

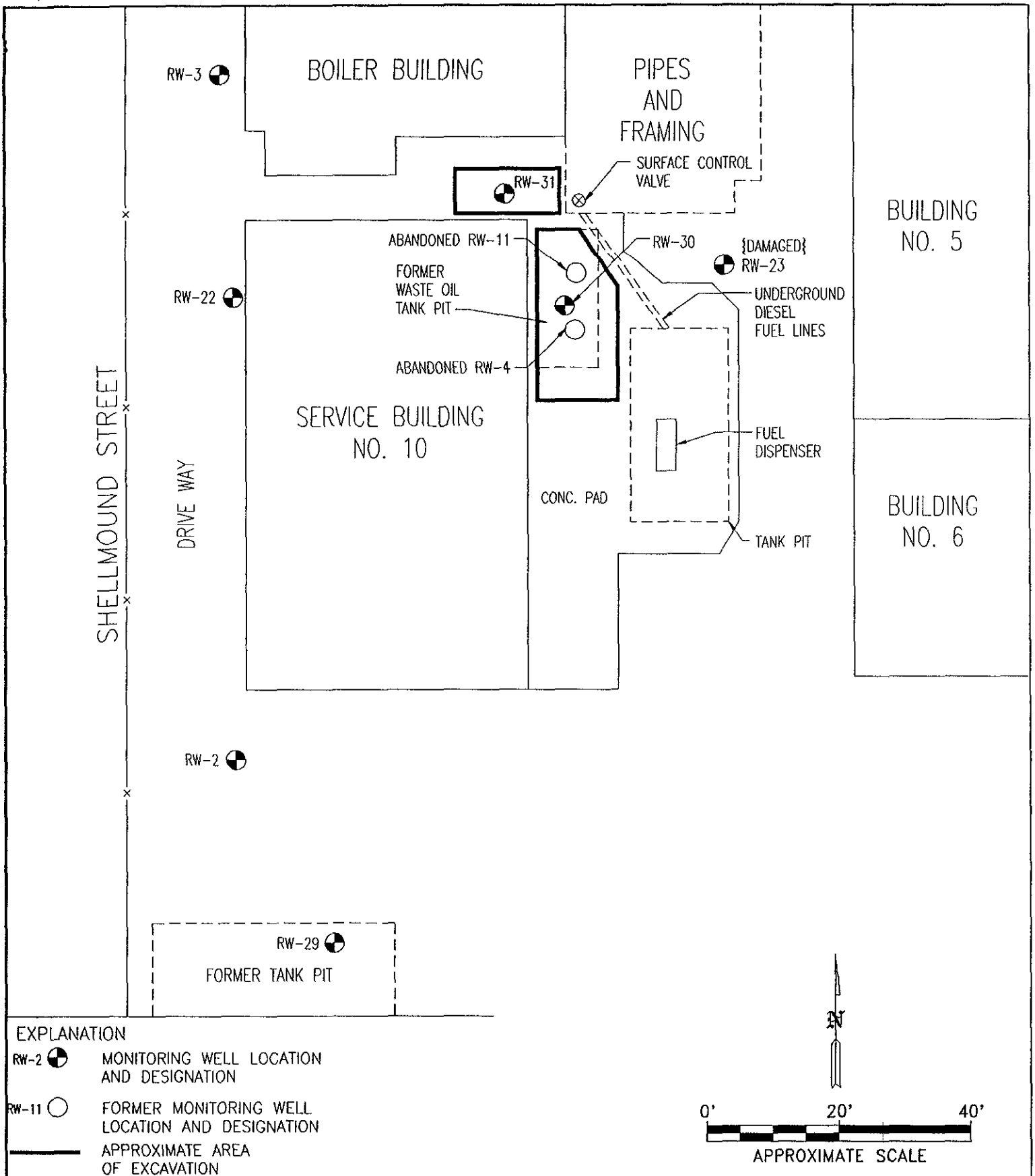
COMPILED BY:	P.S.
PREPARED BY:	D.D.
PROJECT MNGR.	P.S.
DATE:	07/92
SCALE:	AS SHOWN
PROJECT NO.	19801W01
FILE NAME:	19801W2B

