CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

September 29, 1994

Ms. Karen Petryna
Environmental Project Coordinator
Texaco Environmental Services
10 Universal City Plaza, 7th Floor
Universal City, California 91608

Subject: SUMMARY REPORT OF REMEDIATION SYSTEM RESTART at the Former Texaco Service Station, 1127 Lincoln Avenue, Alameda, California.

Ms. Petryna:

California Environmental Engineers & Contractors (CEECON) is pleased to present this SUMMARY REPORT OF REMEDIATION SYSTEM RESTART to Texaco Environmental Services (TES) for the Former Texaco Service Station located at 1127 Lincoln Avenue, Alameda, California. This report summarizes the modification and restart of the remediation system in July 1994. The remediation system consists of both a vapor-extraction system (VES) and a groundwater-treatment system (GTS). The results of the first week of monitoring of the VES, calculations of vapor carbon breakthrough, and the rate of vapor-phase hydrocarbon removal from the site are also included. A summary of the status of the GTS and laboratory analytical results of groundwater samples are also included.

SITE BACKGROUND

The location of the site is shown on the LOCATION MAP, LM-1. Vapor-extraction wells, groundwater-extraction wells, groundwater-monitoring wells, and other site features are shown on the SITE PLAN, SP-2. Prior investigations indicate that on-site soil and groundwater have been impacted by gasoline petroleum hydrocarbons and that groundwater on adjacent properties has been impacted by petroleum hydrocarbons. In response, TES submitted a WORKPLAN FOR THE INSTALLATION AND OPERATION OF AN INTERIM SOIL AND GROUNDWATER REMEDIATION SYSTEM to Alameda Health Care Service Agency (AHCSA) on April 5, 1993. In accordance with this

WORKPLAN, CEECON manufactured, permitted, and installed a W-2000 vapor-extraction system (VES) and a 0-10 gallon-per-minute (GPM) GTS and began remediation of the site. These two systems combined to form a remediation system designed to maximize the removal rate of gasoline-petroleum hydrocarbons from beneath the site, and to prevent further off-site migration of dissolved petroleum hydrocarbons. Operation of the GTS and VES during the third quarter of 1993 and first quarter of 1994 were summarized in QUARTERLY SUMMARY REPORTS submitted to TES. The VES and GTS are discussed separately below.

VAPOR-EXTRACTION SYSTEM OPERATION

The VES consists of five vapor extraction wells (VW-1 through VW-5), three combination vapor-extraction/groundwater-extraction wells (MW-1, MW-2 and MW-5), a piping network from the wells to the remediation compound, a regenertive blower, and carbon canisters. Initially the VES included a trailer mounted CEECON C-2000 internal combustion (I.C.) engine. CEECON operated the I.C. VES in conjunction with a CEECON GTS from August 1993 through March 1994. By March of 1994, total petroleum hydrocarbons reported as gasoline (TPHg) detected in vapor influent to the VES had declined to less than 200 parts per million (ppm), making it more economical to operate a VES with a blower system consisting of a regenerative blower and carbon canisters placed in series rather than the I.C. engine. CEECON requested and obtained approval from the Bay Area Air Quality Management District (BAAQMD) to replace the I.C. engine with a blower and two 1,000-pound activated-carbon canisters arranged in series. This conversion is described in the attached BAAQMD-approved PERMIT TO OPERATE for the site. The system was shut down on March 23, 1994 in anticipation of the system modifications.

CEECON removed the I.C. engine from the site and replaced it with a blower and two carbon canisters from another TES site. The quantity of petroleum hydrocarbons loaded onto the carbon from use at the previous site was unknown. Upon installation of the blower and carbon canisters, CEECON and TES confirmed that the carbon was spent and CEECON arranged for the carbon to be replaced.

In letters to BAAQMD, CEECON proposed modifications to the air quality monitoring requirements for the site because of the consistently low concentrations of petroleum hydrocarbons detected in vapor samples collected during the last three months of the system operation. In the attached NOTIFICATION OF REPLACEMENT to BAAQMD dated March 18, 1994, CEECON proposed monitoring extracted vapor before, between, and after the carbon canisters on a weekly basis using a combustible gas meter that measures total combustible gases in ppm,

and collecting influent and effluent vapor samples for laboratory analysis on a monthly basis. A copy of a letter from Mr.Robert Cave of BAAQMD dated June 6, 1994 regarding monitoring of the carbon canisters upon restart of the system, and concurring with the monitoring and sampling modifications, is attached.

The VES was restarted on July 11, 1994 after the carbon contained in the canisters was replaced. A copy of the NOTIFICATION OF RESTART dated June 27, 1994, which was sent to Mr. Robert Cave of BAAQMD, is attached. As requested by BAAQMD, during the first five days of operation CEECON conducted daily monitoring of hydrocarbon concentrations in extracted vapor before, between, and after the two in-series carbon canisters using a combustible gas meter. During the initial operation period, vapor was extracted from all of the previously mentioned vapor-extraction and combination wells. The VES also treated hydrocarbon-bearing vapor from the groundwater aeration portion of the GTS. Daily field monitoring of vapor was performed using a combustible gas meter. During the first week of operation, concentrations of hydrocarbons in vapor were also measured using a flame ionization detector (FID). The results of daily field monitoring are shown below.

TABLE 1
RESULTS OF FIRST WEEK'S DAILY FIELD MONITORING

	Influent	After First Canister	Effluent
Monday, July 11	200 ppm	0 ppm	0 ppm
Tuesday, July 12	350 ppm	250 ppm	25 ppm
Wednesday, July 13	150 ppm	150 ppm	10 ppm
Thursday, July 14	50 ppm	25 ppm	25 ppm
FID Measurements	8 ppm	2 ppm	2 ppm
Friday, July 15	100 ppm	75 ppm	25 ppm

ppm: Concentrations reported in parts per million by volume using combustible gas meter except where noted

To verify field readings, CEECON collected two sets of vapor samples for laboratory analysis. On July 12, 1994 vapor samples were collected while the carbon canisters were under pressure. CEECON then reversed the position of the blower so the canisters would be under vacuum, thereby reducing the temperature of the influent vapor. Samples were also collected on July 14, 1994 while the canisters were under vacuum. The influent sample labeled "INF" as shown on

laboratory analytical results was a sample collected from the combined influent stream of extraction well vapor and aeration tank vapor from the onsite groundwater treatment system (GTS). This sample is representative of normal site operating conditions. The sample labeled "INFVO" was collected only from the extraction well vapor stream. Field readings differed from concentrations found in laboratory analytical samples because concentrations of hydrocarbons found in samples were measured as total petroleum hydrocarbons as gasoline (TPHg) rather than as total combustible gases. Laboratory analytical results are shown below and copies of laboratory analytical results are attached. A copy of a letter dated July 29, 1994 that was sent to BAAQMD summarizing the first week of operation of the system is attached.

TABLE 2
RESULTS OF LABORATORY ANALYSES OF VAPOR SAMPLES

Sample ID	Sample Location	Date	TPHg mg/m³	B mg/m³	T mg/m³	E mg/m³	X mg/m³
INF	Influent	7/12/94	64	0.93	1.8	0.52	0.92
PC1	Post Carbon1	7/12/94	<10	<0.2	<0.2	<0.3	0.24
EFF	Effluent	7/12/94	<10	<0.2	0.2	<0.3	<0.2
INF	Influent	7/14/93	34	1.0	0.91	0.41	0.70
PC1	Post Carbon 1	7/14/94	<10	<0.2	<0.2	<0.3	0.45
EFF	Effluent	7/14/94	<10	<0.2	<0.2	<0.3	0.41
INFVO	Well Influent	7/14/94	63	0.77	1.9	0.41	1.2

mg/m³: Concentrations reported in milligrams per cubic meter
TPHg: Total petroleum hydrocarbons reported as gasoline (analyzed by EPA modified Method 8015).
B: benzene, T: toluene, E: ethyl benzene, X: total xylene isomers
BTEX: Analyzed by EPA Method 8020.
<50: Less than the laboratory detection limit.

Laboratory analytical data was used to calculate daily extraction and emission rates for TPHg and benzene (lbs/day). Extraction and emission rates from the VES are discussed below.

