ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES

ROUX

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

92 JAN 17 AM 11:29

January 13, 1992

Ms. Susan Hugo
Alameda County Health Agency
Division of Hazardous Materials
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Dear Ms. Hugo:

Enclosed is the Fourth Quarter Ground Water Monitoring Report for the Harcros Pigments Facility located at 4650 Shellmound Street, Emeryville, California 95662. The report summarizes Site history and ground water sampling which occurred on October 3, 1991.

The next ground water monitoring event is tentatively scheduled for the week of February 10th. Please note the proposed changes to the ground water sampling program discussed in Section 7.0 of the report. If you have any questions or comments regarding this project or the proposed changes to the ground water sampling program, please call me at (510) 602-2333.

Sincerely,
ROUX ASSOCIATES

Paul Supple
Senior Hydrogeologist

cc: Mr. Michael Herzog, Harcros Pigments, Inc.

Doc #HP19801W.2.6

FOURTH QUARTER
GROUND WATER MONITORING

Harcros Pigments Plant
4650 Shellmound
Emeryville, California 94662

January 13, 1992

Prepared for:

Harcros Pigments
Emeryville, California

Prepared by:

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

Doc #HP19801W.2.6

TITLE: Fourth Quarter Ground Water Monitoring
Harcros Pigments Plant
4650 Shellmound Street
Emeryville, California 94662

DATE: January 13, 1992

PROJECT NO: HP19801W

SUBMITTED BY: Roux Associates
1855 Gateway Blvd., Suite 770
Concord, California 94521

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

PREPARED BY:

Keith G. Kennedy
California Registered Geologist No. 4903

Paul Supple
Senior Hydrogeologist

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1.0 INTRODUCTION

This report presents the findings of the October 1991 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 event was to:

- collect depth to water measurements in monitoring wells RW-2, RW-3, RW-22, RW-29, RW-30 and RW-31;
- collect ground water samples from monitoring wells RW-2, RW-3, RW-22, RW-29, RW-30 and RW-31;
- submit all ground water samples for analysis of total extractable hydrocarbons (TEH) by United States Environmental Protection Agency (USEPA) Method 8015 (modified).
- submit all ground water, except the sample collected from monitoring well RW-22, for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX) by USEPA Method 8020.
- submit the ground water sample collected from monitoring well RW-22 for analysis of volatile organic compounds (VOCs) by USEPA Method 624.

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 San Francisco Bay at an elevation of about seven feet above mean sea level. The current bay shoreline is about 1,000 feet 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 estimated low permeability sandy clay to clay (Roux, 1990a). The regional direction of ground water flow is westerly, towards 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 capacity steel UST formerly contained waste oil and waste solvents and 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).

Two double-wall fiberglass USTs are currently in place and used at the Site. A 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 2). 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 analyzed 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.

TEH, oil and grease, BTEX and VOCs were reported as below the laboratory detection limit for all targeted constituents during the first two quarterly ground water sampling events. However, unknown hydrocarbons were reported in monitoring wells RW-2, RW-3 and RW-29 during the second quarter sampling event (Roux, 1991b).

TEH was reported as below the laboratory detection limit for all ground water samples during the third quarterly ground water sampling event. Concentration of VOCs were reported as below the laboratory detection limit from all the ground water samples except RW-22 during third quarter ground water sampling. Cis-1,2-dichloroethene was detected at a concentration of 5.2 parts per billion (μg/L) in RW-22. No other VOCs were detected in the RW-22 ground water sample.

4.0 GROUND WATER FLOW

Figure 3 shows the direction of ground water flow at the Site on October 3, 1991. The direction of ground water flow beneath the Site was determined from the depth to water measurements collected on October 3, 1991. The depth to water measurements and water elevations during the three ground water sampling events are summarized on Table 1. Water elevations were calculated from the depth to water data. The water elevations were contoured to evaluate the direction of flow at the Site. Ground water beneath the Site on October 3, 1991 flowed towards the south-southwest at a gradient of about 0.013. The flow direction towards the south-southwest is different than the regional flow direction to the west. The flow direction may be locally influenced by Temescal Creek, located about 170 feet south of service building No. 10. Water elevations decreased about 0.08 feet, with the exception of RW-22 which had an increase of 0.1 feet, at the Site from July 11 to October 3, 1991 (Table 1).

5.0 GROUND WATER SAMPLING

On October 3, 1991, depth to ground water measurements were collected from monitoring wells RW-2, RW-3, RW-22, RW-29, RW-30 and RW-31. From these data, calculations were made of the volume of water needed to purge prior to sampling. A minimum of three well casing volumes of water was removed from each well with the use of either a PVC or teflon bailer. All ground water samples were submitted to Curtis & Tompkins Ltd. Analytical Laboratory in Berkeley, California. The ground water samples were analyzed for TEH, BTEX and VOCs by USEPA Methods 8015 (modified), 8020 and 624, respectively.

