CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

January 11, 1993

Mr. Robert E. Cave
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109

Subject: Application for an Authority to Construct/Permit to Operate An Interim Soil and Groundwater Remediation System at the Former Bay Street Texaco Station, 1127 Lincoln Avenue, Alameda, California.

Mr. Cave:

California Environmental Engineers & Contractors (CEECON) has prepared this permit application for an Authority to Construct/Permit to Operate on behalf of Texaco Environmental Services (TES). Prior sub-surface environmental investigations indicate that soil underlying this site contains residual gasoline hydrocarbons, and that dissolved hydrocarbons are present in ground water. An interim soil and groundwater remediation system will be installed at this site. This permit application has been prepared in accordance the Bay Area Air Quality Management District (BAAQMD) Soil Vapor Extraction guidelines; appropriate BAAQMD Data Forms are attached. The location of the site is shown on the attached Vicinity Map. A layout of the area surrounding this site is shown on AM-1.

SYSTEM DESIGN

CEECON will be utilizing a modular approach to remediation at this site. A trailer-mounted groundwater treatment system, including water filters, an aeration system, a water hardness chemical injector, and activated carbon polishing is proposed for this site. Instrumentation and controls on this system include water level indicators, transfer pumps, flow indicator, flow totalizer, and sample ports. The system is trailer-mounted and is provided with double-containment for all water and chemical storage drums. An approximate layout of this trailer-mounted system is shown on the attached GTS-1. A process flow diagram of this system, along with the compressor and groundwater extraction pump, is shown on the attached GTS-2.

Hydrocarbon concentrations in extracted vapor at this site are expected to decrease substantially in the first few months of operation. CEECON will use a six-cylinder internal combustion (I.C.) engine for the first several months of system operation. The layout of this trailer mounted I.C. engine is shown on the attached VET-1. A process flow diagram of this I.C. engine is shown on the attached VET-2.

The groundwater remediation trailer and the I.C. engine will both be located in a remediation compound about the size of one parking space at this site. An approximate system layout is shown on RCL-1. The vapor-abatement portion of the remediation system will be converted to use activated carbon after the I.C. engine is removed from the site. The remediation compound layout with this configuration is shown on RCL-2.

EXTRACTION RATES

CEECON will assume a 100 percent removal rate of hydrocarbons removed from extracted groundwater at the GTS for the most conservative estimate of hydrocarbon concentrations influent to the abatement equipment. The maximum groundwater extraction rate is expected to be 1.0 gallon per minute. These removal rates are calculated as follows:

TPHg-Removal Rates

The maximum initial TPHg concentration is 170 parts per million (ppm). The approximate initial TPHg mass removal rate from the GTS is as follows:

$$\frac{170 \text{ g (TPHg)}}{1{,}000{,}000 \text{ g (water)}} \quad \frac{1.0 \text{ g}}{\text{min}} \quad \frac{1{,}440 \text{ min}}{\text{day}} \quad \frac{7.8 \text{ lbs}}{1 \text{ g}}$$

$$= \frac{1.9 \text{ lbs TPHg}}{\text{day}}$$

Benzene-Removal Rates

The maximum initial benzene concentration is 20 ppm. The approximate initial benzene mass removal rate from the GTS is as follows:

$$\frac{20 \text{ g (benzene)}}{\text{b } 1{,}000{,}000 \text{ g (water)}} \times \frac{1.0 \text{ g}}{\text{min}} \times \frac{1440 \text{ min}}{\text{day}} \times \frac{7.6 \text{ lbs}}{1 \text{ g}}$$

$$= \frac{0.22 \text{ lbs benzene}}{\text{day}}$$

Results of laboratory analysis of vapor samples collected during a vapor-extraction test (VET) indicate average TPHg concentrations in the extracted air stream to be approximately 5,000 parts per million by volume (ppmv). The *initial* mass extraction rate for TPHg is calculated as follows:

