Texaco Refining and Marketing Inc
10 Universal City Plaza
Universal City CA 91608

April 28, 1994

ENV - SERVICE STATIONS
Quarterly Groundwater Monitoring Report
2225 Telegraph Avenue
Oakland, California

Mr. Tom Peacock
Alameda County Environmental
Health Department
80 Swan Way, Room 200
Oakland, CA 94621

Dear Tom:

This letter will confirm our telephone conversation regarding your request for additional information to be submitted with our future quarterly monitoring and sampling reports. As we discussed, wells RW-1 and RW-2 are not monitored nor sampled as part of the quarterly monitoring program because they are part of an ongoing groundwater treatment system. However, the effluent from these wells are sampled and are reported to EBMUD on Texaco's groundwater self monitoring report.

Enclosed is a copy of the fourth quarter groundwater self monitoring report as submitted to EBMUD. Texaco recently received permission to reduce the reporting requirements from quarterly to biannually. By copy of this letter to Texaco's Richmond office I am instructing them to copy your office on all future groundwater self monitoring reports submitted. In addition, they are to include a statement, on the Quarterly Monitoring Report, which will inform your office on the operational status of the groundwater treatment system for that particular quarter.

Please call me at (818) 505-2476 if you have any questions or wish to discuss the report further.

Very truly yours,
Texaco Refining and Marketing Inc.

Bob Robles
Environmental Protection Coordinator

RR:rr

Enclosure
RRZielinski

pr

April 28, 1994

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Very truly yours,
Texaco Refining and Marketing Inc.

Bob Robles
Environmental Protection Coordinator

RR:rr

Enclosure
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pr__

Alameda Co.

RESNA
Working To Restore Nature

3315 Almaden Expressway, Suite 34
San Jose, CA 95118
Phone: (408) 264-7723
FAX: (408) 264-2435

TRANSMITTAL

TO: Ms. Molly Ong
East Bay Municipal Utility District
Source Control Division, M.S. 702
P.O. Box 24055, 375 11th Street,
Mail Slot #702
Oakland, California 94623

DATE: January 13, 1994
PROJECT NUMBER: 62073.02
SUBJECT: Final - Former Texaco Station 2225 Telegraph Avenue, Oakland, California

FROM: Mr. Marc A. Briggs
TITLE: Project Manager

WE ARE SENDING YOU:

COPIES	DATED	NO.	DESCRIPTION
1	01/13/94	62073.02	Wastewater Discharge Permit #502-27801 Self Monitoring Report for Fourth Quarter 1993 for Groundwater Treatment System at the above subject site.

THESE ARE TRANSMITTED as checked below:

[ ] For review and comment [ ] Approved as submitted [ ] Resubmit ___ copies for approval

[X] As requested [ ] Approved as noted [ ] Submit___ copies for distribution

[ ] For approval [ ] Return for corrections [ ] Return ___ corrected prints

[ ] For your files

cc: Mr. Robert Robles, Texaco Environmental Services (1 copy)
Mr. Paul Priebe, Texaco Environmental Services (1 copy)

Copies: 1 to RESNA project file no. 62073.02

MB
Project Manager Marc A. Briggs

RESNA
Working To Restore Nature

3315 Almaden Expressway, Suite 34
San Jose, CA 95118
Phone: (408) 264-7723
FAX: (408) 264-2435

January 13, 1994

Ms. Molly Ong
East Bay Municipal Utility District
Source Control Division, M.S. 702
P.O. Box 24055, 375 11th Street, Mail Slot #702
Oakland, California 94623

Subject: WASTEWATER DISCHARGE PERMIT #502-27801
Self Monitoring Report for Fourth Quarter 1993 for Groundwater Treatment System
Former Texaco Station,
2225 Telegraph Avenue, Oakland, California.

Ms. Ong:

As requested by Texaco Environmental Services (TES), RESNA Industries, Inc. (RESNA) presents this letter regarding the operation and performance data collected for the groundwater treatment system at the above-subject site for Fourth Quarter 1993, in accordance with self monitoring requirements established by the East Bay Municipal Utility District (EBMUD) Wastewater Discharge Permit #502-27801.