Calculation of Extraction Rates

The amount of TPHg and benzene extracted daily from the site is obtained by multiplying the volume of vapor extracted, by the concentration of hydrocarbons in extracted vapor. Influent flow rates during the first week of operation were measured with an electronic flow meter. An average of 75 cubic feet per minute (CFM) of combined vapor was exhausted through the carbon canisters. The combined vapor consisted of vapor extracted from the extraction wells and off-gases from the aeration tank of the GTS. Approximately 20 CFM of this total was from the aeration tank of the GTS and 55 CFM was from hydrocarbon-bearing vapor extracted from soil beneath the site. Using the maximum influent sample concentrations of TPHg (TABLE 2), the maximum daily mass extraction rate can be calculated as follows:

$$\frac{64\ \text{mg TPHg}}{1\ \text{m}^3} \times \frac{1\ \text{g}}{1{,}000\ \text{mg}} \times \frac{1\ \text{mole TPHg}}{100\ \text{g TPHg}} \times \frac{22.414\ \text{l}}{1\ \text{mole}} \times \frac{1\ \text{m}^3}{1{,}000{,}000\ \text{cm3}} \times \frac{1\ \text{cm}^3}{1\ \text{ml}} \times \frac{1{,}000\ \text{ml}}{1\ \text{l}} = 14.3\ \text{ppmv TPHg}$$

$$\frac{14.3\ \text{l (TPHg)}}{1{,}000{,}000\ \text{(l air)}} \times \frac{75\ \text{ft}^3}{\text{min}} \times \frac{1{,}440\ \text{min}}{\text{day}} \times \frac{28.32\ \text{l (air)}}{1\ \text{ft}^3} \times \frac{1\ \text{mole (gas)}}{22.414\ \text{l (vapor)}} \times \frac{100\ \text{grams}}{1\ \text{mole (gas)}} \times \frac{1\ \text{lb}}{454\ \text{grams}}$$

$$= \frac{0.43\ \text{lbs TPHg}}{\text{day}}$$

Similarly the maximum daily mass extraction rate for benzene can be calculated as follows:

$$\frac{1.0\ \text{mg benzene}}{1\ \text{m}^3} \times \frac{1\ \text{g}}{1{,}000\ \text{mg}} \times \frac{1\ \text{mole benzene}}{78\ \text{g benzene}} \times \frac{22.414\ \text{l}}{1\ \text{mole}} \times \frac{1\ \text{m}^3}{1{,}000{,}000\ \text{cm3}} \times \frac{1\ \text{cm}^3}{1\ \text{ml}} \times \frac{1{,}000\ \text{ml}}{1\ \text{l}} = 0.29\ \text{ppmv Benzene}$$

$$\frac{0.29\ \text{l (benzene)}}{1{,}000{,}000\ \text{(l air)}} \times \frac{75\ \text{ft}^3}{\text{min}} \times \frac{1{,}440\ \text{min}}{\text{day}} \times \frac{28.32\ \text{l (air)}}{1\ \text{ft}^3} \times \frac{1\ \text{mole (benzene)}}{22.414\ \text{l (vapor)}} \times \frac{78\ \text{grams}}{1\ \text{mole (benzene)}} \times \frac{1\ \text{lb}}{454\ \text{grams}}$$

$$= \frac{0.007\ \text{lbs benzene}}{\text{day}}$$

Calculations of Breakthrough

Calculations of breakthrough for the first vapor-phase carbon are presented below. In these calculations, CEECON assumed a carbon loading ratio of 15 percent by weight, a molecular weight of TPHg of 100 grams per mole, and a flow rate of 75 scfm. Using a conservative

influent concentration of TPHg of 100 ppm, the daily carbon loading is calculated as follows:

$$\frac{100 \text{ l (TPHg)}}{1{,}000{,}000 \text{ (l air)}} \times \frac{75 \text{ ft}^3}{\text{min}} \times \frac{1{,}440 \text{ min}}{\text{day}} \times \frac{28.32 \text{ l (air)}}{1 \text{ ft}^3} \times \frac{1 \text{ mole (gas)}}{22.414 \text{ l (vapor)}} \times \frac{100 \text{ grams}}{1 \text{ mole (gas)}} \times \frac{1 \text{ lb}}{454 \text{ grams}}$$

$$= \frac{3.0 \text{ lbs TPHg}}{\text{day}}$$

Given this daily hydrocarbon removal rate, and assuming that each carbon canister can adsorb approximately 150 pounds of hydrocarbons, breakthrough for the first carbon canister will occur in approximately 50 days. Influent concentrations will most likely decline as extraction from the site continues and the actual time-to-breakthrough should increase.

Calculation of Emission Rates

VES hydrocarbon emission rates are equal to the product of hydrocarbon concentrations in the exhaust effluent, multiplied by the exhaust flow rate of the VES. Total daily emissions are calculated using the laboratory analytical results of effluent samples and using the VES's average measured flow rate of 75 standard cubic feet per minute (scfm). Because no effluent samples contained greater than the method detection limit (MDL), the maximum daily mass emission rates are calculated using the MDL. However, total emissions are most likely less than the amounts calculated:

$$\frac{10 \text{ mg TPHg}}{1 \text{ m}^3} \times \frac{1 \text{ g}}{1{,}000 \text{ mg}} \times \frac{1 \text{ mole TPHg}}{100 \text{ g TPHg}} \times \frac{22.414 \text{ l}}{1 \text{ mole}} \times \frac{1 \text{ m}^3}{1{,}000{,}000 \text{ cm}^3} \times \frac{1 \text{ cm}^3}{1 \text{ ml}} \times \frac{1{,}000 \text{ ml}}{1 \text{ l}} = 2.2 \text{ ppmv TPHg}$$

$$\frac{2.2 \text{ l (TPHg)}}{1{,}000{,}000 \text{ (l air)}} \times \frac{75 \text{ ft}^3}{\text{min}} \times \frac{1{,}440 \text{ min}}{\text{day}} \times \frac{28.32 \text{ l (air)}}{1 \text{ ft}^3} \times \frac{1 \text{ mole (gas)}}{22.414 \text{ l (vapor)}} \times \frac{100 \text{ grams}}{1 \text{ mole (gas)}} \times \frac{1 \text{ lb}}{454 \text{ grams}}$$

$$= \frac{0.06 \text{ lbs TPHg}}{\text{day}}$$

Similarly the maximum daily mass emission rate for benzene is calculated below:

$$\frac{0.2 \text{ mg benzene}}{1 \text{ m}^3} \times \frac{1 \text{ g}}{1{,}000 \text{ mg}} \times \frac{1 \text{ mole benzene}}{78 \text{ g benzene}} \times \frac{22.414 \text{ l}}{1 \text{ mole}} \times \frac{1 \text{ m}^3}{1{,}000{,}000 \text{ cm3}} \times \frac{1 \text{ cm}^3}{1 \text{ ml}} \times \frac{1{,}000 \text{ ml}}{1 \text{ l}} = 0.055 \text{ ppmv Benzene}$$

$$\frac{0.055 \text{ l (benzene)}}{1{,}000{,}000 \text{ (l air)}} \times \frac{75 \text{ ft}^3}{\text{min}} \times \frac{1{,}440 \text{ min}}{\text{day}} \times \frac{28.32 \text{ l (air)}}{1 \text{ ft}^3} \times \frac{1 \text{ mole (benzene)}}{22.414 \text{ l (vapor)}} \times \frac{78 \text{ grams}}{1 \text{ mole (benzene)}} \times \frac{1 \text{ lb}}{454 \text{ grams}}$$

$$= 0.0013 \text{ lbs benzene/day}$$

These calculations show that the VES is within emission limits described in the PERMIT TO OPERATE for the site. At no time during restart did the VES exceed BAAQMD daily emission limits of 0.07 pounds per day of benzene.

Destruction Efficiency Requirements

In the PERMIT TO OPERATE for the site (attached), BAAQMD stipulates that if TPHg emissions are less than 1.0 pound per day, and benzene emissions are less than 0.02 pounds per day, BAAQMD waives minimum destruction efficiency requirements for the site. As shown on TABLE 2, at no time since system restart, did the VES emissions exceed 1.0 pound per day for TPHg and 0.02 pounds per day for benzene. Therefore, there were no minimum destruction efficiency requirements in effect for the site.

GROUNDWATER TREATMENT SYSTEM

The VES is operating in conjunction with a CEECON 0-10 GPM GTS. The GTS was installed at the site in September 1993 to extract and treat hydrocarbon-impacted groundwater, to depress the groundwater table to expose more soil for vapor extraction, and to hydraulically control the migration of dissolved hydrocarbons. The GTS consists of three downhole pumps located in the combination wells MW-1, MW-2, and MW-5, a double-contained piping network from the wells to the remediation system, and a trailer-mounted CEECON 0-10 GPM GTS. The trailer-mounted GTS includes an aeration tank, instrumentation, controls and two activated carbon canisters arranged in series. The attached drawing GTS-1 shows the trailer-mounted GTS, and the attached drawing GTS-2 details the GTS extraction and treatment process.