PREPARED FOR: HARCROS PIGMENTS INC.
EMERYVILLE, CA

TITLE: SITE PLAN

EMERYVILLE, CA

FIGURE 2



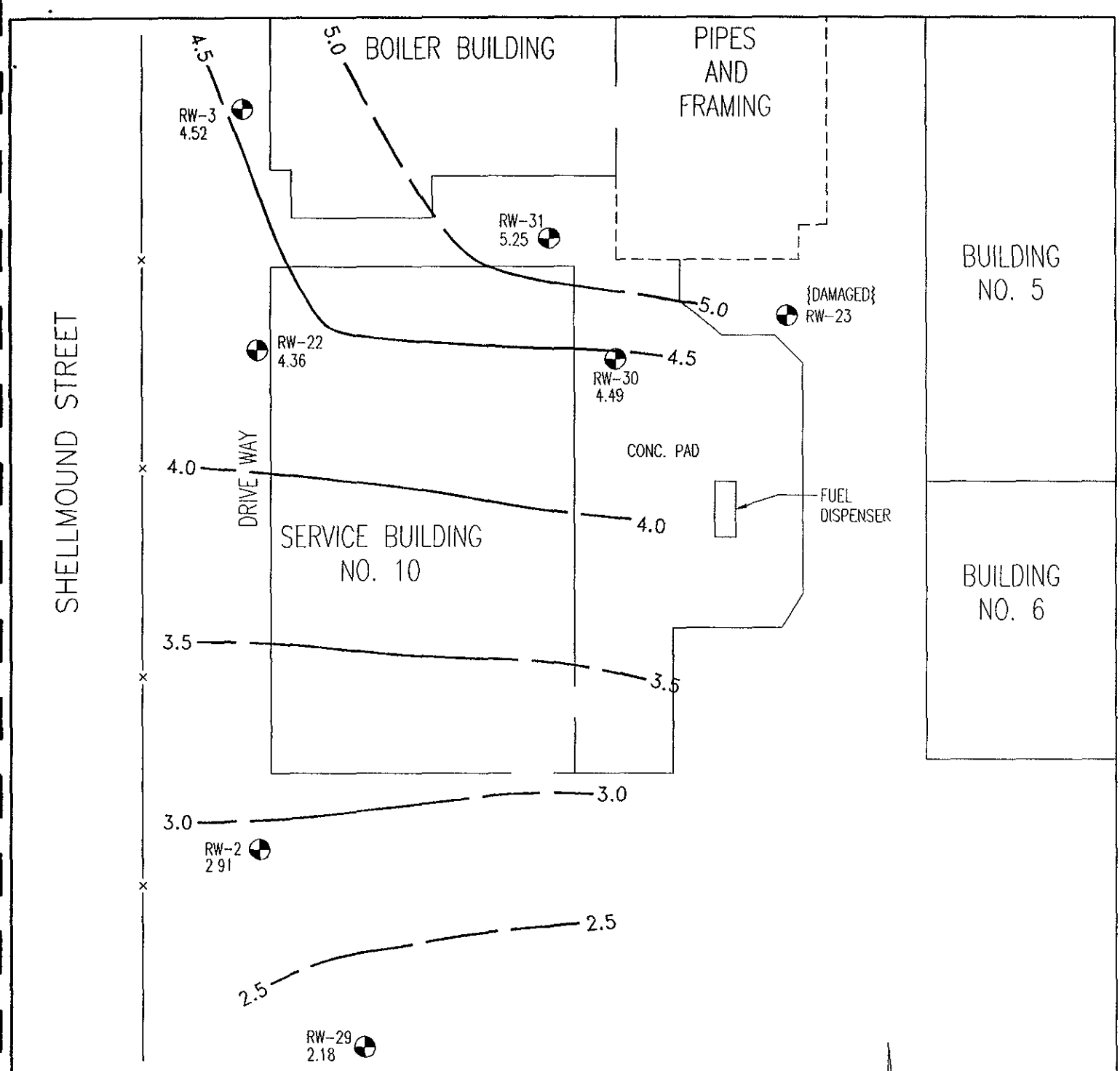
ROUX ASSOCIATES
ENVIRONMENTAL CONSULTING & MANAGEMENT