The groundwater treatment system was installed at this site in 1990 by Harding Lawson Associates. The system was temporarily shutdown on June 4, 1992, and was reactivated on January 27, 1993. TES personnel are currently self-monitoring the operation and maintenance of the treatment system. RESNA personnel are currently the duly authorized representatives for reporting all operation and performance data collected on the groundwater treatment system (See Attachment A - Letter of Authorization). Exxon Company, U.S.A. is currently operating the site as an active service station facility.

The system was shut-down on November 15, 1993, to replace an inoperative pump and to perform preventive maintenance on the compressor. The system was restarted on January 12, 1994.

The treatment system extracts groundwater from two recovery wells RW-1 and RW-2 using air displacement pumps. Extracted groundwater is directed to a 1,000 gallon holding tank located in the treatment compound through subgrade remediation piping. The water is

contained in the tank until level sensors in the tank activate a transfer pump. The transfer pump discharges water from the tank for treatment through three carbon canisters in series prior to discharge to the sanitary sewer. A flow totalizer measures the total volume of water discharged to the sewer. Sample ports are located influent to the first carbon canister, effluent to the second carbon canister and the third carbon canister for monthly monitoring of system performance.

Water samples are collected monthly influent to the first carbon canister (CARB-INFL/INFL.), and effluent to the second carbon canister (CARB-BT2/BT2). Water samples are collected quarterly effluent to the third carbon canister (CARB-EFFL/EFFL). Collected samples are analyzed by a State Certified Laboratory (Mobile Chem Labs Inc.) for the presence of benzene, toluene, ethylbenzene, xylene (BTEX) and total petroleum hydrocarbons as gasoline (TPHg) using EPA Methods 5030/8020/8015. Analytical results are then reviewed to evaluate carbon breakthrough rates for the second carbon canister and to evaluate compliance with site specific wastewater discharge permit conditions.

Operation and performance data for the groundwater treatment system including laboratory analyses results of water samples collected for the period of September 27, 1993 through November 15, 1993 are summarized in Table 1. Also enclosed with this letter are copies of the laboratory reports and Chain-Of-Custody forms (Attachment B), copies of the field data sheet (Attachment C), and carbon breakthrough calculations (Attachment D).

As indicated by Table 1, BTEX and TPHg concentrations in an effluent water sample (CARB-EFFL) collected on October 20, 1993 were below laboratory detection limits, and thus within EBMUD permit limits.

Based on the field data, it appears that a total of 28,428 gallons of water has been treated and discharged during the period of September 27 to November 15, 1993. A cumulative total of 583,679 gallons of water have been discharged to the sewer as of November 15, 1993 (see Table 1 and Attachment C).

RESNA
Working to Restore Nature

Please call (408) 264-7723, if you have any questions or comments.

Sincerely,
RESNA Industries Inc.

Philip J. Mayberry
Project Geologist

James L. Nelson
Certified Engineering
Geologist No. 1463

REGISTERED GEOLOGIST
JAMES LEWIS NELSON
No. 1463
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

cc: Mr. Robert Robles, Texaco Environmental Services
Mr. Paul Priebe, Texaco Environmental Services

Attachments:

Table 1:	Operation & Performance Data for Groundwater Treatment System
Attachment A:	Letter of Authorization
Attachment B:	Laboratory Reports and Chain-Of-Custody Documentation
Attachment C:	Facility Inspection Logs
Attachment D:	Carbon Breakthrough Calculations

62073.02\1227mong

TABLE 1: OPERATION & PERFORMANCE DATA FOR GROUNDWATER TREATMENT SYSTEM FOR 4th QUARTER 1993 2255 TELEGRAPH AVENUE, OAKLAND, CALIFORNIA