The GTS extracts groundwater from combination vapor-extraction/groundwater-extraction wells MW-1, MW-2, and MW-5. These wells are fitted with pumpsaver devices that turn the downhole pumps off when the wells are depleted. CEECON has adjusted the pumpsaver settings for these wells to maximize groundwater drawdown. Well MW-1 recharges to approximately 14 feet below top of casing (TOC) before it is pumped dry; similarly, wells MW-2 and MW-5 recharge to approximately 15 and 12 feet below TOC before their respective pumps restart. When the GTS is operating, the groundwater in these wells is not allowed to recharge to above these levels. The GTS was shut-down on March 22, 1994 when the I.C. engine was removed from the site. EBMUD was notified of the temporary system shut down.

The GTS assists vapor-extraction efforts by depressing the groundwater table around the combination vapor-extraction/groundwater extraction wells, while the VES extracts and treats soil vapor from the capillary fringe soil in the vicinity of these wells. Prior to restart of the remediation system, CEECON cleaned and tuned the groundwater treatment system. Water lines and fixtures were cleaned and replaced as needed. CEECON restarted the GTS on July 11, 1994.

GTS Sampling Methods and Results

Under discharge permit conditions, EBMUD requires monthly compliance sampling from the GTS. Four samples are collected from the GTS during each sampling event: one influent sample (INF-A), one midpoint sample after the aeration tank (PAT-B), a second midpoint sample after the first carbon canister (PC1-C), and one effluent sample after the second carbon canister (EFF-D) before discharge to the EBMUD sewer system.

Results of laboratory analyses of groundwater samples that were collected on August 4, 1994 from the GTS are summarized on TABLE 3, RESULTS OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES. Samples collected on August 4, 1994 were submitted to BC Analytical of Concord, California (Hazardous Waste Laboratory Certificate # 1353) for the following analyses: TPHg by modified California Department of Health Services (CADHS) method, and BTEX by modified EPA Method 8020. Chain-of-Custody protocol was followed throughout field and laboratory procedures. Draft results of laboratory analyses of groundwater samples are included in APPENDIX B. Shown below are laboratory analytical results of groundwater samples that were collected on August 4, 1994. EBMUD also collected compliance samples from the GTS on July 28, 1994. The laboratory analytical results for these samples are attached.

TABLE 3
RESULTS OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES

Sample ID	Sample Location	Date	TPHg ug/L	B mg/m³	T mg/m³	E mg/m³	X mg/m³
A-INF	Influent	8/04/94	4,000	660	170	13	190
B-INF	Post Aeration Tank	8/04/94	160	14	4.8	2.5	17
C-BT-1	Post Carbon 1	8/04/94	<50	2.2	0.68	<0.5	0.57
D-EFF	Effluent	8/04/94	<50	<0.5	<0.5	<0.5	<0.5

ug/L: Concentrations reported in micrograms per liter
TPHg: Total petroleum hydrocarbons reported as gasoline (analyzed by modified Califgornia Department of Health Services).
B: benzene, T: toluene, E: ethyl benzene, X: total xylene isomers
BTEX: Analyzed by EPA Method 8020.
<50: Less than the laboratory detection limit.

CEECON summarized information concerning initial settings of the GTS in the attached TABLE 4, GROUNDWATER TREATMENT SYSTEM OPERATION SUMMARY LOG. This table includes operational parameters such as well pumping rates, system pressures, totalizer readings, and analytical results of samples that were collected from the groundwater treatment system. As shown on the attached log, approximately 348,130 gallons of water were extracted, treated, and discharged to the EBMUD sewer system between system restart and March 22, 1994. Upon re-start of the GTS on July 11, 1994, the three combination wells were extracting water at the following average rates: MW-1 @ 1.03 gpm; MW-2 @ 0.75 gpm; MW-5 @ 1.42 gpm for a total of approximately 3.2 gpm.

GTS Removal Efficiency

According to data from the results of recent sampling of the GTS, removal efficiency of the aeration tank is approximately 95 percent. As shown on TABLE 3, no TPHg or BTEX constituents were detected in effluent water discharged to the EBMUD sewer system.

SUMMARY

Results of laboratory analyses of vapor and water samples indicate that both the VES and GTS have operated within permit requirements. Results of laboratory analyses of vapor samples collected from the VES indicate that hydrocarbon concentrations in extracted vapor have

Table 4
Groundwater Treatment System Operation Log
March 22, 1994 through July 11, 1994
1127 Lincoln Avenue, Alameda, California

Date	GTS Operating	Totalizer Reading (gal)	Pumping Rate MW-1 (GPM)	Pumping Rate MW-2 (GPM)	Pumping Rate MW-5 (GPM)	Aeration Pressure (PSI)	Carbon Pressure (PSI)	Sampled	Laboratory Results INF A		Laboratory Results PAT B		Laboratory Results PCI C		Laboratory Results EFF D	
									TPHg (ppb)	Benzene (ppb)	TPHg (ppb)	Benzene (ppb)	TPHg (ppb)	Benzene (ppb)	TPHg (ppb)	Benzene (ppb)
3/22/94	Y	348,130	1.04	0.66	1.31	7.0	10.0	N	NS	NS	NS	NS	NS	NS	NS	NS
7/11/94	Y	348,400	1.03	0.75	1.42	6.0	10.0	N	NS	NS	NS	NS	NS	NS	NS	NS

Notes

gal = gallons
GPM = gallons per minute
PSI = pounds per square inch
ppb = parts per billion

decreased significantly at the site since the installation of the VES. Extracting groundwater from the three combination wells creates a significant depression in groundwater surface elevation in the immediate vicinity of the areas with the highest reported hydrocarbon concentrations in soil and groundwater. Extracting vapor from the five vapor-extraction wells and the three combination wells has significantly reduced the hydrocarbon concentrations in soil vapor. Continued operation of the VES and GTS is anticipated to further reduce hydrocarbon concentrations in soil and groundwater.

Please call if you have any questions regarding this SUMMARY REPORT OF REMEDIATION SYSTEM RESTART.