$$\frac{5{,}000\ \text{l (TPHg)}}{1{,}000{,}000\ \text{(l air)}} \times \frac{150\ \text{ft}^3}{\text{min}} \times \frac{1{,}440\ \text{min}}{\text{day}} \times \frac{28.321\ \text{(air)}}{1\ \text{ft}^3} \times \frac{1\ \text{mole (gas)}}{22.414\ \text{l (vapor)}} \times \frac{67\ \text{grams}}{1\ \text{mole (gas)}} \times \frac{1\ \text{lb}}{454\ \text{grams}}$$

$$= \frac{201\ \text{lbs TPHg}}{\text{day}}$$

The *initial* mass extraction rate for benzene is calculated as follows:

$$\frac{100\ \text{l (benzene)}}{1{,}000{,}000\ \text{(l air)}} \times \frac{150\ \text{ft}^3}{\text{min}} \times \frac{1{,}440\ \text{min}}{\text{day}} \times \frac{28.321\ \text{(air)}}{1\ \text{ft}^3} \times \frac{1\ \text{mole (benzene)}}{22.414\ \text{l (vapor)}} \times \frac{78\ \text{grams}}{1\ \text{mole (benzene)}} \times \frac{1\ \text{lb}}{454\ \text{grams}}$$

$$= \frac{4.7\ \text{lbs benzene}}{\text{day}}$$

It is anticipated that substantial reductions in inlet concentrations will be seen after a few months of system operation. The I.C. engine will be used until the inlet concentrations have been reduced to less than 200 ppmv. Analysis of effluent samples collected during the VET for an I.C. engine indicate a benzene and TPHg destruction efficiency of at least 99 percent. As the rate of hydrocarbon flow in the vapor from the GTS is very small in comparison to the extracted soil vapor, only the soil vapor removal rate will be used for performing emission calculations. As a further conservative estimate, a 98 percent destruction efficiency will be used for emission calculations.

EMISSION RATES

The maximum TPHg emission rate is calculated as follows:

201 lbs TPHg/day x 0.02 % = 4.03 lbs TPHg/day

The maximum benzene emission rate is calculated as follows:

4.7 lbs benzene/day x 0.02 % = 0.094 lbs/day

Please note that these are the maximum expected emission rates for the interim soil and groundwater remediation equipment to be operated at this site. Substantial reductions from initial concentrations are typically seen in the first several weeks of system operation.

Permit fees have been calculated as follows:

Filing Fee (S-1)	$165.00
Initial Fee (S-1)	115.00
TAC Surcharge (S-1)	115.00
Filing Fee (S-2)	165.00
Initial Fee (S-2)	115.00
TAC Surcharge (S-2)	115.00
Total Fee	**$790.00**

Please call if you have any questions regarding this permit application.

Sincerely,
CEECON

Michael Hodges
President/ Engineering Manager

Attachment: Vicinity Map
AM-1, Area Map
GTS-1, Trailer Mounted Groundwater Treatment System "S-1"
GTS-2, Groundwater Extraction and Treatment System Process Diagram, "S-2"
VET-1, Vapor-Extraction Internal Combustion Engine, "A-1"
VET-2, Internal Combustion Engine Process Diagram, "A-2"
RCL-1, Initial Remediation Compound Layout
RCL-2, Long-Term Remediation Compound Layout
DATA FORM G for C-1,000, "S-2"
DATA FORM G for GTS-10, "S-1"
DATA FORM A for C-1,000, "A-1"
DATA FORM C for C-1,000, "S-2"
DATA FORM A for Vapor-Phase Activated Carbon, "A-2"
DATA FORM P for C-1,000, "P-1"
DATA FORM P for Vapor-Phase Activated Carbon, "P-2"
FORM P-101B
Risk Screening Analysis Data Forms (4 pages)
Chain of Custody and Results of Laboratory Analysis of Vapor Samples

cc: Mr. Robert Robles, Texaco Environmental Services
California Regional Water Quality Control Board, San Francisco Bay Region
Alameda Health Care Services Agency, Hazardous Materials Division