Ground water samples were collected with a bailer and poured into one liter glass bottles for analysis of TEH and into 40 milliliter glass bottles for analysis of BTEX or VOCs. Visual observations of the ground water samples, the measurement of pH, conductivity and temperature at the time of sample collection were recorded on well sampling forms (Appendix A). The sample bottles were then labeled, stored on ice in a cooler until delivery to the laboratory. A Chain-of-Custody document was maintained for the samples (Appendix B).

6.0 ANALYTICAL RESULTS

Laboratory analyses of ground water samples collected from all six monitoring wells through a year of quarterly sampling indicated TEH below detection limits for all samples (Table 2). BTEX and oil and grease were not detected above the laboratory detection limits in any of the ground water samples analyzed for these compounds.

All ground water samples collected during the first and third quarterly sampling events and the ground water sample collected from monitoring well RW-22 during the fourth quarterly sampling event were analyzed for VOCs. Concentrations of VOCs were reported as below the laboratory detection limits for all ground water samples analyzed for VOCs, except for samples collected from monitoring well RW-22 during the third and fourth quarterly sampling events. Cis 1,2-dichloroethene was detected at concentrations of 5.2 μg/L and 5.3 μg/L in the third and fourth quarter samples, respectively. The California Drinking Water Standards lists a Maximum Contaminant Level (MCL) for cis 1,2-dichloroethene as 6 μg/L.

7.0 RECOMMENDATIONS

Based on the laboratory data collected during the year of quarterly sampling, we recommend quarterly sampling be discontinued at this Site with the exception of monitoring well RW-22. Quarterly sampling of well RW-22 should continue to monitor for cis 1,2-dichloroethene.

The first quarter (1992) ground water sampling event is tentatively scheduled for the week of February 10th. Ground water samples collected from RW-22 will be analyzed for VOCs by USEPA Method 624. The need for continued ground water monitoring at the Site will be evaluated after the first and second quarter analytical data has been reviewed.

8.0 REFERENCES

Roux Associates West, Inc. 1988. Underground Storage Tank Site Investigation, Pfizer Pigments Plant, Emeryville, California. August 12, 1988.

Roux Associates West, Inc. 1990a. Diesel Fuel Site Investigation, Pfizer Pigments Plant, Emeryville, California. May 2, 1990.

Roux Associates West, Inc. 1990b. Work Plan, Site Investigation and Fuel Recovery, Pfizer Pigments Plant, Emeryville, California. March 8, 1990.

Roux Associates West, Inc. 1991a. Soil Remediation Report, Harcros Pigments Plant, Emeryville, California. May 6, 1991.

Roux Associates Inc. 1991b. Second Quarter Ground Water Monitoring, Harcros Pigments Plant, Emeryville, California. May 13, 1991.

State of California Department of Health Services. 1990. Memorandum on Summary of California Drinking Water Standards. October 24, 1990.

United States Geologic Survey. 1980. Oakland West Quadrangle, California Photo Revised 1980.

Table 1. **Summary of Ground Water Elevation Data**
Harcros Pigments Plant
4650 Shellmound Street
Emeryville, California

Monitoring Well Number	Date	*Measuring Point* [1] Elevation	*Depth to Water* [2]	Ground Water [1] Elevation
RW-2	1/08/91	6.84	4.93	1.91
	4/09/91	6.84	3.50	3.34
	7/11/91	6.84	4.05	2.79
	10/3/91	6.84	4.14	2.70
RW-3	1/08/91	7.38	4.00	3.38
	4/09/91	7.38	3.13	4.25
	7/11/91	7.38	3.58	3.80
	10/3/91	7.38	3.60	3.78
RW-22	1/08/91	7.42	4.04	3.38
	4/09/91	7.42	3.53	3.89
	7/11/91	7.42	4.02	3.40
	10/3/91	7.42	3.92	3.50
RW-29	1/08/91	7.01	5.68	1.33
	4/09/91	7.01	3.95	3.06
	7/11/91	7.01	4.63	2.38
	10/3/91	7.01	4.71	2.30
RW-30	1/08/91	7.51	4.23	3.28
	4/09/91	7.51	3.24	4.27
	7/11/91	7.51	3.80	3.71
	10/3/91	7.51	3.93	3.58
RW-31	1/08/91	7.08	3.43	3.65
	4/09/91	7.08	2.57	4.51
	7/11/91	7.08	3.07	4.01
	10/3/91	7.08	3.13	3.95