SAMPLE DATE	SAMPLE ID#	CONCENTRATIONIN PARTS PER BILLION (PPB)					VOL. OF WATER DISCHARGED (GALS.)
		TPHg	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	
PERMIT LIMITS*		**NA**	**5**	**12**	**5**	**11**	-
09/27/93	CARB-INFL./INFL.	1,100	47	1.5	<0.5	120	555,251
	CARB-BT2/BT2	<50	<0.5	<0.5	<0.5	<0.5	
10/20/93	CARB-INFL./INFL.	6,100	270	72	11	400	567,610
	CARB-BT2/BT2	<50	<0.5	<0.5	<0.5	<0.5	
	CARB-EFFL/EFFL.	<50	<0.5	<0.5	<0.5	<0.5	
11/15/93	System was shut-down						583,679
01/12/94	System was restarted						

TABLE 1: OPERATION & PERFORMANCE DATA FOR GROUNDWATER TREATMENT SYSTEM FOR 4th QUARTER 1993 2255 TELEGRAPH AVENUE, OAKLAND, CALIFORNIA

SAMPLE DATE	SAMPLE ID#	CONCENTRATION IN PARTS PER BILLION (PPB)					VOL. OF WATER DISCHARGED (GALS.)
		TPHg	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	

NOTES:

* EBMUD permit limits are the maximum discharge concentrations of BTEX and TPHg that can be present in treated water discharged to the sewer.

** Changed the first carbon canister out and added a new third carbon canister

*** Despite detectable TPHg concentrations in effluent water (72 ppb), discharge permit limits were not exceeded due to non detectable levels of BTEX.

**** System was shut down on 04/28/93 on realizing that detectable levels of TPHg were reported in the effluent sample from the third carbon canister on 04/15/93. A second sample was collected on 04/28/93 for verification prior to shutdown. As can be seen nondetectable levels of TPHg were reported confirming that the 04/15/93 effluent results were an anomaly.

NA Not Applicable (Not specified)

NS Not Sampled

TPHg Total Petroleum Hydrocarbons as gasoline

INF Influent to I Carbon Canister

BT2 Effluent to II Carbon (breakthrough through No. 2 Canister)

EFFL Effluent to III Carbon, discharged to sanitary sewer

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ATTACHMENT A

LETTER OF AUTHORIZATION

RESNA
Working To Restore Nature

3315 Almaden Expressway, Suite 34
San Jose, CA 95118
Phone: (408) 264-7723
FAX: (408) 264-2435

LETTER OF AUTHORIZATION

This letter authorizes the Geologic Technician (Ms. Mary Rysdale), the Project Engineer (Ms. Valli Voruganti) and/or the Project Manager (Mr. Phil Mayberry) of RESNA Industries, Inc. as the duly authorized representatives for having the responsibility of reporting all operational data collected on the groundwater remediation system at the Former Texaco station located at 2225 Telegraph Avenue, Oakland, California from which the wastewater originates. Texaco Environmental Services (TES) is currently self-monitoring the operation and maintenance of the groundwater remediation system.

R Robles

Mr. Robert Robles
Environmental Protection Coordinator
Texaco Environmental Services

1/13/94
Date of Authorization

RESNA
Working to Restore Nature

ATTACHMENT B

LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

MOBILE CHEM LABS INC.

5011 Blum Road, Suite 1 • Martinez, CA 94553
Phone (510) 372-3700 • Fax (510) 372-6955

624880195\1342\013078

Texaco Environmental Services
108 Cutting Blvd.
Richmond, CA 94804
Attn: Paul Priebe
Project Manager

Date Sampled: 10-20-93
Date Received: 10-20-93
Date Analyzed: 10-26-93

Sample Number	Sample Description
103403	Texaco - Oakland 2225 Telgraph Ave. EFF WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

5011 Blum Road, Suite 1 • Martinez, CA 94553
Phone (510) 372-3700 • Fax (510) 372-6955

624880195\1342\013078

Texaco Environmental Services
108 Cutting Blvd.
Richmond, CA 94804
Attn: Paul Priebe
Project Manager