SOIL AND GROUNDWATER

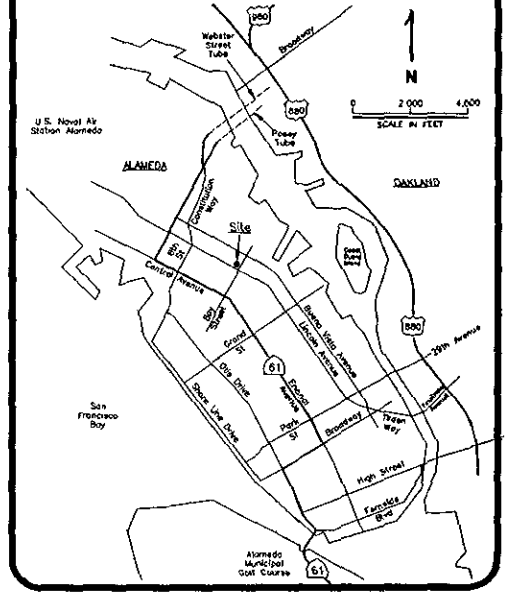
RACTORS

ITEM (NPDES) PERMIT

INDEX OF DRAWINGS

DWG. NO	DESCRIPTION	REV	DATE
T-1	COVER SHEET		10/1/92
T-2	REMEDIATION WELLHEAD AND TRENCH LAYOUT		10/1/92
T-3	WELLHEAD CONNECTIONS		10/1/92
T-4	PROCESS AND INSTRUMENTATION DIAGRAM		10/1/92

VICINITY MAP



CECON

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Proposed Construction at:

FORMER BAY STREET TEXACO STATION
1127 LINCOLN AVENUE
ALAMEDA, CALIFORNIA

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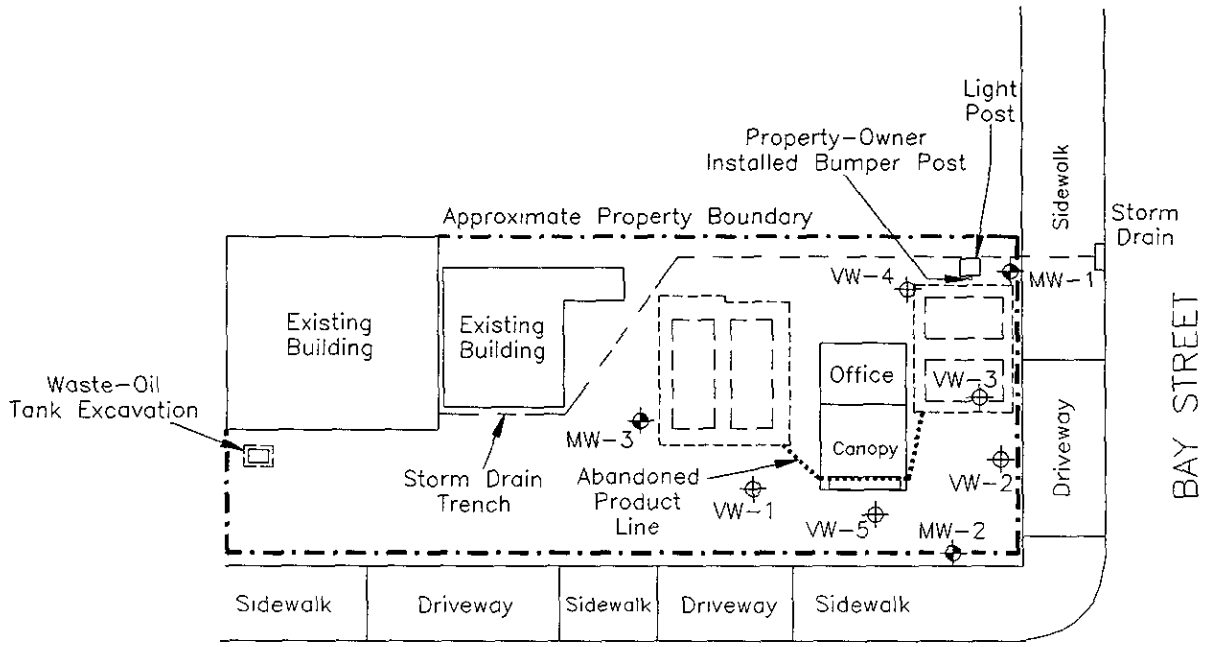