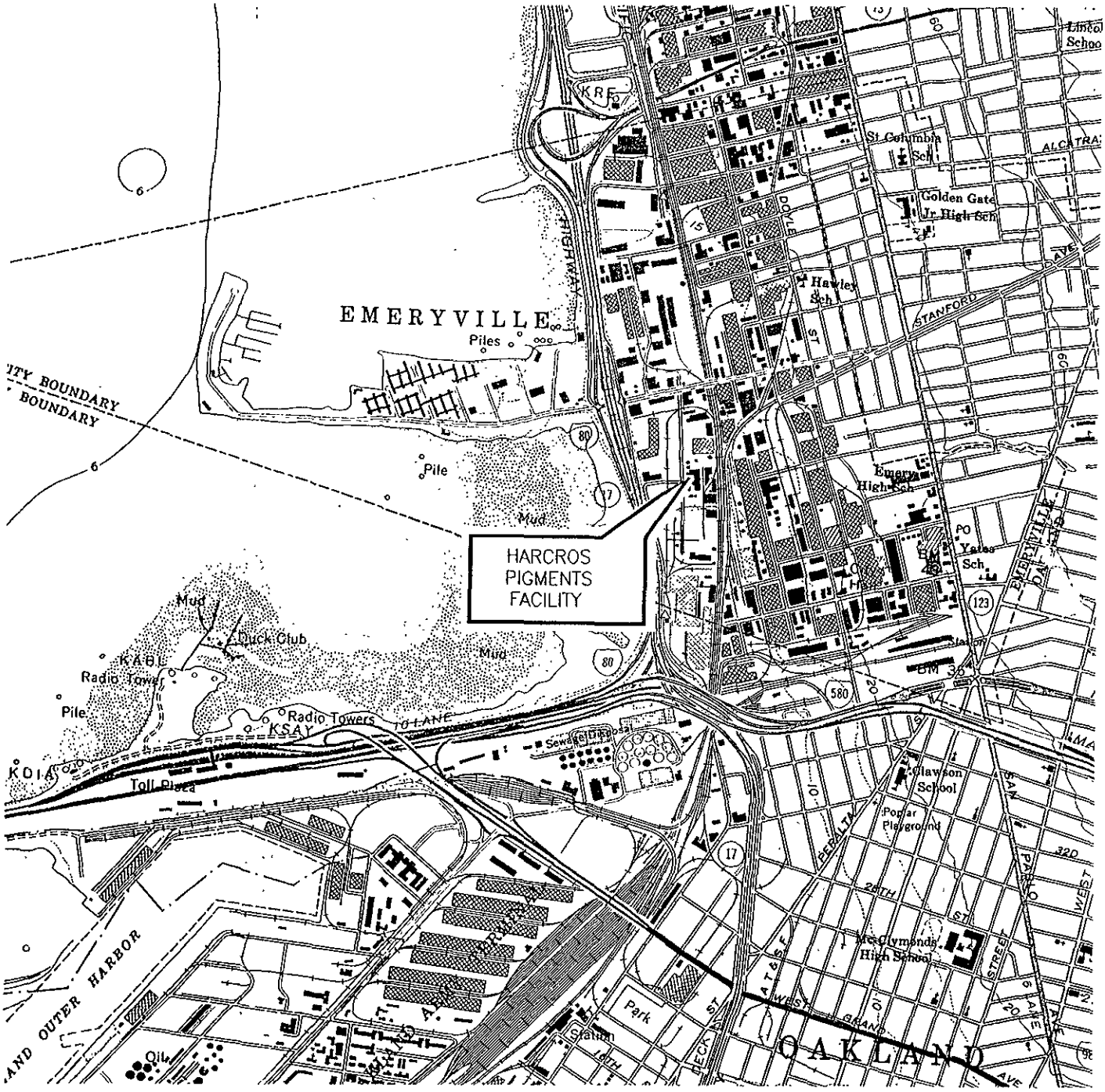
Footnotes:

[1] Depth in feet relative to Emeryville datum
[2] Depth in feet below measuring point

Table 2. Summary of Ground Water Analytical Data
Harcros Pigments Plant
4650 Shellmound Street
Emeryville, California

Monitoring Well Number	Date	Total Extractable Hydrocarbons TEH-K	TEH-D	TEH-M	BTEX	VOCs	O & G
RW-2	1/08/91	ND	ND	NA	NA	ND	NA
	4/09/91	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	1/08/91	ND	ND	NA	NA	ND	NA
	4/09/91	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	1/08/91	ND	ND	NA	NA	ND	NA
	4/09/91	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	1/08/91	NA	NA	NA	NA	ND	NA
	4/09/91	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	1/08/91	NA	NA	NA	NA	ND	NA
	4/09/91	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	1/08/91	NA	NA	NA	NA	ND	NA
	4/09/91	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 are reported in µg/L (ppb)
TEH-K = Total Extractable Hydrocarbons as Kerosene
TEH-D = Total Extractable Hydrocarbons as Diesel
TEH-M = Total Extractable Hydrocarbons as Motor Oil
BTEX = Benzene, Toluene, Ethylbenzene and Xylenes
VOCs = Volatile Organic Compounds
O & G = Oil and Grease
ND = Not Detected at or above reporting limit (For reporting limits, see Laboratory Reports, Appendix C.)
NA = Not Analyzed
* = VOC identified as cis-1,2-dichloroethene (No other VOCs were detected.)



SOURCE:

USGS 7.5 MINUTE QUADRANGLE
OAKLAND WEST, CALIFORNIA, 1980.

