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1340 ARNOLD DRIVE  
SUITE 231  
MARTINEZ, CALIFORNIA 94553 415 370-2275 FAX # 415 370-2235

June 10, 1991

Mr Gil Wistar  
Alameda County Department of Environmental Health  
Hazardous Materials Program  
80 Swan Way, Room 200  
Oakland, California 94621

**SUBJECT: SECOND QUARTER GROUND WATER MONITORING REPORT  
HARCROS PIGMENTS FACILITY  
4650 SHELLMOUND STREET, EMERYVILLE, CALIFORNIA 94662**

Dear Mr. Wistar:

Please find enclosed a copy of the Second Quarter Ground Water Monitoring Report for the monitoring wells sampled on April 8, 1991 at the Harcros Pigments Facility in Emeryville, California. Ground water samples were collected from monitoring wells RW-2, RW-3, RW-22, RW-29, RW-30, and RW-31 and were analyzed by Curtis and Tompkins Laboratory, Berkeley, California for Total Petroleum Hydrocarbons as diesel, benzene, toluene, ethylbenzene and xylenes. At the request of the Alameda County Department of Environmental Health, a sample was collected from well RW-29 and submitted to the laboratory for analysis of total oil and grease on April 15, 1991.

Analytical data are similar to the December 8, 1990 quarterly monitoring results. However, the laboratory data detected unknown hydrocarbons in the carbon 20 (C<sub>20</sub>) to carbon 40 (C<sub>40</sub>) range in monitoring wells RW-2, RW-3, and RW-29. These hydrocarbons were not detected during the previous round. Laboratory analysis of total oil and grease collected on April 15, 1991 from well RW-29 did not detect hydrocarbons.

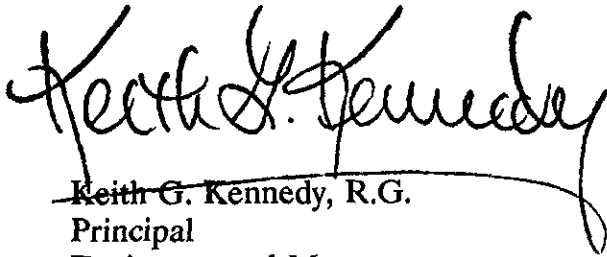
Third round ground water data from the wells will be reviewed to determine if the unknown hydrocarbons are present during the third sampling event.

Please contact Brian Thomas if you have any questions or comments regarding this report.

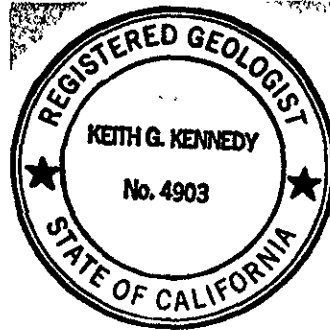
Sincerely,  
ROUX ASSOCIATES



Brian Thomas  
Senior Hydrogeologist



Keith G. Kennedy, R.G.  
Principal  
Environmental Manager  
California Registered Geologist No. 4903



cc: Mike Herzog, Harcros Pigments, Inc. w/enclosures

**SECOND QUARTER GROUND WATER MONITORING**

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

June 7, 1991

*Prepared for:*

**Harcros Pigments Plant  
Emeryville, California**

*Prepared by:*

**ROUX ASSOCIATES  
1350 Arnold Drive, Suite 201  
Martinez, CA 94553  
(415) 370-2275**

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

**DATE:** June 7, 1991

**PROJECT NO:** 19801W

**SUBMITTED BY:** Roux Associates  
1350 Arnold Drive, Suite 201  
Martinez, California 94553

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

**PREPARED BY:** \_\_\_\_\_  
Keith G. Kennedy  
California Registered Geologist No. 4903

\_\_\_\_\_  
Brian Thomas  
Senior Hydrogeologist

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## 1.0 INTRODUCTION

This report presents the findings of the April, 1991 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, Figure 1).

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;
- analyze the ground water samples from wells RW-2, RW-3, RW-22, RW-29, RW-30 and RW-31 for total petroleum hydrocarbons, benzene, toluene, ethylbenzene and xylenes by United States Environmental Protection Agency (USEPA) Modified Methods 8015 and 8020.
- analyze a ground water sample from well RW-29 for oil and grease by USEPA Method 413.1;
- set up a database for ground water elevation data and ground water chemistry data.

## 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 was used to contain waste oil and solvents and was removed from the Site in December, 1987. The waste oil tank was located within the waste oil tank pit immediately east of Service Building No. 10 (Figure 2; Roux, 1988). 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-walled 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 soils and ground water around the former waste oil tank pit (Roux, 1990b). In August, 1990, the soils with concentrations of diesel fuel in the former tank pit area were excavated and transported to a Class II disposal facility (Roux, 1991). At the request of the Alameda County Department of Environmental Health (DEH), 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 downgradient from the tank pit. Monitoring wells RW-4 and RW-11 were abandoned due to soil excavation activity conducted in the former tank pit to remove soil impacted with petroleum hydrocarbons.

#### 4.0 GROUND WATER FLOW

Figure 3 shows the direction of ground water flow at the Site on April 9, 1991. The ground water flow direction beneath the Site was determined from the depth to water measurements collected on April 9, 1991. Both the depth to water and water elevations 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 flow beneath the Site on April 9, 1991 was southwesterly. Water elevation had increased from January 8 to April 9, 1991, and the direction of flow was similar during the two sampling events.

## 5.0 GROUND WATER SAMPLING

On April 9, 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, the volume of water needed to purge prior to sampling was calculated. 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 and Tompkins Limited Analytical Laboratory in Berkeley, California. The ground water samples were analyzed for total petroleum hydrocarbon as diesel (TPH-D) and benzene, toluene, ethylbenzene and xylenes (BTEX) compounds by USEPA Methods 8015 and 8020, respectively. Upon the request of the DEH, a ground water sample from well RW-29 was collected on April 15, 1991 and was analyzed for oil and grease by USEPA Method 413.1.