LINCOLN AVENUE

EXPLANATION:

VW-5 ⊕ Vapor Monitoring/ Extraction Well

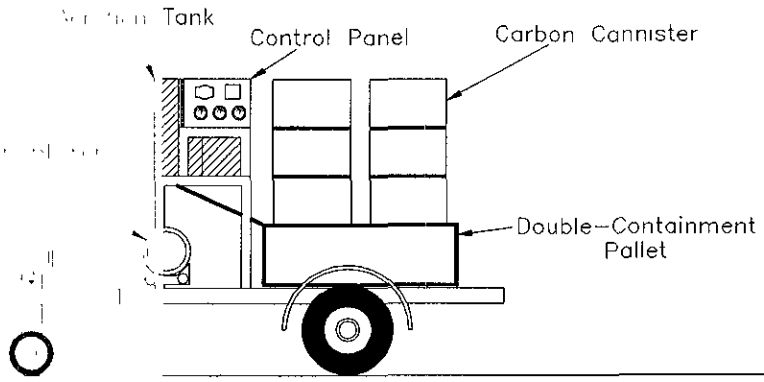
MW-3 ⊕ Monitoring Well

Former Underground Product Storage Tank

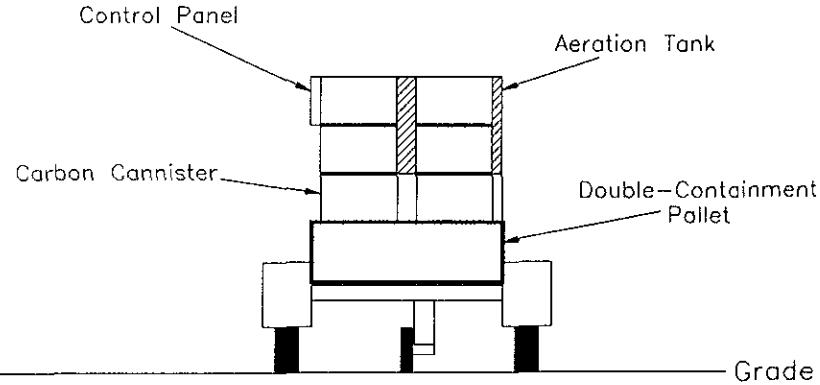
N

CEECON

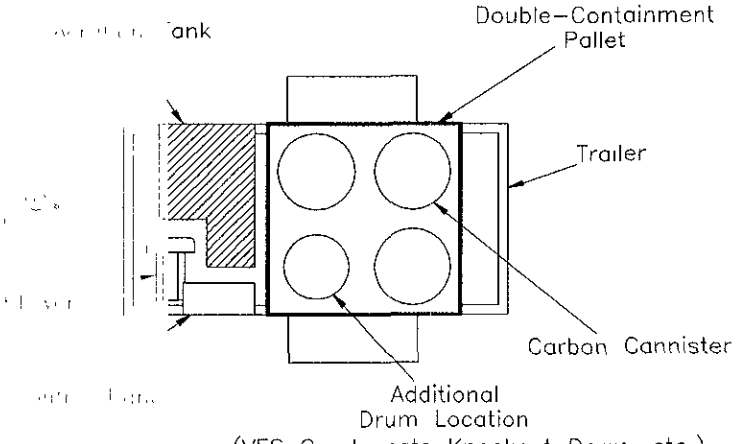
SIDE VIEW



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 Cannister)
Effluent (Between Carbon Cannisters)
Easy Disconnects At Carbon Cannisters