TITLE:

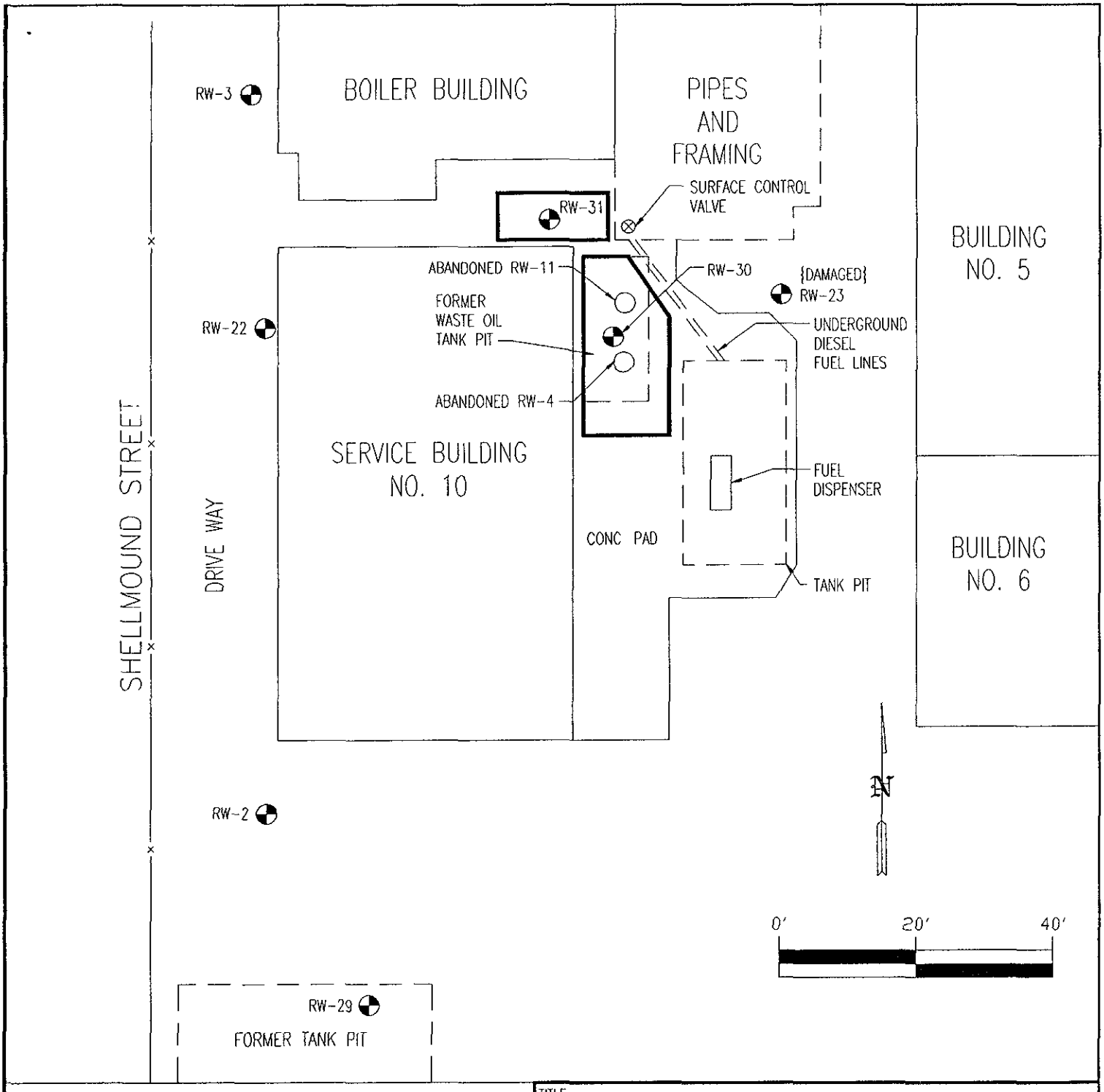
LOCATION OF SITE

PREPARED FOR:

HARCROS PIGMENTS, INC.

ROUX ASSOCIATES
ENVIRONMENTAL CONSULTING & MANAGEMENT

COMPILED BY: J.F.	DATE: 01/92	FIGURE
PREPARED BY: R P.	SCALE: AS SHOWN	1
PROJECT MANAGER: P.S.	REVISION 0	
PROJECT NO. 21601W	FILE #: HCRSTOPO	



EXPLANATION

RW-2 ⊕ MONITORING WELL LOCATION AND DESIGNATION

RW-11 ○ FORMER MONITORING WELL LOCATION AND DESIGNATION

——— APPROXIMATE AREA OF EXCAVATION

TITLE:

LOCATION OF MONITORING WELLS AND FORMER TANK PITS

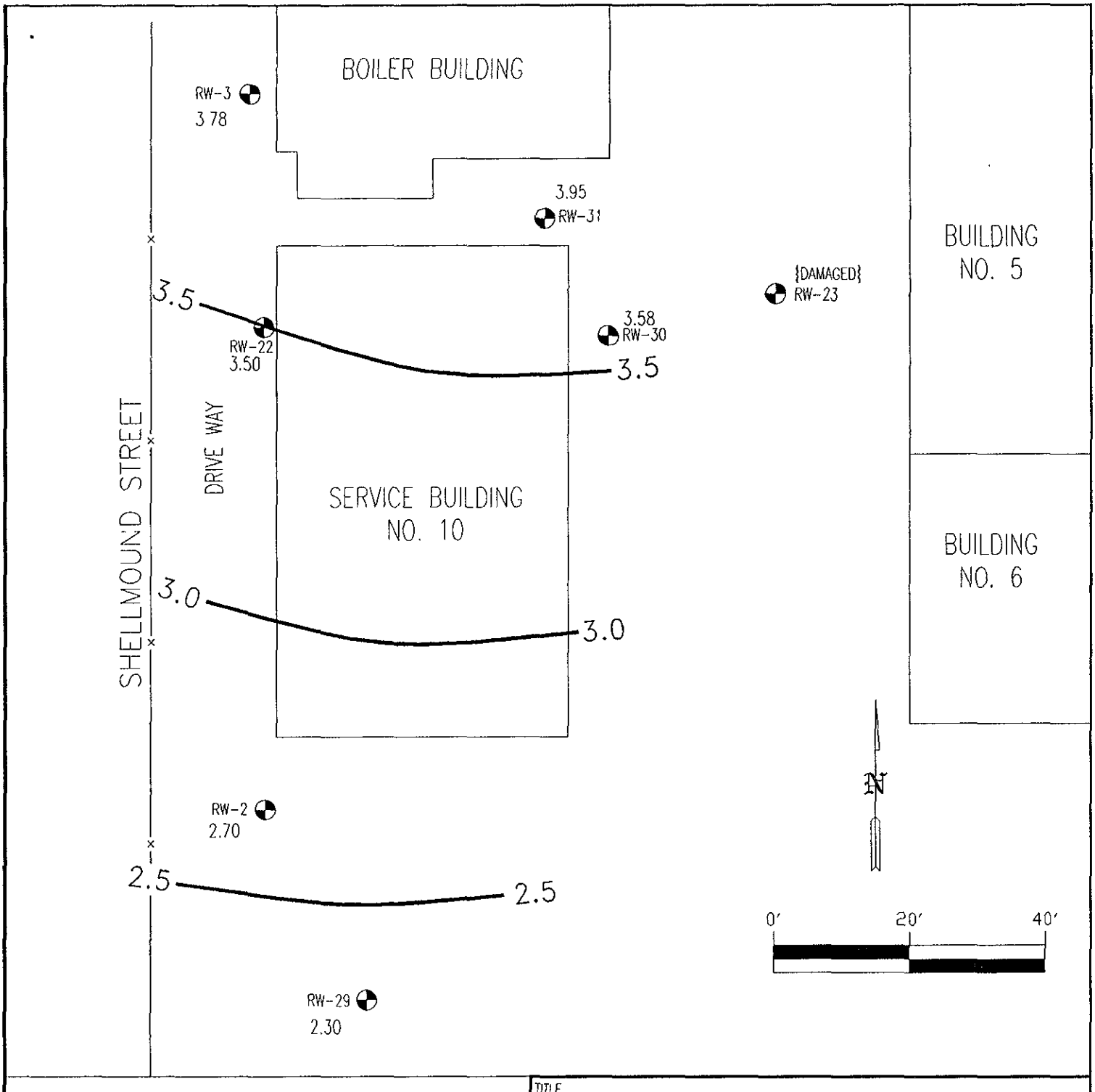
PREPARED FOR:

HARCROS PIGMENT, INC.

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	19801W01	FILE #:	19801W01

FIGURE 2



EXPLANATION

RW-2	MONITORING WELL LOCATION AND DESIGNATION
3.78	GROUND-WATER ELEVATION (FEET)
—3.0—	LINE OF EQUAL GROUND-WATER ELEVATION (FEET) RELATIVE TO EMERYVILLE DATUM

TITLE.

ELEVATION OF GROUND WATER OCTOBER 3, 1991

PREPARED FOR.

HARCROS PIGMENT, INC.

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 3

APPENDICES

APPENDIX A

Well Sampling Forms

WELL SAMPLING DATA FORM

CLIENT: Harcros Pigments

PROJECT NO.: 19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-2

TYPE OF WELL: 2-inch

DATE: October 3, 1991

STORAGE TANK:

WEATHER: Sunny and warm

TIME OF START: 1237

SAMPLED BY: Jonathan Florez

TIME OF FINISH: 1255

DEPTH TO BOTTOM OF WELL:	17.26	FT.
DEPTH TO WATER:	4.14	FT.
WATER COLUMN:	13.12	FT.
VOLUME OF WATER IN WELL:	2.14	GAL.
VOLUME OF WATER TO REMOVE:	6.42	GAL.
VOLUME REMOVED:	6.5	GAL.

RATE OF PURGE: 0.36 gallons per minute

METHOD OF PURGE: 1.5-inch O.D. teflon bailer

PHYSICAL APPEARANCE/COMMENTS:

grey-tan, slightly turbid, no odor

FIELD MEASUREMENTS:

TIME:	1255
pH:	6.80
COND:	1120 micromhos
TEMP:	24°C
TURB:	
Eh:	
O^2:	

TYPES OF SAMPLES COLLECTED:

Liter amber bottle and two 40 ml vials for TPH-D and TPH-G/BTEX, respectively.