Neither a water level measurement was recorded nor a water sample collected at monitoring well RW-23 because the well was damaged.

Ground water samples collected with the use of a bailer were poured into one liter glass bottles for analysis as diesel TPH-D with BTEX. Visual observations of the ground water samples were recorded on well sampling forms. The pH, temperature and specific conductivity were measured at the time of sample collection (Appendix A). The sample bottles were then labeled, placed on ice and transported to the laboratory. A chain-of-custody document was maintained for the samples (Appendix B).

## 6.0 ANALYTICAL RESULTS

The analytical reports for the ground water samples are in Appendix C. Analytical results are summarized in Table 2. All concentrations of TPH-D, BTEX compounds and oil and grease were reported as below the limit of detection.

## 7.0 CONCLUSIONS

Previous investigations conducted at the Site by Roux indicated that the source of the hydrocarbons detected in ground water samples collected from the monitoring wells was limited to former UST complexes. This quarterly ground water sampling event supports the previous findings.

The third quarter ground water monitoring sampling event is tentatively scheduled during the first complete week of August 1991. In accordance with DEH letter dated September 13, 1989 to Mr. Mike Herzog, Harcros Pigments Inc., ground water samples will be analyzed on a semi-annual basis (first and third quarters) for volatile organic compounds by USEPA Method 8240 and for TPH-D by USEPA Method 8015.

## 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., 1988. Site Assessment, Petroleum Hydrocarbons in Soils, Pfizer Pigments Plant, Emeryville, California, July 11, 1989.
- 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., 1991. Soil Remediation Report, Harcros Pigments Plant, Emeryville, California, May 6, 1991.
- United States Geologic Survey, Oakland West Quadrangle, California, Revised 1980.

**TABLES**

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

| Monitoring Well Number | Measuring Point <sup>(1)</sup> Elevation | Depth to Water <sup>(2)</sup> (1/8/91) | Ground Water <sup>(1)</sup> Elevation (1/8/91) | Depth to Water <sup>(2)</sup> (4/9/91) | Ground Water <sup>(1)</sup> Elevation (4/9/91) |
|------------------------|------------------------------------------|----------------------------------------|------------------------------------------------|----------------------------------------|------------------------------------------------|
| RW-2                   | 6.84                                     | 4.93                                   | 1.91                                           | 3.50                                   | 3.34                                           |
| RW-3                   | 7.38                                     | 4.00                                   | 3.38                                           | 3.13                                   | 4.25                                           |
| RW-22                  | 7.42                                     | 4.04                                   | 3.38                                           | 3.53                                   | 3.89                                           |
| RW-29                  | 7.01                                     | 5.68                                   | 1.33                                           | 3.95                                   | 3.06                                           |
| RW-30                  | 7.51                                     | 4.23                                   | 3.28                                           | 3.24                                   | 4.27                                           |
| RW-31                  | 7.08                                     | 3.43                                   | 3.65                                           | 2.57                                   | 4.51                                           |

Footnotes:

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

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

| <u>Monitoring Well Number</u> | <u>Date</u> | <u>TPH-K</u> | <u>TPH-D</u> | <u>TPH-M</u> | <u>Volatile Organic Compounds</u> | <u>Oil and Grease</u> |
|-------------------------------|-------------|--------------|--------------|--------------|-----------------------------------|-----------------------|
| RW-2                          | 1/8/91      | ND           | ND           | NA           | ND                                | NA                    |
| RW-2                          | 4/9/91      | ND           | ND           | ND           | ND                                | NA                    |
| RW-3                          | 1/8/91      | ND           | ND           | NA           | ND                                | NA                    |
| RW-3                          | 4/9/91      | ND           | ND           | ND           | ND                                | NA                    |
| RW-22                         | 1/8/91      | ND           | ND           | NA           | ND                                | NA                    |
| RW-22                         | 4/9/91      | ND           | ND           | ND           | ND                                | NA                    |
| RW-29                         | 1/8/91      | NA           | NA           | NA           | ND                                | NA                    |
| RW-29                         | 4/9/91      | ND           | ND           | ND           | ND                                | ND                    |
| RW-30                         | 1/8/91      | NA           | NA           | NA           | ND                                | NA                    |
| RW-30                         | 4/9/91      | ND           | ND           | ND           | ND                                | NA                    |
| RW-31                         | 1/8/91      | NA           | NA           | NA           | ND                                | NA                    |
| RW-31                         | 4/9/91      | ND           | ND           | ND           | ND                                | NA                    |