Sincerely,
CEECON

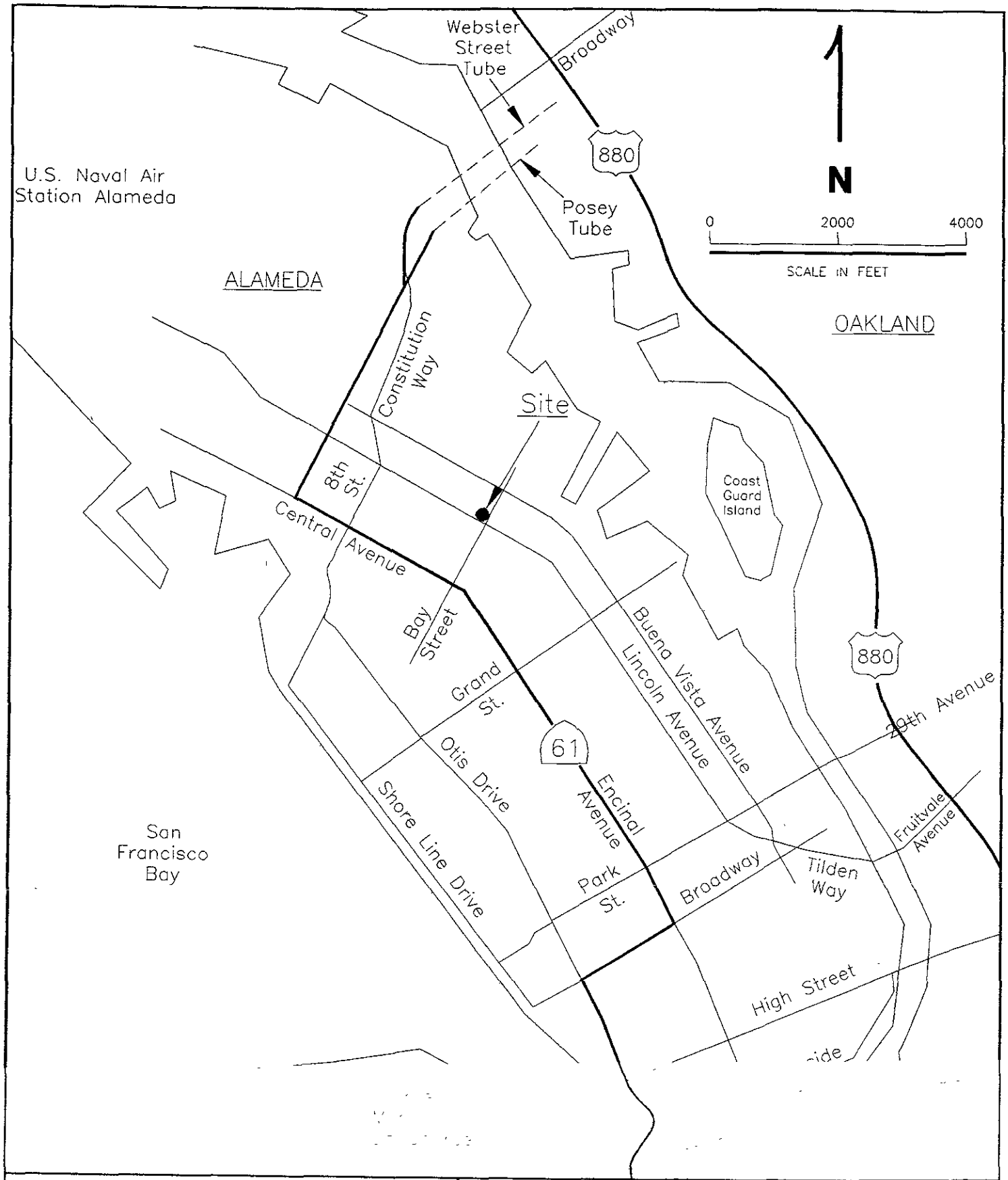
Lou Leet
for

Phil Woodward
Staff Engineer

Sincerely,
CEECON

Michael Hodges
President

Attachments: LOCATION MAP, LM-1
SITE PLAN, SP-2
BAAQMD PERMIT TO OPERATE, 1127 Lincoln Avenue, Alameda, California
NOTIFICATION OF REPLACEMENT LETTER Dated March 18, 1994
LETTER FROM BAAQMD Dated June 6, 1994
NOTIFICATION OF RESTART LETTER Dated June 27, 1994
RESULTS OF INITIAL FIVE DAY'S MONITORING Dated July 29, 1994
GTS-1, TRAILER MOUNTED GROUNDWATER TREATMENT SYSTEM
GTS-2, GROUNDWATER TREATMENT SYSTEM PROCESS DIAGRAM
Appendix A, Chain of Custody Records & Results of Laboratory Analyses of Vapor Samples
Appendix B. Results of Laboratory Analyses of Water Samples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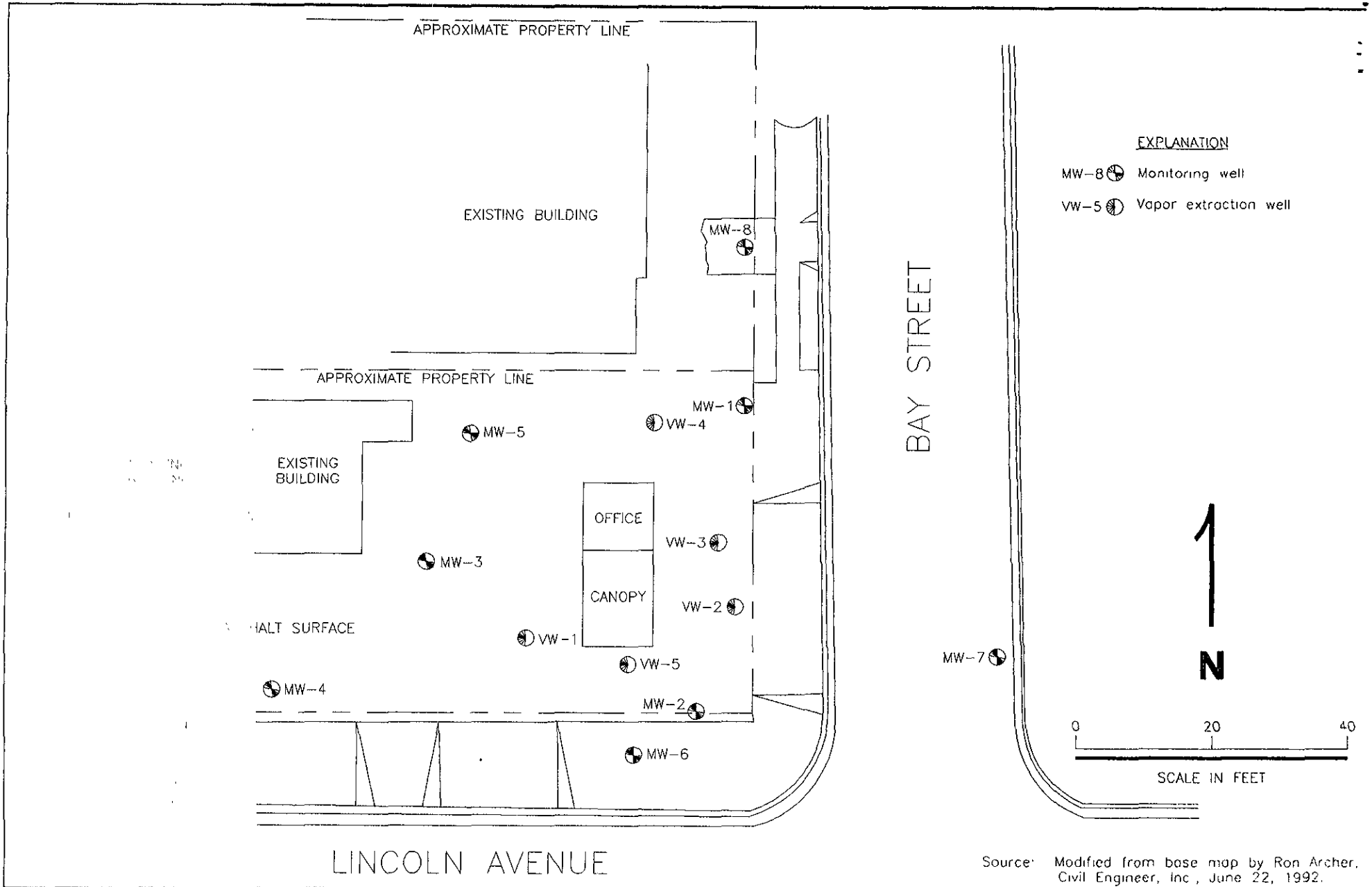
Broadway
880
Posey Tube
U.S. Naval Air Station Alameda
ALAMEDA
OAKLAND
Constitution Way
Site
8th St.
Central Avenue
Coast Guard Island
Bay Street
Grand St.
Buena Vista Avenue
Lincoln Avenue
880
29th Avenue
61
Otis Drive
Encinal Avenue
Shore Line Drive
Park St.
Broadway
Tilden Way
Fruitvale Avenue
San Francisco Bay
High Street
1
N
0
2000
4000
SCALE IN FEET

CEECON



Source: Modified from base map by Ron Archer, Civil Engineer, Inc., June 22, 1992.

CEECON
ENVIRONMENTAL ENGINEERS & CONTRACTORS

Date: 02/15/94

Site Plan
Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

PERMIT TO OPERATE No. 10719

PLANT No. 8607

SOURCE No. 1

CEECON

IS HEREBY GRANTED A PERMIT TO OPERATE THE FOLLOWING EQUIPMENT:

Soil Vapor Extraction System consisting of a 150 max cfm positive displacement vacuum blower, and ancillary equipment, abated by A-1, or A-2 and A-3 arranged in series: A-1 CEECON C-1000, Internal Combustion Engine, A-2 Westates, VSC-1200, 1,000 lb capacity Carbon Adsorption Vessel and A-3 Westates, VSC-1200, 1,000 lb capacity Carbon Adsorption VEssel

LOCATED AT: 1127 Lincoln Avenue
Alameda, CA 94501

CONDITIONS: ☑ YES ☐ NO *(All permit conditions must be complied with at all times *)*

If YES, See Attached *Condition No.* 9715

MILTON FELDSTEIN
AIR POLLUTION CONTROL OFFICER

Date February 15, 1994

By John C. Swanson
Permit Services Division

EXPIRATION DATE *February 15, 1995*

THIS PERMIT DOES NOT AUTHORIZE ANY VIOLATION OF THE RULES AND REGULATIONS OF THE BAAQMD OR THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA. THIS PERMIT IS NOT TRANSFERABLE TO ANOTHER PERSON WITHOUT APPROVAL FROM THE DISTRICT.

* *Compliance with conditions contained in this permit does not mean that the permittee is currently in compliance with District Rules and Regulations. It is the responsibility of the permittee to have knowledge of and be in compliance with all District Rules and Regulations.*

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

PERMIT TO OPERATE No. 10719

PLANT No. 8607

SOURCE No. 2

CEECON

IS HEREBY GRANTED A PERMIT TO OPERATE THE FOLLOWING EQUIPMENT:

CEECON GTS-10 Water Aeration System and ancillary equipment, abated by A-1, or A-2 and A-3 arranged in series: A-1 CEECON C-1000, Internal Combustion Engine, A-2 Westates, VSC-1200, 1,000 lb capacity Carbon Adsorption Vessel, and A-3 Westates, VSC-1200, 1,000 lb capacity Carbon Adsorption Vessel

LOCATED AT: 1127 Lincoln Avenue

Alameda, CA 94501

CONDITIONS: ☑ YES ☐ NO *(All permit conditions must be complied with at all times *)*

If YES, See Attached *Condition No.* 9715

MILTON FELDSTEIN
AIR POLLUTION CONTROL OFFICER

Date February 15, 1994

By _____
Permit Services Division

EXPIRATION DATE February 15, 1995

THIS PERMIT DOES NOT AUTHORIZE ANY VIOLATION OF THE RULES AND REGULATIONS OF THE BAAQMD OR THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA. THIS PERMIT IS NOT TRANSFERABLE TO ANOTHER PERSON WITHOUT APPROVAL FROM THE DISTRICT.