Remote Signal Capabilities

Water Flow
Total Water Flow
On/Off Status

8

FEET

CEECON
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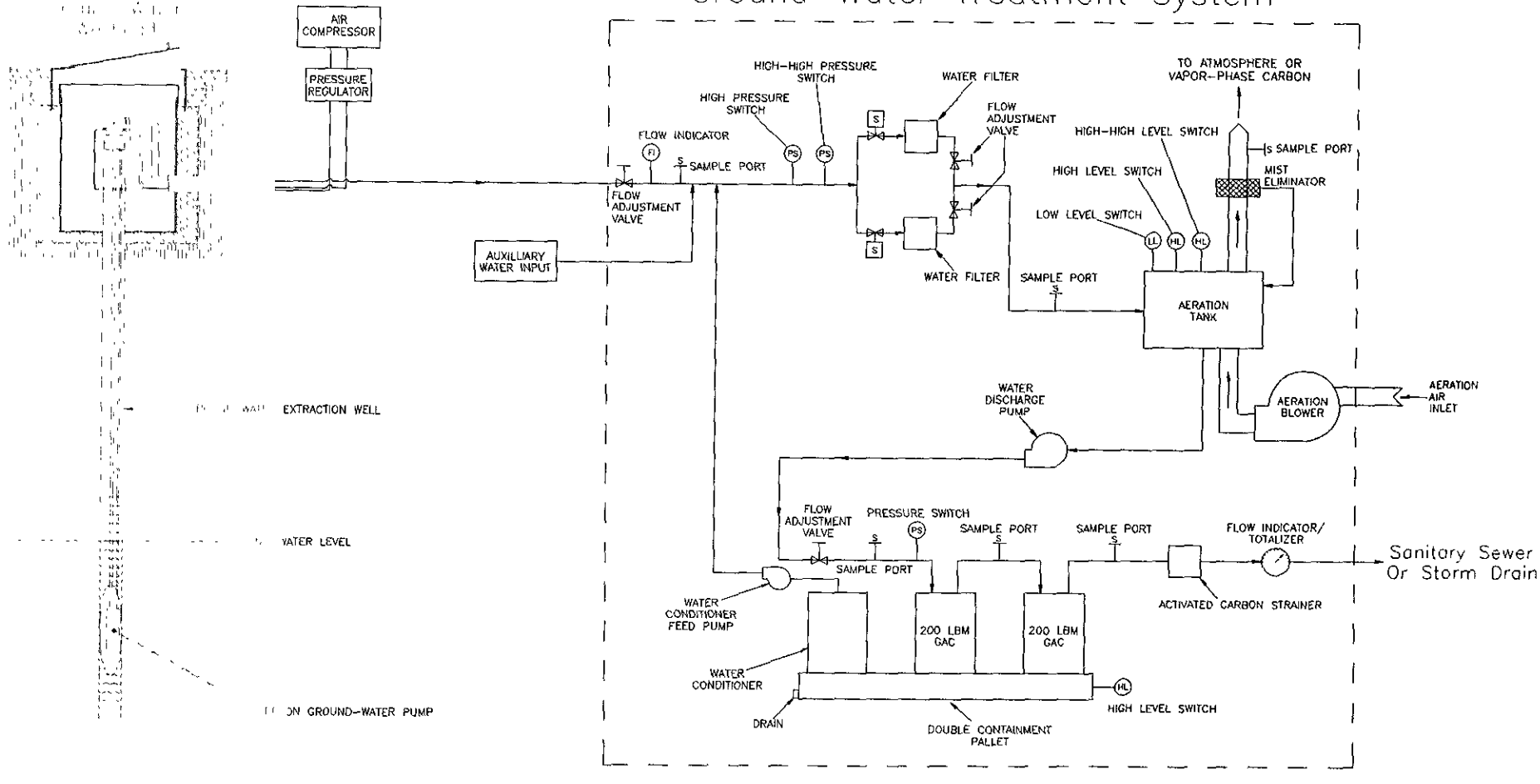
Drawing: GTS–1