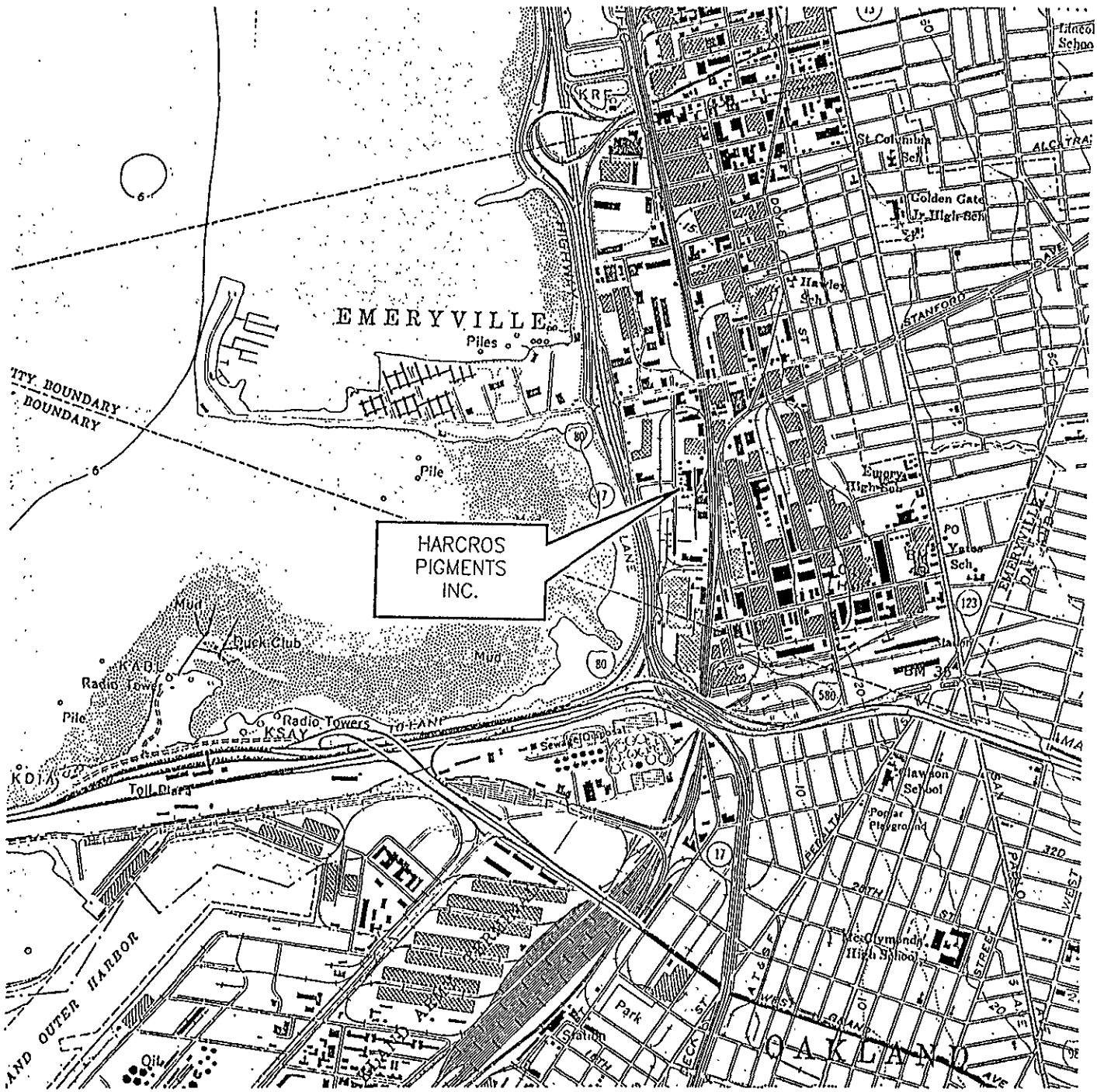
**Footnotes:**

- TPH-K = Total Petroleum Hydrocarbons as Kerosene
- TPH-D = Total Petroleum Hydrocarbons as Diesel
- TPH-M = Total Petroleum Hydrocarbons as Motor Oil
- ND = Not Detected at or above reporting limit
- NA = Not Analyzed

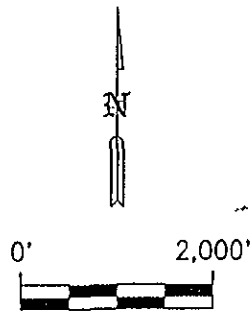
All detected concentrations are reported in  $\mu\text{g/L}$  (ppb)