COMPILED BY:	K.B.
PREPARED BY:	R.P.
PROJECT MNGR.	T.R
DATE:	03/93
SCALE:	AS SHOWN
PROJECT NO.	19801W
FILE NAME:	19801QM1

PREPARED FOR: HARCROS PIGMENTS, INC.

TITLE: LOCATION OF MONITORING WELLS AND FORMER TANK PITS

FIGURE 3



EXPLANATION:

RW-2 2.42 — 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).

N

0' 20' 40'

APPROXIMATE SCALE

ROUX ASSOCIATES
ENVIRONMENTAL CONSULTING & MANAGEMENT

COMPILED BY:	K.B.
PREPARED BY:	R.P.
PROJECT MNGR.	T.R.
DATE:	03/93
SCALE:	AS SHOWN
PROJECT NO.	19801W
FILE NAME:	19801QM1

PREPARED FOR: HARCROS PIGMENTS, INC.

TITLE: ELEVATION OF GROUND WATER MARCH 3, 1993

FIGURE 4

APPENDICES

APPENDIX A

Well Sampling Data Forms

WELL SAMPLING DATA FORM

CLIENT: HARCROS PIGMENTS

PROJECT NO.: HP19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-22

TYPE OF WELL: 4-Inch Diameter Monitoring Well

DATE: March 2, 1993

STORAGE TANK: None

WEATHER: Sunny and clear

TIME OF START: 1048

SAMPLED BY: K.B.

TIME OF FINISH: 1115

DEPTH TO BOTTOM OF WELL:	13.90	FT.
DEPTH TO WATER:	3.06	FT.
WATER COLUMN:	10.84	FT.
VOLUME OF WATER IN WELL:	7.15	GAL.
VOLUME OF WATER TO REMOVE:	21	GAL.
VOLUME REMOVED:	21	GAL.

RATE OF PURGE: Approximately 1 gallon per minute

METHOD OF PURGE: PVC bailer

PHYSICAL APPEARANCE/COMMENTS:

Grey, cloudy

FIELD MEASUREMENTS:

TIME:	1108
pH:	6.78
COND:	2170 micromhos/cm.
TEMP:	62.1°F
TURB:	Not measured
Eh:	Not measured
O^2:	Not measured

TYPES OF SAMPLES COLLECTED:

Two 40 ml. vials for volatile organic compounds USEPA Method 8240

LABORATORY NAME & LOCATION:
Curtis and Thompkins, 2323 Fifth Street, Berkeley, California

APPENDIX B

Chain-of-Custody Documentation

ROUX

CHAIN OF CUSTODY

№ 00413

Ground-Water Consultants
ROUX ASSOCIATES INC
1855 GATEWAY BLVD SUITE 770
CONCORD CA 94526
(510) 602-2333 FAX (510) 687-1258

PAGE 1 OF 1

PROJECT NAME: HARCROSS

PROJECT NUMBER: 19801 W

PROJECT LOCATION: EMERYVILLE

SAMPLER(S): K. BISHOP

ANALYSES

SAMPLE DESIGNATION/LOCATION	DATE COLLECTED	TIME COLLECTED	SAMPLE MATRIX	EPA METHOD 8240				TOTAL BOTTLES	PRESERVATION
RW22	3/2/93	1115	WATER	X				2	KE / HCl

RELINQUISHED BY: (SIGNATURE)	FOR	DATE	TIME	SEAL INTACT Y OR N	RECEIVED BY: (SIGNATURE)	FOR	DATE	TIME	SEAL INTACT Y OR N
SAMPLER'S Kathy Bishop	ROUX	3/2/93	1137	(Y) OR N	[signature]	QTBall	3/2/93	11:37	

DELIVERY METHOD: HAND

ANALYTICAL LABORATORY: CURTIS + TOMKINS, BERKELEY

COMMENTS: 10 DAY TURNAROUND TIME.