* *Compliance with conditions contained in this permit does not mean that the permittee is currently in compliance with District Rules and Regulations. It is the responsibility of the permittee to have knowledge of and be in compliance with all District Rules and Regulations.*

COND# 9715 ----------

1. Precursor Organic Compound (POC) emissions from Sources S-1 and S-2 shall be abated by either Abatement device A-1, I.C. Engine, or A-2 & A-3, two 1,000 pound activated carbon vessels arranged in series, during all periods of operation.
2. The POC destruction efficiency of Abatement devices A-1, A-2, and A-3 shall be maintained at a minimum of 98.5% by weight for inlet concentrations greater than or equal to 3000 ppmv. For inlet concentrations below 3000 ppmv and greater than or equal to 1000 ppmv, a minimum destruction efficiency of 97% shall be maintained. For inlet concentrations below 1000 ppmv, a minimum destruction efficiency of 90% shall be maintained. The minimum destruction efficiency of 90% shall be waived if total emissions from the operation are less than 1 pound per day VOC and benzene emissions are less than 0.02 pounds per day.
3. A-1 shall be properly maintained and kept in good operating condition at all times. In no event shall Benzene emissions to the atmosphere exceed 0.07 pounds per day.
4. To determine compliance with Conditions 2 and 3, the operator of this equipment shall:
   a. Analyze inlet gas stream to determine the flow rate and concentration of total VOC's present for each of the first three days of operation. Thereafter, the inlet gas shall be analyzed to determine the flow rate and concentration of total VOC's once every two weeks.
   b. Analyze exhaust gas to determine the concentration of benzene and total VOC's present for each of the first three days of operation. Thereafter, the exhaust gas shall be analyzed to determine the concentration of benzene once every two weeks.
   c. Calculate the benzene emission rate in pounds per day based on the exhaust gas analysis and the operating exhaust flow rate. The soil vapor flow rate shall be decreased, if necessary, to demonstrate compliance with Conditions 2 and 3.
   d. Submit to the District the test results and emission calculations for the first three days of operation within one month of start-up. All source test methods used shall be subject to the prior approval of the Source Test Section of the District Technical Division.
5. The operator of this source shall maintain the following information in a District-approved log for each month of operation of A-1:
   a. days of operation
   b. inlet and exhaust flow rate
   c. inlet and exhaust sampling date
   d. analysis results
   e. calculated emissions of benzene in pounds per day.

   Such records shall be retained and made available for inspection by the District for two years following the date the data is recorded.

6. Once influent concentrations fall below 1000 ppmv, the abatement device may be changed from A-1, I. C. Engine to A-2 & A-3, carbon canisters arranged in series. Such changeover shall take place only after written notification of said abatement change has been received by the District. Operation of the source shall then be subject to the conditions which follow.
7. The second to last carbon cell, A-2, shall be changed out with unspent carbon upon breakthrough, defined as the detection at the outlet of the higher of the following:
   a. 10 % of the inlet stream concentration to the carbon bed.
   b. 10 ppmv (measured as Cl).

   This shall be measured by a Flame-ionization Detector (FID) or other method approved in writing by the APCO.
8. The last carbon cell, A-3, shall be changed out with unspent carbon upon detection of breakthrough defined in condition 7 as measured with a Flame-ionization Detector (FID) or other method approved in writing by the APCO.
9. The limits set forth in Conditions # 7 and # 8 shall apply to non-methane hydrocarbon emissions. To determine the presence of methane in the exhaust stream, a reading shall be taken with and without a carbon filter tip fitted on the OVA-FID probe. Concentrations measured with the carbon filter tip in place shall be considered methane for the purpose of these permit conditions.
10. The operator of this source shall monitor with an OVA-FID or other method approved in writing by the APCO at the following locations:
    a. At the inlet to carbon bed A-2.
    b. At the exhaust of A-2; the inlet to carbon bed A-3.
    c. At the outlet of carbon bed A-3; the carbon bed that is last in series prior to venting to the atmosphere.
11. These monitor readings shall be recorded in a monitoring log at the time they are taken. The monitoring results shall be used to estimate the frequency of carbon change out necessary to maintain compliance with conditions number 7 and 8.
12. To maintain compliance with conditions number 7 and 8, the monitoring shall be conducted on a daily basis. The operator of this source may propose for District review, based on actual measurements taken at the site during operation of the source, that the monitoring schedule be changed based on the decline in organic emissions and/or the demonstrated breakthrough rates of the carbon vessels. Written approval by the District must be received by the applicant prior to a change to the monitoring schedule.
13. The operator of this source shall maintain the following information in a District approved log for each month of operation of A-2, and A-3:
    a. The hours of operation.
    b. Each monitor reading or analysis result for the day of operation they are taken.
    c. The number of carbon beds removed from service.

Any exceedance of conditions number 7 and/or 8 shall be reported to the Permits Division with the log as well as the corrective action taken. In addition, an exceedance of conditions number 7 and/or 8 shall be submitted to the District Enforcement Section at the time it occurs. The submittal shall detail the corrective action taken and shall include the data showing the exceedance as well at the time of occurrence.

14. The operator shall maintain a file containing all measurements, records and other data that are required to be collected pursuant to the various provisions of this conditional Authority to Construct/Permit to Operate. All measurements, records and data required to be maintained by the applicant shall be retained for at least two years following the date the data is recorded.

15. Upon final completion of the remediation project, the operator of Sources S-1 and S-2 shall notify the district within two weeks of decommissioning the operation.

CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

March 18, 1994

Mr. John A. Swanson
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California

Subject: Notification of Replacement of I.C. Engine with Extraction Blower and Vapor-Phase Carbon Canisters.

Site: Former Texaco Service Station, 1127 Lincoln Avenue, California.

Reference: Application Number **10719**

Mr. Swanson:

California Environmental Engineers & Contractors (CEECON) is requesting approval from the Bay Area Air Quality Management District (BAAQMD) to replace the internal combustion engine (I.C.) at the subject site with a regenerative blower and two 1,000-pound activated-carbon canisters arranged in series. This conversion is described in BAAQMD's approved PERMIT TO OPERATE for this site. Analytical results of vapor samples collected from the site indicate total petroleum hydrocarbons reported as gasoline (TPHg) concentrations have declined to less than 1,000 parts per million by volume (ppmv) (as required by BAAQMD before the changeover can take place), and have been consistently below 200 ppmv for the last six months.

CEECON, in coordination with Texaco Environmental Services, will remove the I.C. engine and replace it with a 150 cubic feet per minute (cfm) Rotron blower. Abatement will be performed by two 1,000-pound vapor phase carbon canisters arranged in series. The scheduled date for the system conversion is March 23, 1994.

CEECON also proposes modifications in the monitoring requirements that were specified in the PERMIT TO OPERATE. Given the recent consistently low concentrations of hydrocarbons, CEECON proposes weekly monitoring of the extracted vapor before, between, and after the vapor-phase carbon canisters using a portable combustible gas meter (GasTechtor model 1314), and monthly collection of vapor samples. The vapor samples will be collected in one liter sample bags and submitted to a State-certified laboratory for analysis for TPHg by modified

Environmental Protection Agency (EPA) Method 8015 and for the gasoline constituents benzene, toluene, ethyl benzene, and total xylene isomers (BTEX), by modified EPA Method 8020.

Please call if you have any questions regarding this request, the site, or CEECON remediation equipment.

Sincerely,
CEECON

Phil Woodward
Staff Engineer

Michael Hodges
President

cc: Mr. Robert Robles, Texaco Environmental Services.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

June 6, 1994

Phil Woodward, Staff Engineer
CEECON for:
Texaco Environmental Services
1517 Palmetto Avenue, Suite 4
Pacifica, CA 94044

Dear Sir:

The District has reviewed your request, dated 3 May 1994, for the use of a portable combustible gas meter to monitor breakthrough of the Carbon Vessels (A-2, and A-3). Based on the information provided, the monitoring equipment appears to be adequate to determine 10 ppmv (measured as C_1). Please realize that the monitoring schedule for operation of the Carbon Cannisters remains at a daily basis. At the end of the first week of operation, we can determine if a less stringent monitor frequency is appropriate.

Please keep a copy of this letter as verification that a monitoring equipment has been approved by the District for operation of the Carbon vessels (A-2, and A-3) at the site subject to A/C # 10719 (plant #8607).