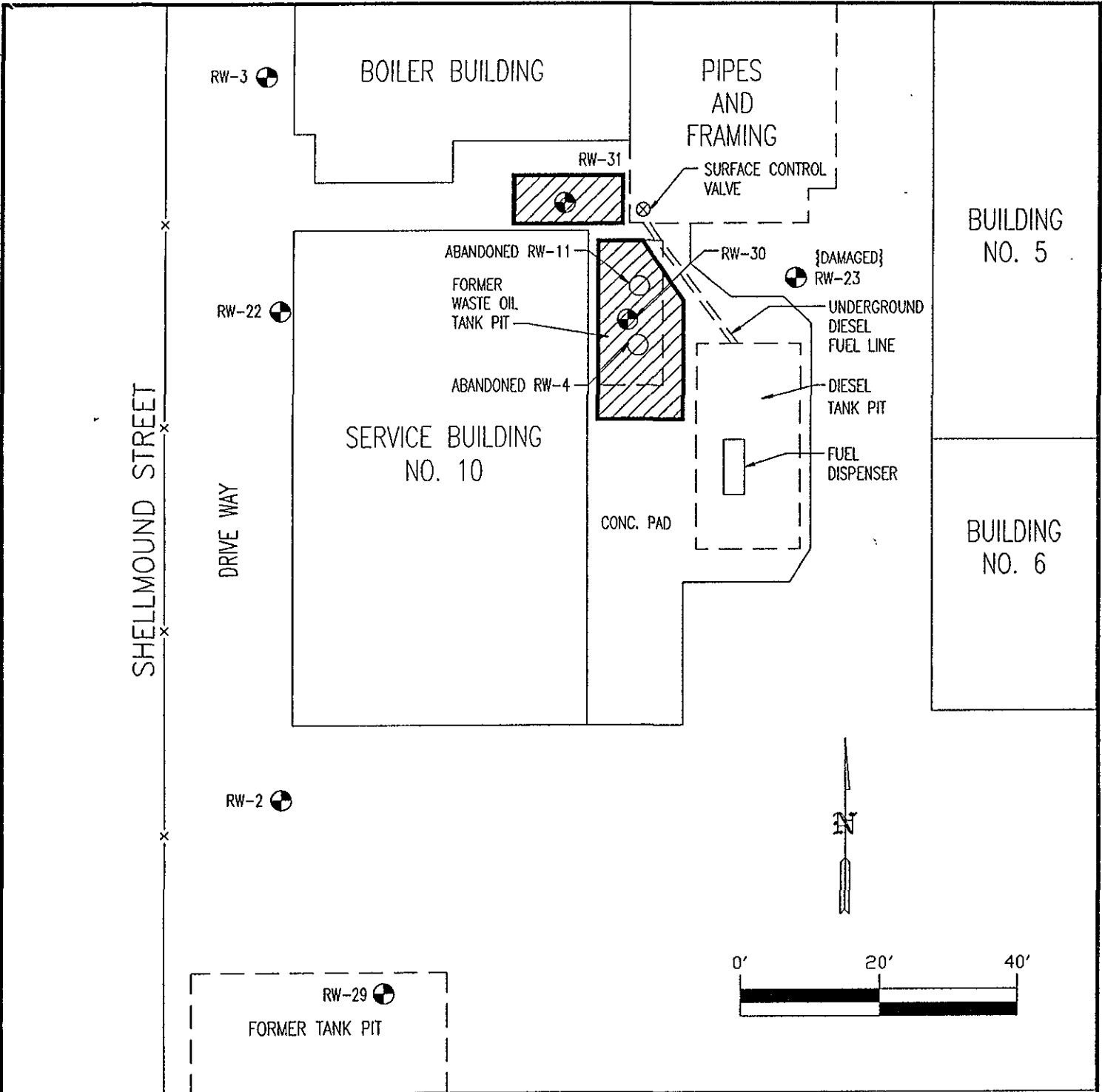
**FIGURES**



SOURCE:  
7.5 MINUTE QUADRANGLE  
OAKLAND WEST



|                                                                                  |                  |        |           |                  |             |
|----------------------------------------------------------------------------------|------------------|--------|-----------|------------------|-------------|
| TITLE:                                                                           |                  |        |           | LOCATION OF SITE |             |
| PREPARED FOR:                                                                    |                  |        |           |                  |             |
| HARCROS PIGMENTS, INC.                                                           |                  |        |           |                  |             |
| <b>ROUX</b><br>ROUX ASSOCIATES, INC.<br>ENVIRONMENTAL CONSULTING<br>& MANAGEMENT | COMPILED BY:     | B.T.   | DATE:     | 02/91            | FIGURE<br>1 |
|                                                                                  | PREPARED BY:     | R.P.   | SCALE:    | AS SHOWN         |             |
|                                                                                  | PROJECT MANAGER: | B.T.   | REVISION: | 0                |             |
|                                                                                  | PROJECT NO.      | 19801W |           |                  |             |



SHELLMOUND STREET

DRIVE WAY

BOILER BUILDING

PIPES AND FRAMING

BUILDING NO. 5

SERVICE BUILDING NO. 10

BUILDING NO. 6

RW-3

RW-31

SURFACE CONTROL VALVE

ABANDONED RW-11

RW-30

{DAMAGED} RW-23

RW-22

FORMER WASTE OIL TANK PIT

UNDERGROUND DIESEL FUEL LINE

ABANDONED RW-4

DIESEL TANK PIT

CONC. PAD

FUEL DISPENSER

RW-2

N

RW-29

FORMER TANK PIT



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 TANK PITS

PREPARED FOR:

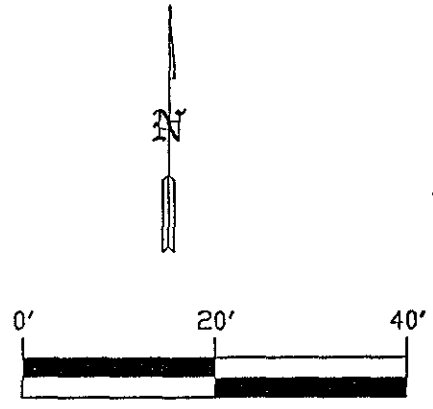
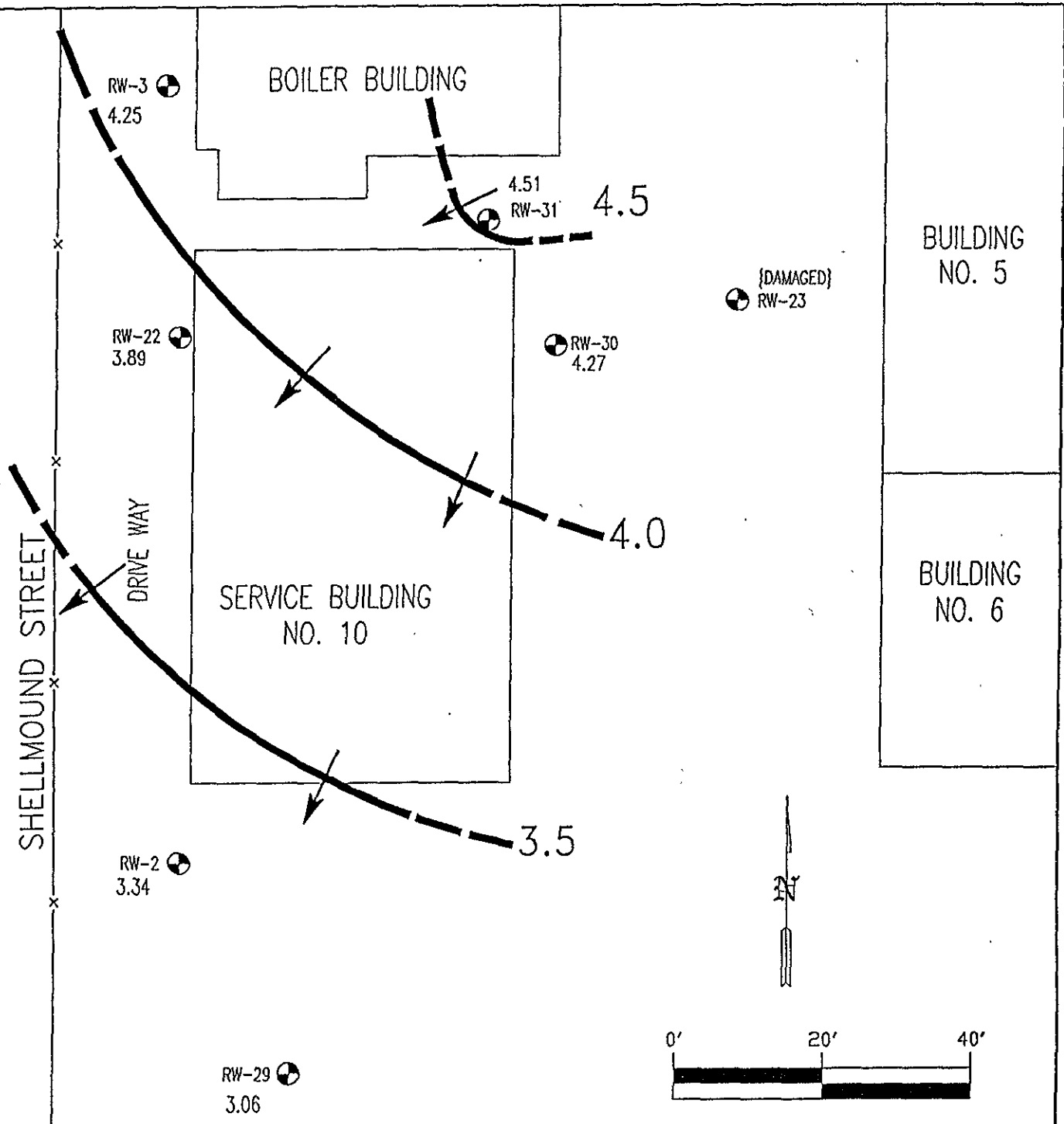
HARCROS PIGMENT, INC.