LABORATORY NAME & LOCATION:

Curtis & Tompkins, Ltd.
2323 Fifth Street, Berkeley, California

WELL SAMPLING DATA FORM

CLIENT: Harcros Pigments

PROJECT NO.: 19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-3 **TYPE OF WELL:** 2-inch

DATE: October 3, 1991 **STORAGE TANK:**

WEATHER: Sunny and warm **TIME OF START:** 1314

SAMPLED BY: Jonathan Florez **TIME OF FINISH:** 1331

DEPTH TO BOTTOM OF WELL:	17.62	FT.
DEPTH TO WATER:	3.60	FT.
WATER COLUMN:	14.02	FT.
VOLUME OF WATER IN WELL:	2.29	GAL.
VOLUME OF WATER TO REMOVE:	6.86	GAL.
VOLUME REMOVED:	7.0	GAL.

RATE OF PURGE: 0.41 gallons per minute

METHOD OF PURGE: 1.5-inch O.D. teflon bailer

PHYSICAL APPEARANCE/COMMENTS:

light grey, mild turbidity, no odor

FIELD MEASUREMENTS:

TIME:	1331
pH:	6.67
COND:	1200 micromhos
TEMP:	25°C
TURB:	
Eh:	
O^2:	

TYPES OF SAMPLES COLLECTED:

Liter amber bottle and two 40 ml vials for TPH-D and TPH-G/BTEX, respectively.

LABORATORY NAME & LOCATION:

Curtis & Tompkins, Ltd.
2323 Fifth Street, Berkeley, California

WELL SAMPLING DATA FORM

CLIENT: Harcros Pigments

PROJECT NO.: 19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-22 **TYPE OF WELL:** 4-inch

DATE: October 3, 1991 **STORAGE TANK:**

WEATHER: Sunny and warm **TIME OF START:** 1353

SAMPLED BY: Jonathan Florez **TIME OF FINISH:** 1411

DEPTH TO BOTTOM OF WELL:	13.90	FT.
DEPTH TO WATER:	3.92	FT.
WATER COLUMN:	9.98	FT.
VOLUME OF WATER IN WELL:	6.51	GAL.
VOLUME OF WATER TO REMOVE:	19.54	GAL.
VOLUME REMOVED:	20.0	GAL.

RATE OF PURGE: 1.11 gallons per minute

METHOD OF PURGE: 3.5-inch O.D. PVC bailer

PHYSICAL APPEARANCE/COMMENTS:

dark grey, high turbidity, no odor

FIELD MEASUREMENTS:

TIME:	1411
pH:	6.85
COND:	1160 micromhos
TEMP:	24°C
TURB:	
Eh:	
O^2:	

TYPES OF SAMPLES COLLECTED:

Liter amber bottle and two 40 ml vials for TPH-D and Volatile Organic Compounds, respectively.

LABORATORY NAME & LOCATION:

Curtis & Tompkins, Ltd.
2323 Fifth Street, Berkeley, California

WELL SAMPLING DATA FORM

CLIENT: Harcros Pigments

PROJECT NO.: 19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-29

DATE: October 3, 1991

WEATHER: Sunny and warm

SAMPLED BY: Jonathan Florez

TYPE OF WELL: 2-inch

STORAGE TANK:

TIME OF START: 1210

TIME OF FINISH: 1225

DEPTH TO BOTTOM OF WELL:	13.05	FT.
DEPTH TO WATER:	4.71	FT.
WATER COLUMN:	8.34	FT.
VOLUME OF WATER IN WELL:	1.36	GAL.
VOLUME OF WATER TO REMOVE:	4.08	GAL.
VOLUME REMOVED:	5.0	GAL.

RATE OF PURGE: 0.33 gallons per minute

METHOD OF PURGE: 1.5-inch O.D. teflon bailer

PHYSICAL APPEARANCE/COMMENTS:

dark grey, moderate turbidity, no odor

FIELD MEASUREMENTS:

TIME:	1225
pH:	6.70
COND:	970 micromhos
TEMP:	25°C
TURB:	
Eh:	
O^2:	

TYPES OF SAMPLES COLLECTED:

Liter amber bottle and two 40 ml vials for TPH-D and TPH-G/BTEX, respectively.

LABORATORY NAME & LOCATION:

Curtis & Tompkins, Ltd.
2323 Fifth Street, Berkeley, California

WELL SAMPLING DATA FORM

CLIENT: Harcros Pigments

PROJECT NO.: 19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-30

DATE: October 3, 1991

WEATHER: Sunny and warm

SAMPLED BY: Jonathan Florez

TYPE OF WELL: 4-inch

STORAGE TANK:

TIME OF START: 1448

TIME OF FINISH: 1521

DEPTH TO BOTTOM OF WELL:	13.50 FT.
DEPTH TO WATER:	3.93 FT.
WATER COLUMN:	9.57 FT.
VOLUME OF WATER IN WELL:	6.25 GAL.
VOLUME OF WATER TO REMOVE:	18.74 GAL.
VOLUME REMOVED:	19.50 GAL.