If you have any questions regarding this matter, please call me at (415) 749-5114.

Very truly yours,

Robert E. Cave
Air Quality Engineer Asst.
Permit Services Division

REC:rkt

CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

June 27, 1994

Mr. John A. Swanson
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California

Subject: NOTIFICATION OF RESTART of the Vapor-Extraction System located at the Former Texaco Service Station, 1127 Lincoln Avenue, Alameda, California

Reference: BAAQMD Authority to Construct\Permit to Operate #10719

Mr. Swanson:

California Environmental Engineers & Contractors (CEECON) recently modified the soil and groundwater remediation system installed at the subject site. The C-2000 internal combustion engine was replaced by a regenerative blower and two 1,000-pound, in-series, vapor-phase, carbon canisters. The VES was temporarily shut-down to allow for this modification. CEECON will be re-starting the VES on Monday, July 11, 1994. On the Friday following system start-up, CEECON will provide the BAAQMD with estimated breakthrough rates for both carbon canisters and results of daily monitoring of the site using a portable combustible gas meter.

Sincerely,
CEECON

Phil Woodward
Staff Engineer

Sincerely,
CEECON

Michael Hodges
President

CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

July 29, 1994

Mr. John A. Swanson
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California

Subject: RESULTS OF THE INITIAL FIVE DAY'S MONITORING OF THE VAPOR-EXTRACTION SYSTEM located at the Former Texaco Service Station, 1127 Lincoln Avenue, Alameda, California

Reference: BAAQMD Authority to Construct\Permit to Operate #10719

Mr. Swanson:

California Environmental Engineers & Contractors (CEECON) is pleased to present the results of the initial five days of monitoring of the vapor-extraction system (VES) that was recently modified at the above-referenced site. The VES was re-started on Monday, July 11, 1994 after replacement of carbon in the canisters. As requested by Mr. Robert Cave of Bay Area Air Quality Management District (BAAQMD), CEECON conducted daily monitoring of hydrocarbon concentrations in extracted vapor before, between, and after the two in-series 1,000-pound activated-carbon canisters during the initial five days of operation. A portable combustible gas meter was used to measure the hydrocarbon concentrations.

To verify field readings, CEECON collected two sets of vapor samples to be analyzed by a State-certified laboratory. On Tuesday, July 12, 1994 samples were collected while the carbon canisters were under pressure. CEECON then reversed the position of the blower so the canisters would be under vacuum, rather than pressure, reducing the temperature of influent vapor. Samples were collected with the system in this second configuration on Thursday, July 14, 1994. The influent sample labeled "INF" was collected from the combined influent stream of extraction well vapor, and aeration tank vapor from the on-site groundwater treatment system (GTS). This sample is representative of normal site operating conditions. The sample labeled "INFVO" was collected only from the extraction well vapor stream. Laboratory analytical results are attached.

Daily field monitoring of vapor was performed using a portable combustible gas meter that measured total combustible gases in parts per million (ppm). Field readings are in rough approximation with concentrations found in laboratory analytical samples because concentrations of hydrocarbons found in samples were measured as total petroleum hydrocarbons as gasoline (TPHg) rather than as total combustible gases. Results of the initial five days of field monitoring are shown below:

		Influent	After Initial Canister	Effluent
Monday, July 11		200 ppm	0 ppm	0 ppm
Tuesday, July 12		350 ppm	250 ppm	25 ppm
Analytical Results	TPHg	(64)	ND(<10)	ND(<10)
(in mg/m^3)	Benzene	(0.93)	ND(<0.2)	ND(<0.2)
Wednesday, July 13		150 ppm	150 ppm	10 ppm
Thursday, July 14		50 ppm	25 ppm	25 ppm
FID Measurements		8 ppm	2 ppm	2 ppm
Analytical Results	TPHg	(34)	ND(<10)	ND(<10)
(in mg/m^3)	Benzene	(0.77)	ND(<0.2)	ND(<0.2)
Friday, July 15		100 ppm	75 ppm	25 ppm

On Thursday, July 14, 1994 hydrocarbon vapor concentrations before, between, and after carbon canisters were also measured using a flame ionization detector (FID). Results of FID monitoring are shown above. Total daily emissions are calculated using the laboratory analytical results of effluent samples and using the average measured flow rate of 75 standard cubic feet per minute (scfm). Because no effluent samples contained greater than the method detection limit (MDL), the maximum daily mass emission rates are calculated using the MDL. However, total emissions are most likely less than the amounts calculated:

$$\frac{10\ \text{mg TPHg}}{1\ \text{m}^3} \times \frac{1\ \text{g}}{1{,}000\ \text{mg}} \times \frac{1\ \text{mole TPHg}}{100\ \text{g TPHg}} \times \frac{22.414\ \text{l}}{1\ \text{mole}} \times \frac{1\ \text{m}^3}{1{,}000{,}000\ \text{cm}^3} \times \frac{1\ \text{cm}^3}{1\ \text{ml}} \times \frac{1{,}000\ \text{ml}}{1\ \text{l}} = 2.2\ \text{ppmv TPHg}$$

$$\frac{2.2\ \text{l TPHg}}{1{,}000{,}000\ \text{l vapor}} \times \frac{75\ \text{ft}^3}{\text{min}} \times \frac{1{,}440\ \text{min}}{\text{day}} \times \frac{28.32\ \text{l vapor}}{1\ \text{ft}^3} \times \frac{1\ \text{mole TPHg}}{22.414\ \text{l vapor}} \times \frac{100\ \text{grams}}{1\ \text{mole TPHg}} \times \frac{1\ \text{lb}}{454\ \text{grams}}$$

$$= \frac{0.066\ \text{lbs TPHg}}{\text{day}}$$

Similarly the maximum daily mass emission rate for benzene is calculated below:

$$\frac{0.2\ mg\ benzene}{1\ m^3} \times \frac{1\ g}{1{,}000\ mg} \times \frac{1\ mole\ benzene}{78\ g\ benzene} \times \frac{22.414\ l}{1\ mole} \times \frac{1\ m^3}{1{,}000{,}000\ cm3} \times \frac{1\ cm^3}{1\ ml} \times \frac{1{,}000\ ml}{1\ l} = 0.057\ ppmv\ Benzene$$

$$\frac{0.057\ l\ benzene}{1{,}000{,}000\ l\ vapor} \times \frac{75\ ft^3}{min} \times \frac{1{,}440\ min}{day} \times \frac{28.32\ l\ air}{1\ ft^3} \times \frac{1\ mole\ benzene}{22.414\ l\ vapor} \times \frac{78\ grams}{1\ mole\ benzene} \times \frac{1\ lb}{454\ grams}$$

$$= \frac{0.0013\ lbs\ benzene}{day}$$

These calculations show that the VES is within emission limits described in the PERMIT TO OPERATE for the site. At no time since start-up did the VES exceed BAAQMD daily emission limits of 0.07 pounds per day of benzene.

Calculations of breakthrough for the initial vapor-phase carbon are presented below. In these calculations, CEECON assumed a carbon loading ratio of 15 percent by weight, a molecular weight of TPHg of 100 grams per mole, and a flow rate of 75 scfm. Using a conservative influent concentration of TPHg of 100 ppm, the daily carbon loading is calculated as follows:

$$\frac{100\ l\ TPHg}{1{,}000{,}000\ l\ vapor} \times \frac{75\ ft^3}{min} \times \frac{1{,}440\ min}{day} \times \frac{28.32\ l\ vapor}{1\ ft^3} \times \frac{1\ mole\ TPHg}{22.414\ l\ vapor} \times \frac{100\ grams}{1\ mole\ TPHg} \times \frac{1\ lb}{454\ grams}$$

$$= \frac{3.0\ lbs\ TPHg}{day}$$

Given this daily hydrocarbon removal rate, and assuming that each carbon canister can adsorb approximately 150 pounds of hydrocarbons, breakthrough for the initial carbon canister will occur in approximately 50 days. Influent concentrations will most likely decline as extraction from the site continues and the actual time-to-breakthrough should increase. CEECON understands that TES is currently monitoring the VES on a weekly basis using an FID. Given the calculated breakthrough of 50 days, CEECON requests that less frequent monitoring requirements be imposed for the site.

Please call if you have any questions regarding this project.