**ROUX**  
ROUX ASSOCIATES, INC.  
ENVIRONMENTAL CONSULTING & MANAGEMENT

|                  |        |           |          |
|------------------|--------|-----------|----------|
| COMPILED BY:     | B.T.   | DATE:     | 01/91    |
| PREPARED BY:     | R.P.   | SCALE:    | AS SHOWN |
| PROJECT MANAGER: | B.T.   | REVISION: | 0        |
| PROJECT NO.      | 19801W |           |          |

FIGURE

2



**EXPLANATION**

- RW-2 MONITORING WELL LOCATION AND DESIGNATION
- 3.28 GROUND WATER ELEVATION IN (FEET) RELATIVE TO EMERYVILLE DATUM
- 3.0- LINE OF EQUAL GROUND WATER ELEVATION (FEET) RELATIVE TO EMERYVILLE DATUM DASHED WHERE INFERED
- DIRECTION OF GROUND WATER FLOW

TITLE:  
**ELEVATION OF GROUNDWATER  
 APRIL 9, 1991**

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

|                                                                                                  |                       |                 |                    |
|--------------------------------------------------------------------------------------------------|-----------------------|-----------------|--------------------|
| <b>ROUX</b><br>ROUX ASSOCIATES, INC.<br><small>ENVIRONMENTAL CONSULTING &amp; MANAGEMENT</small> | COMPILED BY: J.F.     | DATE: 02/91     | FIGURE<br><b>3</b> |
|                                                                                                  | PREPARED BY: R.P.     | SCALE: AS SHOWN |                    |
|                                                                                                  | PROJECT MANAGER: B.T. | REVISION: 0     |                    |
| PROJECT NO. 19801W                                                                               |                       |                 |                    |

**APPENDIX A**  
Well Sampling Forms

# WELL SAMPLING DATA FORM

CLIENT: HARCROS PIGMENTS

PROJECT NO.: HP19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-31

TYPE OF WELL: 4-Inch Diameter Monitoring Well

DATE: April 9, 1991

STORAGE TANK: \_\_\_\_\_

WEATHER: Sunny, warm and breezy

TIME OF START: 1523

SAMPLED BY: Jonathan Florez & Brad Hall

TIME OF FINISH: 1604

DEPTH TO BOTTOM OF WELL: 13.00 FT.

DEPTH TO WATER: 2.57 FT.

WATER COLUMN: 10.43 FT.

VOLUME OF WATER IN WELL: 6.81 GAL.

VOLUME OF WATER TO REMOVE: 20.43 GAL.

VOLUME REMOVED: 26.5 GAL.

RATE OF PURGE: 0.65 gallons per minute

METHOD OF PURGE: PVC bailer

## PHYSICAL APPEARANCE/COMMENTS:

Water is light grayish-black with high turbidity, strong rotten egg smell.

## FIELD MEASUREMENTS:

TIME: 1604

pH: 6.89

COND: 3050 micromohs/cm.

TEMP: 21°C

TURB: \_\_\_\_\_

Eh: \_\_\_\_\_

O<sup>2</sup>: \_\_\_\_\_

## TYPES OF SAMPLES COLLECTED:

Two amber 40 cc. vials analyzed for EPA 8020 (BTEX) and one liter amber bottle analyzed for EPA 8015 (TPH-Diesel).

## LABORATORY NAME & LOCATION:

Curtis and Thompkins, 2323 Fifth Street, Berkeley, California

# WELL SAMPLING DATA FORM

CLIENT: HARCROS PIGMENTS

PROJECT NO.: HP19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-30

TYPE OF WELL: 4-Inch Diameter Monitoring Well

DATE: April 9, 1991

STORAGE TANK: \_\_\_\_\_

WEATHER: Sunny, warm and breezy

TIME OF START: 1615

SAMPLED BY: Jonathan Florez & Brad Hall

TIME OF FINISH: 1650

DEPTH TO BOTTOM OF WELL: 13.50 FT.

DEPTH TO WATER: 3.24 FT.

WATER COLUMN: 10.26 FT.

VOLUME OF WATER IN WELL: 6.70 GAL.

VOLUME OF WATER TO REMOVE: 20.10 GAL.

VOLUME REMOVED: 23 GAL.

RATE OF PURGE: 0.66 gallons per minute

METHOD OF PURGE: PVC bailer

## PHYSICAL APPEARANCE/COMMENTS:

Water is light grayish-tan colored with mild turbidity, no odor.

## FIELD MEASUREMENTS:

TIME: 1650

pH: 6.66

COND: 2750 micromhos/cm.

TEMP: 22°C

TURB: \_\_\_\_\_

Eh: \_\_\_\_\_

O<sup>2</sup>: \_\_\_\_\_

## TYPES OF SAMPLES COLLECTED:

Two amber 40 cc. vials analyzed for EPA 8020 (BTEX) and one liter amber bottle analyzed for EPA 8015 (TPH-Diesel).