Date Sampled: 10-20-93
Date Received: 10-20-93
Date Analyzed: 10-26-93

Sample Number	Sample Description
103409	Texaco - Oakland 2225 Telgraph Ave. BT-2 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	<0.5
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

5011 Blum Road, Suite 1 • Martinez, CA 94553
Phone (510) 372-3700 • Fax (510) 372-6955

624880195\1342\013078

Texaco Environmental Services
108 Cutting Blvd.
Richmond, CA 94804
Attn: Paul Priebe
Project Manager

Date Sampled: 10-20-93
Date Received: 10-20-93
Date Analyzed: 10-26-93

Sample Number	Sample Description
103410	Texaco - Oakland 2225 Telgraph Ave. INF WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	6,100
Benzene	0.5	270
Toluene	0.5	72
Xylenes	0.5	400
Ethylbenzene	0.5	11

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.
(ppb) = (µg/L)

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

Texaco

GTEL ENVIRONMENTAL LABORATORIES, INC

4080- Pike Lane
Concord, CA 94520
415-686-7852

800-544-3422 (In CA)
800-423-7143 (Outside CA)

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST 72- 13760

Project Manager: Paul Priebe
Phone #: 510 2363541
FAX #:

Address: 108 Cutting Blvd Richmond CA 94801
Site location: 2225 Telegraph Ave Oakland CA

Project Number: 624880195
Project Name: 2225 Telegraph

I attest that the proper field sampling procedures were used during the collection of these samples.
Sampler Name (Print): Paul Priebe

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# CONTAINERS	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO_3	H_2SO_4	ICE	NONE	OTHER	Sampling: DATE	TIME
EFF	Unocal 5734		2	X					X			X			10-20-93	830
BT-2			2	X					X			X				835
INF			2	X					X			X				840

ANALYSIS REQUEST

BTEX 602 ☐ 8020 ☐ with MTBE ☐
BTEX/TPH Gas 602/8015 ☐ 8020/8015 ☐ MTBE ☐
TPH as ☐ Gas ☐ Diesel ☐ Jet Fuel
Product I.D. by GC (SIMDIS) ☐
Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐
Total Petroleum Hydrocarbons: 418.1 ☐ 503E ☐
EPA 601 ☐ 8010 ☐ DCA only ☐
EPA 602 ☐ 8020 ☐
EPA 608 ☐ 8080 ☐ PCBs only ☐
EPA 610 ☐ 8310 ☐
EPA 624 ☐ 8240 ☐ NBS +15 ☐
EPA 625 ☐ 8270 ☐ NBS +25 ☐
EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐
TCLP Metals ☐ VOA ☐ Semi VOA ☐
EPA Priority Pollutant Metals ☐ HSL ☐
LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐
CAM Metals ☐ STLC ☐ TTLC
Corrosivity ☐ Flashpoint ☐ Reactivity ☐

SPECIAL HANDLING

24 HOURS ☐
EXPEDITED 48 Hours ☐
SEVEN DAY ☒
OTHER _____ (#) BUSINESS DAYS
QA/QC CLP Level ☐ Blue Level ☐
FAX ☐

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

REMARKS: On ice no head space

Lab Use Only
Lot #:
Storage Location
Work Order #:

CUSTODY RECORD

Relinquished by Sampler	Received by:	Date	Time
Texaco		10-20-93	1045
Relinquished by:	Received by:	Date	Time
Relinquished by:	Received by Laboratory:	Date	Time
	Dave Lopez	10-20-93	10:04

Way bill #

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ATTACHMENT C

FACILITY INSPECTION LOGS

FACILITY INSPECTION LOG
Groundwater Treatment System
2225 Telegraph Ave.
Oakland, California