APPENDIX C

Laboratory Analytical Reports

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

DATE RECEIVED: 03/02/93
DATE REPORTED: 03/11/93

LABORATORY NUMBER: 110209

CLIENT: ROUX ASSOCIATES

PROJECT ID: 19801W

LOCATION: HARCROSS

RESULTS: SEE ATTACHED

Teresa K. Morrison
Reviewed by

Reviewed by

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 110209-1
CLIENT: ROUX ASSOCIATES
PROJECT ID: 19801W
LOCATION: HARCROSS
SAMPLE ID: RW22

DATE SAMPLED: 03/02/93
DATE RECEIVED: 03/02/93
DATE ANALYZED: 03/03/93
DATE REPORTED: 03/11/93
DATE REVISED: 03/12/93

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
cis-1,2-Dichloroethene	ND	5
trans-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	10
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	99 %
Toluene-d8	94 %
Bromofluorobenzene	92 %

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 110209-METHOD BLANK
CLIENT: ROUX ASSOCIATES
PROJECT ID: 19801W
LOCATION: HARCROSS

DATE ANALYZED: 03/03/93
DATE REPORTED: 03/11/93

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
cis-1,2-Dichloroethene	ND	5
trans-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	10
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	101 %
Toluene-d8	97 %
Bromofluorobenzene	94 %

Curtis & Tompkins, Ltd.

QC SUMMARY SHEET FOR EPA 8240

Laboratory Number:	110209		
Client:	Roux Associates	Spike file:	cc314
Analysis date:	03/04/93	Spike dup file:	cc315
Sample type:	Water		

SPIKE DATA (spiked at 50 ppb)

SPIKE COMPOUNDS	READING	RECOVERY	STATUS	LIMITS
1,1-Dichloroethene	46.93	94 %	OK	61 - 145
Trichloroethene	45.78	91 %	OK	71 - 120
Benzene	46.20	92 %	OK	76 - 127
Toluene	46.64	93 %	OK	76 - 125
Chlorobenzene	46.50	93 %	OK	75 - 130
SURROGATES				
1,2-Dichloroethane-d4	50.28	101 %	OK	76 - 114
Toluene-d8	48.68	97 %	OK	88 - 110
Bromofluorobenzene	45.28	91 %	OK	86 - 115

SPIKE DUP DATA (spiked at 50 ppb)

SPIKE COMPOUNDS	READING	RECOVERY	STATUS	LIMITS
1,1-Dichloroethene	47.21	94 %	OK	61 - 145
Trichloroethene	45.25	90 %	OK	71 - 120
Benzene	46.76	94 %	OK	76 - 127
Toluene	47.75	95 %	OK	76 - 125
Chlorobenzene	47.65	95 %	OK	75 - 130
SURROGATES				
1,2-Dichloroethane-d4	51.06	102 %	OK	76 - 114
Toluene-d8	48.91	98 %	OK	88 - 110
Bromofluorobenzene	46.70	93 %	OK	86 - 115

MATRIX RESULTS	
1,1-Dichloroethene	0
Trichloroethene	0.424
Benzene	0
Toluene	0.24
Chlorobenzene	0

RPD DATA

SPIKE COMPOUNDS	SPIKE	SPIKE DUP	RPD	STATUS	LIMITS
1,1-Dichloroethene	46.93	47.21	1 %	OK	< 14
Trichloroethene	45.78	45.25	1 %	OK	< 14
Benzene	46.20	46.76	1 %	OK	< 11
Toluene	46.64	47.75	2 %	OK	< 13
Chlorobenzene	46.50	47.65	2 %	OK	< 13