## LABORATORY NAME & LOCATION:

Curtis and Thompkins, 2323 Fifth Street, Berkeley, California

# WELL SAMPLING DATA FORM

CLIENT: HARCROS PIGMENTS

PROJECT NO.: HP19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-29

TYPE OF WELL: 2-inch Diameter Monitoring Well

DATE: April 15, 1991

STORAGE TANK: \_\_\_\_\_

WEATHER: Cloudy, windy and cool

TIME OF START: 1213

SAMPLED BY: Jonathan Florez

TIME OF FINISH: 1245

DEPTH TO BOTTOM OF WELL: 13.05 FT.

DEPTH TO WATER: 4.08 FT.

WATER COLUMN: 8.97 FT.

VOLUME OF WATER IN WELL: 1.46 GAL.

VOLUME OF WATER TO REMOVE: 4.39 GAL.

VOLUME REMOVED: 5.5 GAL.

RATE OF PURGE: 0.17 gallons per minute

METHOD OF PURGE: Teflon bailer

## PHYSICAL APPEARANCE/COMMENTS:

Water grey, mildly turbid with a small amount of sand particles and no odor.

## FIELD MEASUREMENTS:

TIME: 1246

pH: 6.61

COND: 1712 micromhos/cm.

TEMP: 21 °C

TURB: \_\_\_\_\_

Eh: \_\_\_\_\_

O<sup>2</sup>: \_\_\_\_\_

## TYPES OF SAMPLES COLLECTED:

One liter amber bottle analyzed for EPA 5520 (oil and grease).

## LABORATORY NAME & LOCATION:

Curtis and Thompkins, 2323 Fifth Street, Berkeley, California



# WELL SAMPLING DATA FORM

CLIENT: HARCROS PIGMENTS

PROJECT NO.: HP19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-29

TYPE OF WELL: 2" Diameter Monitoring Well

DATE: April 9, 1991

STORAGE TANK: \_\_\_\_\_

WEATHER: Sunny, warm, breezy

TIME OF START: 1340

SAMPLED BY: Jonathan Florez

TIME OF FINISH: 1406

DEPTH TO BOTTOM OF WELL: 13.05 FT.

DEPTH TO WATER: 3.95 FT.

WATER COLUMN: 9.10 FT.

VOLUME OF WATER IN WELL: 1.46 GAL.

VOLUME OF WATER TO REMOVE: 4.38 GAL.

VOLUME REMOVED: 5.25 GAL.

RATE OF PURGE: \_\_\_\_\_

METHOD OF PURGE: Teflon bailer

## PHYSICAL APPEARANCE/COMMENTS:

*No odor, slightly turbid*

## FIELD MEASUREMENTS:

TIME: 1415

pH: 6.75

COND: 1930 micromhos

TEMP: 22 °

TURB: \_\_\_\_\_

Eh: \_\_\_\_\_

O<sup>2</sup>: \_\_\_\_\_

## TYPES OF SAMPLES COLLECTED:

Two amber 40 cc vials analyzed for EPA 8020 (BTEX) and one liter amber bottle analyzed for EPA 8015 (TPH-D).

## LABORATORY NAME & LOCATION:

Curtis & Tompkins, Berkeley, California

# 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: April 9, 1991

STORAGE TANK: \_\_\_\_\_

WEATHER: Sunny, warm and breezy

TIME OF START: 1509

SAMPLED BY: Jonathan Florez & Brad Hall

TIME OF FINISH: 1540

DEPTH TO BOTTOM OF WELL: 13.90 FT.

DEPTH TO WATER: 3.53 FT.

WATER COLUMN: 10.37 FT.

VOLUME OF WATER IN WELL: 6.77 GAL

VOLUME OF WATER TO REMOVE: 20.31 GAL

VOLUME REMOVED: 21 GAL

RATE OF PURGE: 0.68 gallons per minute

METHOD OF PURGE: PVC baller

## PHYSICAL APPEARANCE/COMMENTS:

Water is light grayish-tan colored with mild turbidity, no odor.

## FIELD MEASUREMENTS:

TIME: 1540

pH: 6.69

COND: 2550 micromhos/cm.

TEMP: 22°C

TURB: \_\_\_\_\_

Eh: \_\_\_\_\_

O<sup>2</sup>: \_\_\_\_\_

## TYPES OF SAMPLES COLLECTED:

Two amber 40 cc. vials analyzed for EPA 8020 (BTEX) and one liter amber bottle analyzed for EPA 8015 (TPH-Diesel).

## LABORATORY NAME & LOCATION:

Curtis and Thompkins, 2323 Fifth Street, Berkeley, California

# WELL SAMPLING DATA FORM

CLIENT: HARCROS PIGMENTS

PROJECT NO.: HP19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-3

TYPE OF WELL: 2-Inch Diameter Monitoring Well

DATE: April 9, 1991

STORAGE TANK: \_\_\_\_\_

WEATHER: Sunny, warm and breezy

TIME OF START: 1630

SAMPLED BY: Jonathan Florez & Brad Hall

TIME OF FINISH: 1648

DEPTH TO BOTTOM OF WELL: 17.62 FT.

DEPTH TO WATER: 3.13 FT.

WATER COLUMN: 14.49 FT.

VOLUME OF WATER IN WELL: 2.36 GAL.

VOLUME OF WATER TO REMOVE: 7.09 GAL.

VOLUME REMOVED: 8 GAL.

RATE OF PURGE: 0.44 gallons per minute

METHOD OF PURGE: Teflon bailer

## PHYSICAL APPEARANCE/COMMENTS:

Water is light grayish-tan with mild turbidity, no odor.

## FIELD MEASUREMENTS:

TIME: 1648

pH: 6.76

COND: 2910 micromhos/cm.