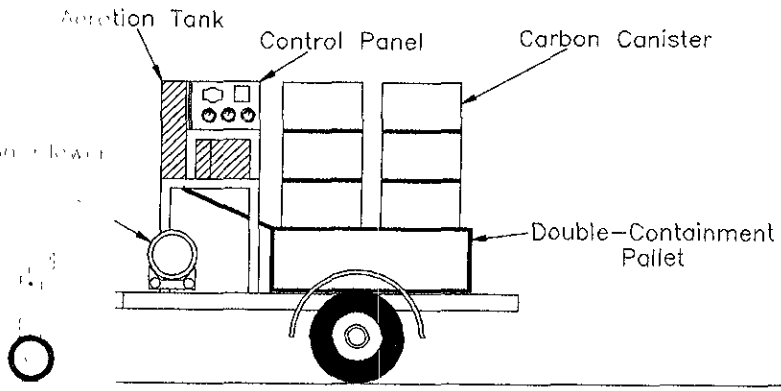
Sincerely,
CEECON

Phil Woodward
Staff Engineer

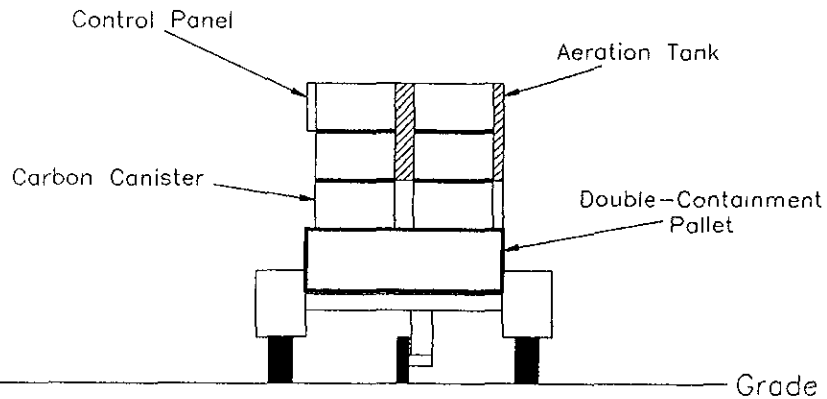
Michael Hodges
President

Attachments: Chain-of Custodies and Laboratory Analytical Results of Vapor Samples
June 6, 1994 Letter From BAAQMD Regarding Monitoring of Carbon Breakthrough

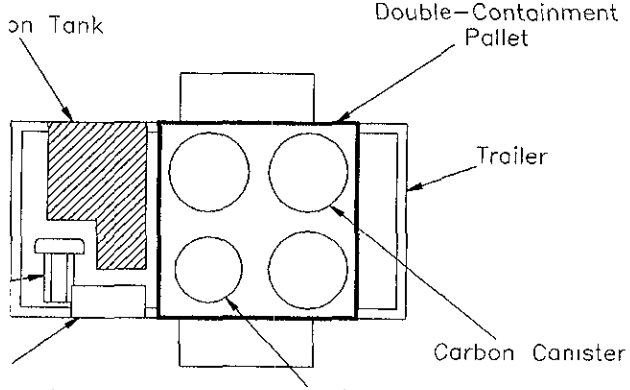
SIDE VIEW



REAR VIEW



PLAN VIEW



Instrumentation Readouts

Flow Meter
Flow Totalizer
Inlet High Pressure Switch
Inlet High-High Pressure Switch
Aeration Tank High-High Level Switch
Activated Carbon High Pressure Switch

Sample Ports

Influent (Between Aeration Tank And First Carbon Canister)
Effluent (Between Carbon Canisters)
Easy Disconnects At Carbon Canisters

Remote Signal Capabilities

Water Flow
Total Water Flow
On/Off Status

0 4 8

APPROXIMATE SCALE IN FEET

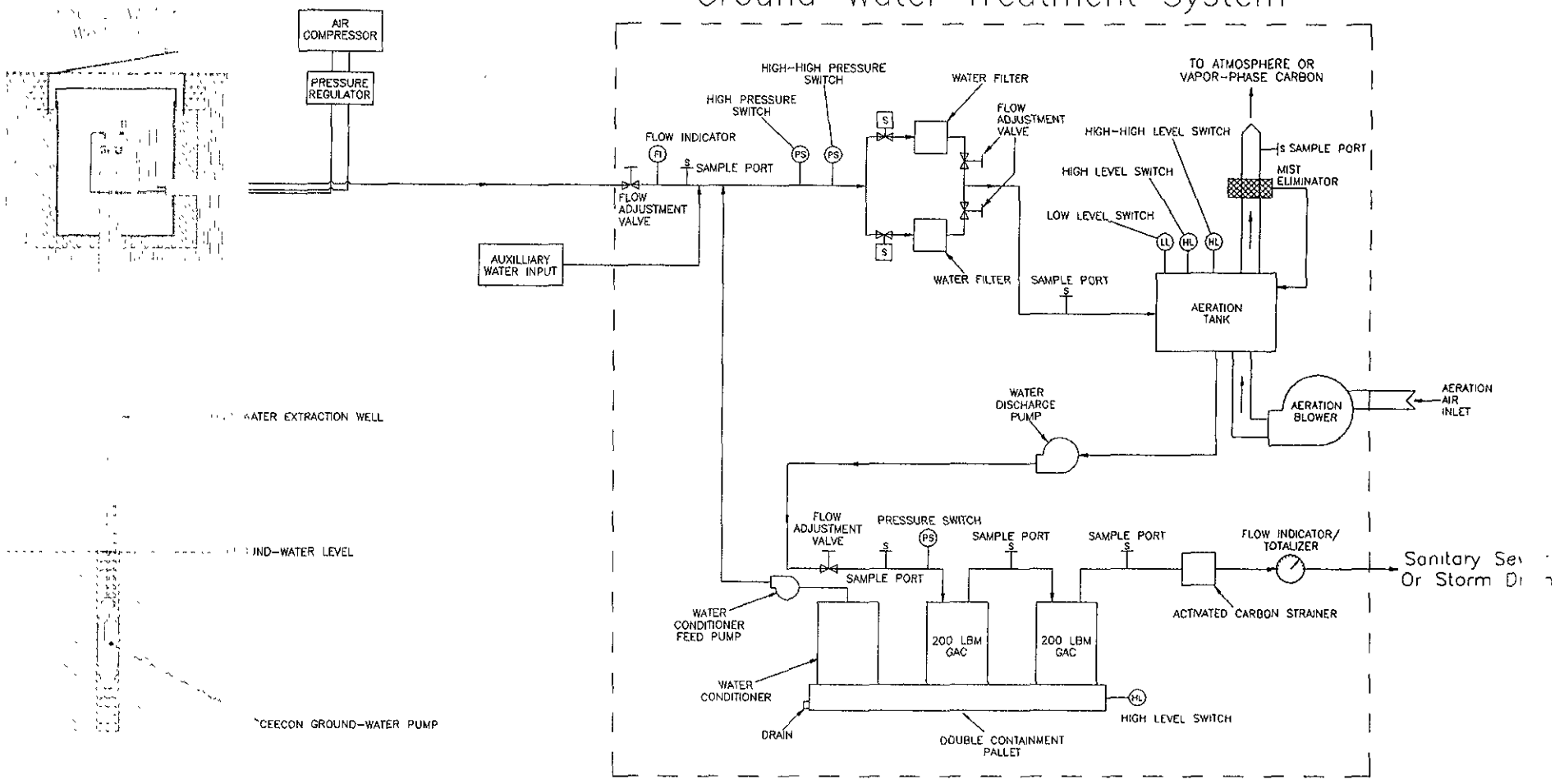
CEECON

ENVIRONMENTAL ENGINEERS & CONTRACTORS

Date: 07/19/94

Trailer-Mounted Groundwater Treatment System

CEECON Skid-Mounted or Trailer-Mounted Ground-Water Treatment System



CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

Drawing: GTS-2

Date: 5/3/93

Ground-Water Extractio And Treatment Syster Process Diagram

APPENDIX A

CHAIN OF CUSTODY RECORDS AND RESULTS OF LABORATORY ANALYSES OF VAPOR SAMPLES

CEECON

Civil & Environmental Engineers & Consultants

1517 Palmetto Ave., Ste 4
Pacifica, CA 94044

(415) 738 1115
FAX (415) 738 1117

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Phil Woodward

P.O.#:

Project Name: 1127 Lincoln Ave Alameda, CA

Project Number: 1506.09

Sampler Signature: P Woodward

Project Location: 1127 Lincoln Ave, Alameda, CA

Sample ID	Sampling DATE	Sampling TIME	Container VOA	Container SLEEVE	Container 1L GLASS	Container 1L PLASTIC	Method Preserved HCl	Method Preserved HNO_3	Method Preserved ICE	Method Preserved NONE	Matrix WATER	Matrix SOIL	Matrix Vapor
INF	7/10/92	1610				X				X			X
PC-1	7/10/92	1615				X				X			X
EFF	7/10/92	1620				X				X			X