Date: 5/1/92

Trailer–Mounted Groundwater Treatment System

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



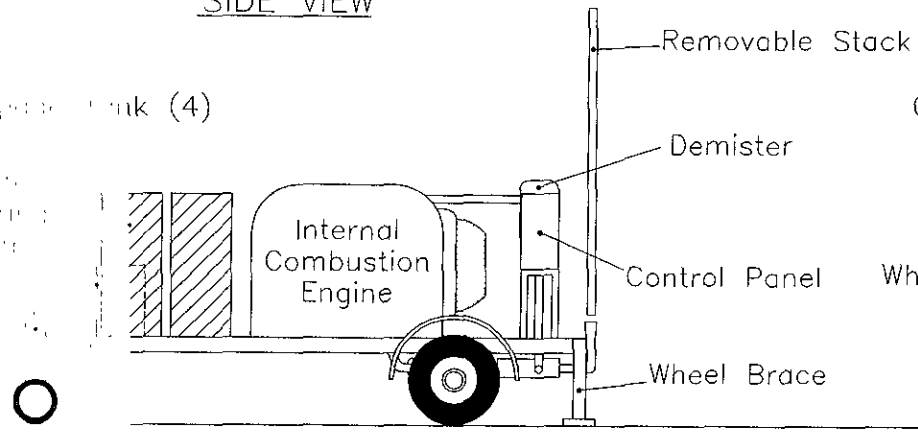
CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

Drawing: GTS-2

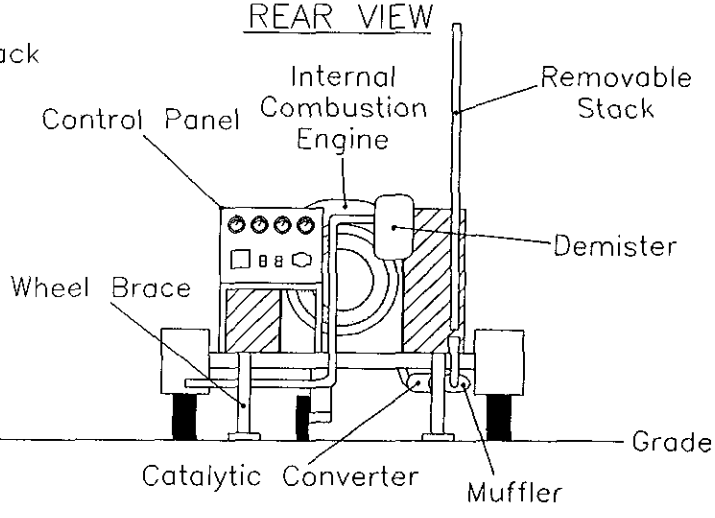
Date: 5/1/92

Ground-Water Extraction And Treatment System Process Diagram

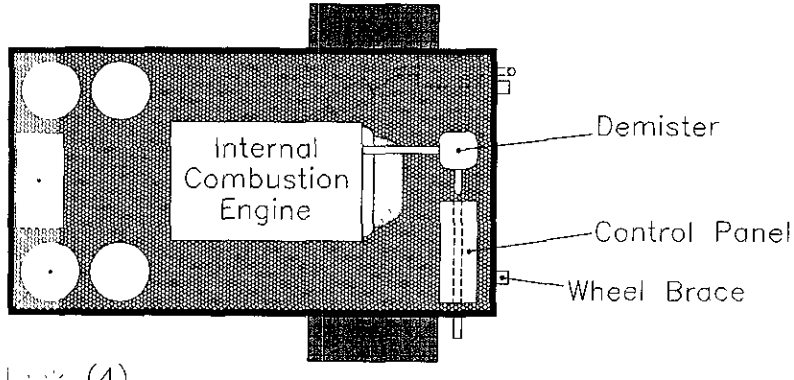
SIDE VIEW



REAR VIEW



PLAN VIEW



Propane Tank (4)

Propane Tank (4)

Instrumentation Readouts

Engine Flow Meter
Engine R.P.M.
Engine Temperature In Degrees Fahrenheit
Engine Intake Vacuum In Inches Of Mercury
Well Vacuum In Inches Of Water Column
Well Air Flow In Cubic Feet Per Minute
Well Air Flow Temperature In Degrees Fahrenheit

Sample Ports

Influent (Engine Intake)
Effluent (Stack)