TEMP: 22°C

TURB: \_\_\_\_\_

Eh: \_\_\_\_\_

O<sup>2</sup>: \_\_\_\_\_

## TYPES OF SAMPLES COLLECTED:

Two amber 40 cc. vials analyzed for EPA 8020 (BTEX) and one liter amber bottle analyzed for EPA 8015 (TPH-Diesel).

## LABORATORY NAME & LOCATION:

Curtis and Thompkins, 2323 Fifth Street, Berkeley, California

# WELL SAMPLING DATA FORM

CLIENT: HARCROS PIGMENTS

PROJECT NO.: HP19801W

LOCATION: 4650 Shellmound Street, Emeryville, California

WELL NUMBER: RW-2

TYPE OF WELL: 2-Inch Diameter Monitoring Well

DATE: April 9, 1991

STORAGE TANK: \_\_\_\_\_

WEATHER: Sunny, warm and breezy

TIME OF START: 1425

SAMPLED BY: Jonathan Florez & Brad Hall

TIME OF FINISH: 1450

DEPTH TO BOTTOM OF WELL: 17.26 FT.

DEPTH TO WATER: 3.50 FT.

WATER COLUMN: 13.76 FT.

VOLUME OF WATER IN WELL: 2.24 GAL.

VOLUME OF WATER TO REMOVE: 6.73 GAL.

VOLUME REMOVED: 8 GAL.

RATE OF PURGE: 0.32 gallons per minute

METHOD OF PURGE: Teflon bailer

## PHYSICAL APPEARANCE/COMMENTS:

Water is light grayish-tan with mild turbidity, no odor.

## FIELD MEASUREMENTS:

TIME: 1445

pH: 6.77

COND: 2330 micromhos/cm.

TEMP: 21 °C

TURB: \_\_\_\_\_

Eh: \_\_\_\_\_

O<sup>2</sup>: \_\_\_\_\_

## TYPES OF SAMPLES COLLECTED:

Two amber 40 cc. vials analyzed for EPA 8020 (BTEX) and one liter amber bottle analyzed for EPA 8015 (TPH-Diesel).

## LABORATORY NAME & LOCATION:

Curtis and Thompkins, 2323 Fifth Street, Berkeley, California

**APPENDIX B**

Chain-of-Custody Documentation

Brian Thomas 103543



CHAIN OF CUSTODY

Nº 00195W

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

PROJECT NAME: *H. ... Edward, Inc.*  
 PROJECT NUMBER: *19801W*

PROJECT LOCATION: *Shelburne St. Greenville, CA.*

SAMPLER(S): *Jonathan Flores*

SAMPLE DESIGNATION/LOCATION: *RW-29*  
 DATE COLLECTED: *4-15-91*  
 TIME COLLECTED: *1250*

| ANALYSES                                                                                       |  |  |  |  |  |  | PAGE | OF |
|------------------------------------------------------------------------------------------------|--|--|--|--|--|--|------|----|
| SAMPLE MATRIX<br><i>EPA 5520/oil/Grease</i><br><i>1 liter Amber</i><br><i>110 preservative</i> |  |  |  |  |  |  |      |    |
|                                                                                                |  |  |  |  |  |  |      |    |
|                                                                                                |  |  |  |  |  |  |      |    |
|                                                                                                |  |  |  |  |  |  |      |    |
|                                                                                                |  |  |  |  |  |  |      |    |
|                                                                                                |  |  |  |  |  |  |      |    |
|                                                                                                |  |  |  |  |  |  |      |    |
|                                                                                                |  |  |  |  |  |  |      |    |
|                                                                                                |  |  |  |  |  |  |      |    |
|                                                                                                |  |  |  |  |  |  |      |    |

| SAMPLE DESIGNATION/LOCATION | DATE COLLECTED | TIME COLLECTED | WATER        | 1        |  |  |  |  |  | NOTES |
|-----------------------------|----------------|----------------|--------------|----------|--|--|--|--|--|-------|
| <i>RW-29</i>                | <i>4-15-91</i> | <i>1250</i>    | <i>Water</i> | <i>1</i> |  |  |  |  |  |       |
|                             |                |                |              |          |  |  |  |  |  |       |
|                             |                |                |              |          |  |  |  |  |  |       |
|                             |                |                |              |          |  |  |  |  |  |       |
|                             |                |                |              |          |  |  |  |  |  |       |
|                             |                |                |              |          |  |  |  |  |  |       |
|                             |                |                |              |          |  |  |  |  |  |       |
|                             |                |                |              |          |  |  |  |  |  |       |
|                             |                |                |              |          |  |  |  |  |  |       |
|                             |                |                |              |          |  |  |  |  |  |       |

|                                                                  |                    |                        |                     |                                   |                                                |     |                     |      |                       |
|------------------------------------------------------------------|--------------------|------------------------|---------------------|-----------------------------------|------------------------------------------------|-----|---------------------|------|-----------------------|
| RELINQUISHED BY: (SAMPLER'S SIGNATURE)<br><i>Jonathan Flores</i> | FOR<br><i>ROUX</i> | DATE<br><i>4-15-91</i> | TIME<br><i>1222</i> | SEAL INTACT<br>Y OR N<br><i>Y</i> | RECEIVED BY: (SIGNATURE)<br><i>[Signature]</i> | FOR | DATE                | TIME | SEAL INTACT<br>Y OR N |
| RELINQUISHED BY: (SIGNATURE)                                     | FOR                | DATE                   | TIME                | SEAL INTACT<br>Y OR N             | RECEIVED BY: (SIGNATURE)                       | FOR | DATE                | TIME | SEAL INTACT<br>Y OR N |
| RELINQUISHED BY: (SIGNATURE)                                     | FOR                | DATE                   | TIME                | SEAL INTACT<br>Y OR N             | RECEIVED BY: (SIGNATURE)<br><i>[Signature]</i> | FOR | DATE<br><i>4/15</i> | TIME | SEAL INTACT<br>Y OR N |

DELIVERY METHOD: *Hand delivered*  
 ANALYTICAL LABORATORY: *Curtis & Tompkins*  
 COMMENTS: *Standard turn around time*