ANALYSIS REQUEST

Sample ID	BTEX (602/8020)	BTEX/TPH as Gasoline (602/8020/8015)	TPH as Diesel/Oil (8015)	Total Oil & Grease (5520 B/E,F)	Total Oil & Grease IR (5520 B/E,F,C)	96 - Hour Fish Bioassay	EPA 601/8010	EPA 602/8020	EPA 615/8150	EPA 608/8080 - Pesticides	EPA 608/8080-PCBs	EPA 624/8240	EPA 625/8270	ORGANIC LEAD	Reactivity, Corrosivity, Ignitibility	WET (Y)	TOTAL (Y)	CAM - 17 Metals	EPA - Priority Pollutant Metals	LEAD(7420/7421/239.2)	Cd, Cr, Pb, Zn, Ni
INF		X																			
PC-1		X																			
EFF		X																			

TAT

RUSH SERVICE (12 hr) or (24 hr)	
EXPEDITED SERVICE (48 hr)	
STANDARD SERVICE	X

Relinquished by: M Woodward — Date/Time: 7-12-92 1330

Received by: Bill Lynch

Relinquished by: Bill Lynch — Date/Time: 7/13/92 1520

Received by: Onsite Alliance

Date/Time

Received by Laboratory:

Remarks: Report as mg/m3

Bill To:

C Analytical

I Western Avenue
ndale, CA 91201
1/217-5237
.: 818/217-9797

ANALYTICAL REPORT

LOG NO: G94-07-157
Received: 14 JUL 94
Mailed: JUL 26

Purchase Order: 94-1446346+4370
Requisition: 624081450
Project: FKEP1001L

Mr. Phil Woodward
Geecon
1517 Palmetto Avenue, Suite 4
Pacifica, California 94044

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	DATE SAMPLED	TPH/BTEX (CADHS/8020) Date Analyzed Date	Dilution Factor Times 1	TPH-g mg/M3	Benzene mg/M3	Toluene mg/M3	Ethyl-Benzene mg/M3	Total Xylenes Isomers mg/M3
RDL			1	64	0.93	1.8	0.52	0.92
1•Inf	07/12/94	07/14/94	1	<10	<0.2	<0.2	<0.3	0.24
2•PC-1	07/12/94	07/14/94	1	<10	<0.2	0.20	<0.3	<0.2
3•Eff	07/12/94							

Karen Petryna
1127 Lincoln Avenue, Alameda
Alameda County

James C. Klein, Laboratory Director

CEECON

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

1517 Palmetto Ave., Ste. 4
Pacifica, CA 94044
(415) 738-1115
FAX (415) 738-1117

Project Manager: PHIL WOODWARD

Project Number: 1505

P.O.#

Project Name: 1127 Lincoln

Project Location: 1127 Lincoln Alameda

Sampler Signature: [signature]

Sample ID	Sampling DATE	Sampling TIME	Container: VOA	Container: SLEEVE	Container: 1L GLASS	Container: 1L PLASTIC	Method Preserved: HCl	Method Preserved: HNO3	Method Preserved: ICE	Method Preserved: NONE	Matrix: WATER	Matrix: SOIL	Matrix: VAPOR	BTEX (602/8020)	BTEX/TPH as Gasoline (602/8020/8015)	TPH as Diesel/Oil (8015)	Total Oil & Grease (5520 B/E,F)	Total Oil & Grease IR (5520 B/E,F,C)	96 - Hour Fish Bioassay	EPA 601/8010	EPA 602/8020	EPA 615/8150	EPA 608/8080 - Pesticides	EPA 608/8080-PCBs	EPA 624/8240	EPA 625/6270	ORGANIC LEAD	Reactivity, Corrosivity, Ignitibility	W.E.T. (✓)	TOTAL (✓)	CAM - 17 Metals	EPA - Priority Pollutant Metals	LEAD(7420/7421/239.2)	Cd, Cr, Pb, Zn, Ni	TAT: RUSH SERVICE (12 hr) or (24 hr)	TAT: EXPEDITED SERVICE (48 hr)	TAT: STANDARD SERVICE
INF	7/14/94	11:55				1				X			X		X																					X
P61	7/14/94	12:00								X			X		X																					X	
EFF	7/14/94	12:05								X			X		X																					X	
INFKO	7/14/94	1215											X		X																					X	

Relinquished by: [signature] Date 7/14/94 Time 1:55

Relinquished by: [signature] Date 7-14-94 Time 3:25

Received by: [signature]

Received by: [signature]

Received by Laboratory:

Remarks: RESULTS IN mg/kg TO PHIL WOODWARD

Bill To: CECON

: Analytical

ANALYTICAL REPORT

Western Avenue
dale, CA 91201
247-5737
818/247-9797

LOG NO: G94-07-180
Received: 14 JUL 94
Mailed: JUL 26 1994

Purchase Order: 94-1446346+4370
Requisition: 62881450
Project: FKEP1001L

Mr. Phil Woodward
Ceecon
1517 Palmetto Avenue, Suite 4
Pacifica, California 94044

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	DATE SAMPLED	TPH/BTEX (CADHS/8020) Date Analyzed Date	Dilution Factor Times 1	TPH-g mg/M3	Benzene mg/M3	Toluene mg/M3	Ethyl-Benzene mg/M3	Total Xylenes Isomers mg/M3
ROI		07/14/94	1	34	1.0	0.91	0.41	0.70
1*INF	07/14/94	07/14/94	1	<10	<0.2	<0.2	<0.3	0.45
2*PC1	07/14/94	07/14/94	1	<10	<0.2	<0.2	<0.3	0.41
3*EFF	07/14/94	07/14/94	1	63	0.77	1.9	0.41	1.2
4*INFVO	07/14/94							

Karen Petryna
1127 Lincoln Ave., Alameda
Alameda County

James C. Hein, Laboratory Director

APPENDIX B

RESULTS OF LABORATORY ANALYSES OF WATER SAMPLES

B C Analytical

801 Western Avenue
Glendale, CA 91201
818/247-5737
Fax: 818/247-9797

ANALYTICAL REPORT

LOG NO: G04-08-069

Received: 05 AUG 94
Mailed : 26 AUG 94

Mr. Brian Garber
Groundwater Technology, Inc.
1401 Halyard Drive, Suite 140
West Sacramento, California 95691

Purchase Order: 94-1446346+4370

Requisition: 624881450
Project: FKEP1001L

REPORT OF ANALYTICAL RESULTS

AQUEOUS

SAMPLE DESCRIPTION	DATE SAMPLED	TPH/BTEX (CADHS/8020) Date Analyzed Date	Dilution Factor Times 1	TPH-g ug/l	Benzene ug/L	Toluene ug/L	Ethyl-Benzene ug/L	Total Xylenes Isomers ug/L
RDL			1	50	0.5	0.5	0.5	0.5
1*A-INF	08/04/94	08/15/94	20	4000	660	170	13	190
2*B-INF	08/04/94	08/12/94	1	160	14	4.8	2.5	17
3*C Bi-L	08/04/94	08/12/94	1	<50	2.2	0.68	<0.5	0.57
4*D EFF	08/04/94	08/13/94	1	<50	<0.5	<0.5	<0.5	<0.5

Karen Petryna
1121 Lincoln Ave., Alameda
Alameda County

James C. Hein, Laboratory Director

NOTIFICATION OF EBMUD TEST RESULTS

EAST BAY
MUNICIPAL UTILITY DISTRICT

MICHAEL J. WALLIS
DIRECTOR OF WASTEWATER

September 15, 1994

Texaco Environmental
108 Cutting Boulevard
Richmond, CA 94804

Sample Location: Side Sewer No. 1
1. Login Number: L 4915-1
Sample Type: Grab on 7/28/94 @ 1423-EBMUD

Attention: Ms. Karen Petryna

Account No. 502-74621: 1127 Lincoln Avenue, Alameda

EBMUD conducted an inspection at the former Texaco Service Station facility located on 1127 Lincoln Avenue in Alameda and sampled the wastewater discharged on July 28, 1994. All measured parameters were in compliance of your wastewater discharge permit.

EBMUD test results are listed in the table below and in the attached laboratory results.

Sample	Parameter	Analysis Method ug/l (ppb)	Test Result ug/l (ppb)	Permit Limitation ug/l (ppb)
(1)	Benzene	EPA 624	< 0.5	5
(1)	Toluene	EPA 624	< 0.07	7
(1)	Ethyl-Benzene	EPA 624	< 0.08	5
(1)	Xylenes	EPA 624	< 0.3	7

If you have any questions, please do not hesitate to call me at (510) 287-1618.

Sincerely,

Molly Ong

MOLLY ONG
Wastewater Control Representative
Industrial Discharge Section

EBMUD - Mail Slot #702
Source Control Division
P. O. Box 24055
Oakland, CA 94623-1055
510/287-1618

Attachments

MKO:mko

cc: Phil Woodward
CEECON
1517 Palmeto Ave., Suite 4
Pacifica, CA 94044