Date	Time	Discharge Flow Totalizer	Activity/Observations	Operator Initials	Company or Agency
5 10 93	7:55	009511 0/0	Jenafer Smith EB MUD Took Eff H_2O Sample	PGP	Texaco / EBMUD
5 14 93	10:00	009856 8/0	Took BT-2 and INF Sample Cleaned Filter And Compard R1 350355 R2-547530	PGP	T.E.S.
6-1-93	8:00	010991 8/0	Took BT-2 and INF Sample Cleaned Filter	PGP	TES
6-14-93	8:20	011882 4/0	Took BT-2 and INF Sample Cleaned Filter Drained Air Comp	PGP	TES
			R2- 572440 R1-362212	~~PGP~~	~~TES~~
6 29 93	17:40	012634 0/9	Sampled BT-2 and INF Cleaned Filter	PGP	TES
7-21-93	1900	012682 0/0	System Down Restart Cleaned Probs Sampled	PGP	Tes
			Eff, BT-2 INF		
8-1-93	7:00	013375 0/0	Sampled BT-2 and Inf	PGP	T.E.S.
8-27-93	8:30	013896 6/0	Sampled BT-2 and INF Oiled AC	PGP	T.E.S.
			R1 367676 Fired Probs R2 610196 Cleaned Probs		
9-27-93	16:25	015618 0/7	Sampled BT-2 and Inf R1 396080 R2 619607	PGP	T.E.S
~~10-20-93~~					
10-20-93	9:30	016854 8/8	Sampled Eff, BT-2 and INF From Between Tank and Carbon INF	PGP	T.E.S

Pumped out Containment Sump

FACILITY INSPECTION LOG
Groundwater Treatment System
2225 Telegraph Ave.
Oakland, California

Date	Time	Discharge Flow Totalizer	Activity/Observations	Operator Initials	Company or Agency
11-15-93	230	18461 6/5	System Down. Air Compressor need oil Change Possible Air Problem with Pumps	PGP	TES

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ATTACHMENT D

CARBON BREAKTHROUGH CALCULATIONS

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CARBON BREAKTHROUGH CALCULATIONS

Design Criteria

Volume of wastewater treated	=	28,428 gallons
Days of operation	=	49 days (September 27, 1993, through November 15, 1993)
Avg. Influent TPHg Conc.	=	3,600 (based on cumulative results of laboratory analyses of influent water samples (Table 1)
Carbon Canisters	=	Three, 200-pound activated liquid-phase carbon canisters

Assumptions

1) Based on manufacturer's specifications on liquid-phase carbon, carbon has an adsorption capacity of:

   5 pounds (lbs) TPHg/100 lbs carbon = 10 lbs TPHg/200-lb carbon canister

2) Breakthrough is said to have occurred when the first reported detectable levels of hydrocarbons are detected at the sample port downstream of the second carbon (CARB-BT2/BT2).

Breakthrough Calculations

The average amount of TPHg in pounds per gallon, before activated carbon treatment, is calculated below:

$$\frac{3{,}600\ \mu grams\ TPHg}{1\ \ell\ H_2O} \quad \frac{1\ gram}{1{,}000{,}000\mu grams} \quad \frac{1\ lb}{454\ grams} \quad \frac{3.785\ \ell}{1\ gallon} = \frac{3.0\times10^{-5}\ lbs\ TPHg}{1\ gallon\ H_2O}$$

The amount of TPHg in pounds to be treated during this 49 day period on a pound per day basis (lb/day), before activated carbon treatment is calculated below:

$$\frac{3.0\times10^{-5}\ lbs\ TPH}{1\ gallon\ H_2O}\ \frac{28{,}428\ gallons}{49\ days} = \frac{0.017\ lbs\ TPHg}{1\ day}$$

Carbon breakthrough rate after flow through two carbon canisters is calculated as follows:

$$\frac{5\ lb\ TPHg}{100\ lbs\ Carbon}\ \frac{200\ lb\ Carbon}{One\ Canisters}\ \frac{1\ day}{0.017\ lb\ TPHg} = \frac{588\ days}{One\ Canister}$$

Thus at the design criteria detailed above, liquid-phase carbon changeout will be required approximately every nineteen (19) months.