163457

**ROUX**

**CHAIN OF CUSTODY**

**No 00111 W**

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

ANALYSES PAGE OF

PROJECT NAME (HARROSS) PROJECT NUMBER  
*Pfizer Emeryville 17801W*

PROJECT LOCATION  
*Shellmeard Street, Emeryville*

SAMPLER(S)  
*Brad Hall and T Florez*

SAMPLE MATRIX  
*ETHANOL (1 Liter/min)*  
*TPH - Diesel*  
*FPA - 8020*  
*BTEX (40 ml Vol)*  
 TOTAL BOTTLES

| SAMPLE DESIGNATION/LOCATION | DATE COLLECTED | TIME COLLECTED |   |   |  |  |  |  | NOTES |
|-----------------------------|----------------|----------------|---|---|--|--|--|--|-------|
| RW-2                        | 4-9-91         | 1445           | 1 | 2 |  |  |  |  |       |
| RW-3                        |                | 1700           | 1 | 2 |  |  |  |  |       |
| RW-22                       |                | 1540           | 1 | 2 |  |  |  |  |       |
| RW-29                       |                | 1415           | 1 | 2 |  |  |  |  |       |
| RW-20                       |                | 1650           | 1 | 2 |  |  |  |  |       |
| RW-31                       |                | 1605           | 1 | 2 |  |  |  |  |       |

|                                                                |     |      |      |                                                           |                                                    |     |      |      |                                                           |
|----------------------------------------------------------------|-----|------|------|-----------------------------------------------------------|----------------------------------------------------|-----|------|------|-----------------------------------------------------------|
| RELINQUISHED BY: (SAMPLER'S SIGNATURE)<br><i>Janeth Florez</i> | FOR | DATE | TIME | SEAL INTACT Y OR N<br><input checked="" type="checkbox"/> | RECEIVED BY: (SIGNATURE)<br><i>John F. Tomkins</i> | FOR | DATE | TIME | SEAL INTACT Y OR N<br><input checked="" type="checkbox"/> |
| 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: *Curtis Tomkins*  
 ANALYTICAL LABORATORY: *Hand Delivered*  
 COMMENTS: *Standard turnaround time. 4/15/91 - John F. requested 8020 be changed to 2240's.*

**APPENDIX C**

**Laboratory Analytical Reports**



RECEIVED MAY 13 1991



LABORATORY NUMBER: 103487  
CLIENT: ROUX ASSOCIATES  
PROJECT ID: 19801W  
LOCATION: HARCROS DIESEL

DATE RECEIVED: 04/09/91  
DATE EXTRACTED: 04/10/91  
DATE ANALYZED: 04/17/91  
DATE REPORTED: 04/18/91  
DATE REVISED: 05/10/91

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) | MOTOR OIL RANGE (ug/L) | REPORTING LIMIT (ug/L) |
|----------|-----------|-----------------------|---------------------|------------------------|------------------------|
| 103487-1 | RW-2      | ND                    | ND *                | ND *                   | 50                     |
| 103487-2 | RW-3      | ND                    | ND *                | ND *                   | 50                     |
| 103487-3 | RW-22     | ND                    | ND                  | ND                     | 50                     |
| 103487-4 | RW-29     | ND                    | ND *                | ND *                   | 50                     |
| 103487-5 | RW-30     | ND                    | ND                  | ND                     | 50                     |
| 103487-6 | RW-31     | ND                    | ND                  | ND                     | 50                     |

ND = Not detected at or above reporting limit.

\* No diesel fuel or motor oil is present in these samples at or above reporting limit. RW-2, RW-3 and RW-29 contain what appears to be a mixture of eleven aliphatic hydrocarbons ranging from C20 to C40. Quantitation is not possible as no applicable petroleum hydrocarbon standard is available. In general terms, sample RW-2 has a somewhat higher concentration than sample RW-29, which has a somewhat higher concentration than sample RW-3.

QA/QC SUMMARY

```

=====
RPD, %                               7
RECOVERY, %                           119
=====

```

LABORATORY NUMBER: 103487  
 CLIENT: ROUX ASSOCIATES  
 PROJECT ID: 19801W  
 LOCATION: HARCROS DIESEL

DATE RECEIVED: 04/09/91  
 DATE ANALYZED: 04/11-12/91  
 DATE REPORTED: 04/18/91

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

| LAB ID   | CLIENT ID | BENZENE<br>(ug/L) | TOLUENE<br>(ug/L) | ETHYL<br>BENZENE<br>(ug/L) | TOTAL<br>XYLENES<br>(ug/L) | REPORTING<br>LIMIT *<br>(ug/L) |
|----------|-----------|-------------------|-------------------|----------------------------|----------------------------|--------------------------------|
| 103487-1 | RW-2      | ND                | ND                | ND                         | ND                         | 0.5                            |
| 103487-2 | RW-3      | ND                | ND                | ND                         | ND                         | 0.5                            |
| 103487-3 | RW-22     | ND                | ND                | ND                         | ND                         | 0.5                            |
| 103487-4 | RW-29     | ND                | ND                | ND                         | ND                         | 0.5                            |
| 103487-5 | RW-30     | ND                | ND                | ND                         | ND                         | 0.5                            |
| 103487-6 | 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

|             |     |
|-------------|-----|
| RPD, %      | 1   |
| RECOVERY, % | 102 |



Client: Roux Associates

Laboratory Login Number: 103543

Project Name: Harcros Diesel

Report Date: 17 April 91

Project Number: 19801W

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

METHOD: SMWW 17:5520BF

| Lab ID     | Sample ID | Matrix | Sampled   | Received  | Analyzed  | Result | Units | RL | Analyst | QC Batch |
|------------|-----------|--------|-----------|-----------|-----------|--------|-------|----|---------|----------|
| 103543-001 | RW-29     | Water  | 15-APR-91 | 15-APR-91 | 16-APR-91 | ND     | mg/L  | 5  | TR      | 1243     |

ND = Not Detected at or above Reporting Limit (RL).