RATE OF PURGE: 0.59 gallons per minute

METHOD OF PURGE: 3.5-inch O.D. PVC bailer

PHYSICAL APPEARANCE/COMMENTS:

tan, moderately turbid, no odor

FIELD MEASUREMENTS:

TIME:	1521
pH:	6.96
COND:	1290 micrombos
TEMP:	24°C
TURB:	
Eh:	
O^2:	

TYPES OF SAMPLES COLLECTED:

Liter amber bottle and two 40 ml vials for TPH-D and TPH-G/BTEX, respectively.

LABORATORY NAME & LOCATION:

Curtis & Thompkins, Ltd.
2323 Fifth Street, Berkeley, California

WELL SAMPLING DATA FORM

CLIENT: Harcros Pigments

PROJECT NO.: 19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-31

DATE: October 3, 1991

WEATHER: Sunny and warm

SAMPLED BY: Jonathan Florez

TYPE OF WELL: 4-inch

STORAGE TANK:

TIME OF START: 1422

TIME OF FINISH: 1437

DEPTH TO BOTTOM OF WELL:	13.00 FT.
DEPTH TO WATER:	3.13 FT.
WATER COLUMN:	9.87 FT.
VOLUME OF WATER IN WELL:	6.44 GAL.
VOLUME OF WATER TO REMOVE:	19.33 GAL.
VOLUME REMOVED:	29.0 GAL.

RATE OF PURGE: 1.33 gallons per minute

METHOD OF PURGE: 3.5-inch O.D. PVC bailer

PHYSICAL APPEARANCE/COMMENTS:

Dark grey, high turbidity, moderate odor.

FIELD MEASUREMENTS:

TIME:	1437
pH:	6.95
COND:	830 micromhos
TEMP:	24°C
TURB:	
Eh:	
O^2:	

TYPES OF SAMPLES COLLECTED:

Liter amber bottle and two 40 ml vials for TPH-D and TPH-G/BTEX, respectively.

LABORATORY NAME & LOCATION:

Curtis & Tompkins, Ltd.
2323 Fifth Street, Berkeley, California

APPENDIX B

Chain-of-Custody Documentation

ROUX

CHAIN OF CUSTODY

№ 00261W

ROUX ASSOCIATES INC
Consulting Ground-Water Geologists & Engineers
1340 ARNOLD DRIVE, SUITE 231
MARTINEZ, CALIFORNIA 94553
(415) 370-2275 FAX. (415) 370-2235

ANALYSES

PAGE OF

PROJECT NAME: Harcros Pigments
PROJECT NUMBER: 1980 1W
PROJECT LOCATION: 4650 Shellmound St., Emeryville, CA
SAMPLER(S): Jonathan Florez

	SAMPLE DESIGNATION/LOCATION	DATE COLLECTED	TIME COLLECTED	SAMPLE MATRIX	TPH-Diesel EPA 8015	BTEX EPA 8020	Volatile Organic Compounds EPA 624			TOTAL BOTTLES	NOTES
1	RW-2	10-3-91	1624	Water	X	X					
2	RW-3		1656	Water	X	X					
3	RW-22		1638	Water	X		X				
4	RW-29		1225	Water	X	X					
5	RW-30		1725	Water	X	X					
6	RW-31		1710	Water	X	X					

RELINQUISHED BY: (SAMPLER'S SIGNATURE)	FOR	DATE	TIME	SEAL INTACT Y OR N	RECEIVED BY: (SIGNATURE)	FOR	DATE	TIME	SEAL INTACT Y OR N
Jonathan Florez	Roux	10/3/91	1800			Curtis Tompkins	10/3/91	1800	(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

ANALYTICAL LABORATORY: Curtis & Tompkins, Berkeley, CA

COMMENTS: Standard turn around time

APPENDIX C

Laboratory Analytical Reports

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 10/03/91
DATE REPORTED: 10/17/91

LABORATORY NUMBER: 105363

CLIENT: ROUX ASSOCIATES

PROJECT ID: 19801W

LOCATION: HARCROS DIESEL

RESULTS: SEE ATTACHED

QA/QC Approval

Final Approval

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 105363
CLIENT: ROUX ASSOCIATES
PROJECT ID: 19801W
LOCATION: HARCROS DIESEL

DATE RECEIVED: 10/03/91
DATE ANALYZED: 10/11/91
DATE REPORTED: 10/17/91

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020
Extraction by EPA 5030 Purge and Trap

LAB ID	CLIENT ID	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)	REPORTING LIMIT * (ug/L)
105363-1	RW-2	ND	ND	ND	ND	0.5
105363-2	RW-3	ND	ND	ND	ND	0.5
105363-4	RW-29	ND	ND	ND	ND	0.5
105363-5	RW-30	ND	ND	ND	ND	0.5
105363-6	RW-31	ND	ND	ND	ND	0.5

ND = Not detected at or above reporting limit.

* Reporting Limit applies to all analytes.

QA/QC SUMMARY: SURROGATE RECOVERY

105363-1	100%
105363-2	100%
105363-4	101%
105363-5	100%
105363-6	100%

MS/MSD SUMMARY SHEET FOR EPA 8010\8020

Operator:	AV	Spike file:	284H/B007
Analysis date:	10/11/91	Spike dup file:	284H/B008
Sample type:	WATER	Instrument:	GC12
Sample #:	105313-2	Sequence Name	OCT11

8010 MS/MSD DATA (spiked at 20 ppb)

SPIKE COMPOUNDS	READING	RECOVERY	STATUS	LIMITS
1,1-Dichloroethene	19.79	99 %	OK	61 - 145
Trichloroethene	14.80	74 %	OK	71 - 120
Chlorobenzene	19.48	97 %	OK	75 - 130
SPIKE DUP COMPOUNDS				
1,1-Dichloroethene	20.54	103 %	OK	61 - 145
Trichloroethene	17.10	86 %	OK	71 - 120
Chlorobenzene	20.69	103 %	OK	75 - 130
SURROGATES				
BROMOBENZENE (MS)	103.00	103 %	OK	75 - 120
BROMOBENZENE (MSD)	103.00	103 %	OK	75 - 120

8020 MS/MSD DATA (spiked at 20 ppb)

SPIKE COMPOUNDS	READING	RECOVERY	STATUS	LIMITS
Benzene	15.76	79 %	OK	76 - 127
Toluene	16.02	80 %	OK	76 - 125
Chlorobenzene	19.31	97 %	OK	75 - 130
SPIKE DUP COMPOUNDS				
Benzene	16.48	82 %	OK	76 - 127
Toluene	16.78	84 %	OK	76 - 125
Chlorobenzene	20.12	101 %	OK	75 - 130
SURROGATES				
BROMOBENZENE (MS)	100.00	100 %	OK	75 - 120
BROMOBENZENE (MSD)	100.00	100 %	OK	75 - 120

RPD DATA

8010 COMPOUNDS	SPIKE	SPIKE DUP	RPD	STATUS	LIMITS
1,1-Dichloroethene	19.79	20.54	4 %	OK	<= 14
Trichloroethene	14.80	17.10	14 %	OK	<= 14
Chlorobenzene	19.48	20.69	6 %	OK	<= 13
8020 COMPOUNDS					
Benzene	15.76	16.48	4 %	OK	<= 11
Toluene	16.02	16.78	5 %	OK	<= 13
Chlorobenzene	19.31	20.12	4 %	OK	<= 13

LABORATORY CONTROL SUMMARY SHEET FOR EPA 8010/8020

Operator: AV
Analysis date: 10/11/91
Sample type: water
Spike file: a/284x/284w003

LCS SPIKE DATA (spiked at 20 ppb)

601 COMPOUNDS	READING	RECOVERY	STATUS	LIMITS
1,1-Dichloroethene	16.45	82 %	OK	61 - 145
Trichloroethene	19.85	99 %	OK	71 - 120
Chlorobenzene	20.08	100 %	OK	75 - 130
SURROGATES				
Bromobenzene	102.82	103 %	OK	86 - 115

602 COMPOUNDS	READING	RECOVERY	STATUS	LIMITS
Benzene	16.07	80 %	OK	76 - 127
Toluene	16.39	82 %	OK	76 - 125
Chlorobenzene	18.58	93 %	OK	75 - 130
SURROGATES				
Bromobenzene	100.02	100 %	OK	86 - 115

REVIEWED BY: _____

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 105363
CLIENT: ROUX ASSOCIATES
PROJECT ID: 19801W
LOCATION: HARCROS DIESEL

DATE RECEIVED: 10/03/91
DATE EXTRACTED: 10/14/91
DATE ANALYZED: 10/16/91
DATE REPORTED: 10/17/91

Extractable Petroleum Hydrocarbons in Aqueous Solutions
California DOHS Method
LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT* (ug/L)
105363-1	RW-2	ND	ND	50
105363-2	RW-3	ND	ND	50
105363-3	RW-22	ND	ND	50
105363-4	RW-29	ND	ND	50
105363-5	RW-30	ND	ND	50
105363-6	RW-31	ND	ND	50

ND = Not detected at or above reporting limit.

*Reporting limit applies to all analytes.

QA/QC SUMMARY

RPD, %	9
RECOVERY, %	98

RECEIVED OCT 3 0 1991

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 105363-3
CLIENT: ROUX ASSOCIATES
PROJECT ID: 19801W
SAMPLE ID: RW-22

DATE RECEIVED: 10/03/91
DATE ANALYZED: 10/17/91
DATE REPORTED: 10/17/91
DATE REVISED: 10/25/91

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	5.0
acetone	ND	10
carbon disulfide	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
cis-1,2-dichloroethene	5.3	5.0
trans-1,2-dichloroethene	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
2-butanone	ND	10
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
vinyl acetate	ND	10
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
dibromochloromethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
benzene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
1,1,2,2-tetrachloroethane	ND	5.0
tetrachloroethylene	ND	5.0
toluene	ND	5.0
chlorobenzene	ND	5.0
ethyl benzene	ND	5.0
styrene	ND	5.0
total xylenes	ND	5.0

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	101 %
Toluene-d8	105 %
Bromofluorobenzene	97 %