Remote Signals

Propane Level
Engine ON/OFF Status

8

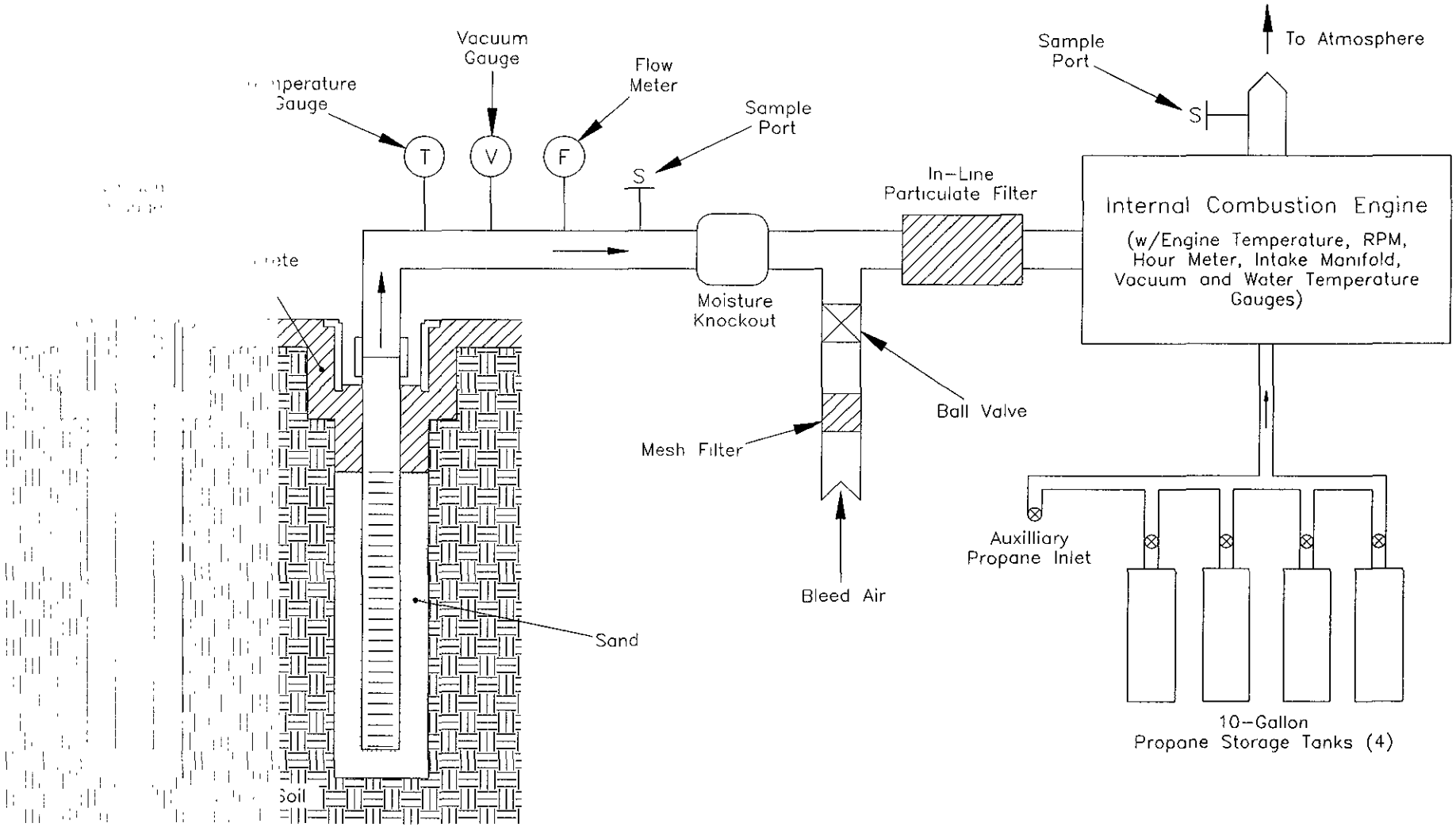
FEET

CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

Drawing: VET-1

Date: 5/1/92

Vapor-Extraction Internal Combustion Engine

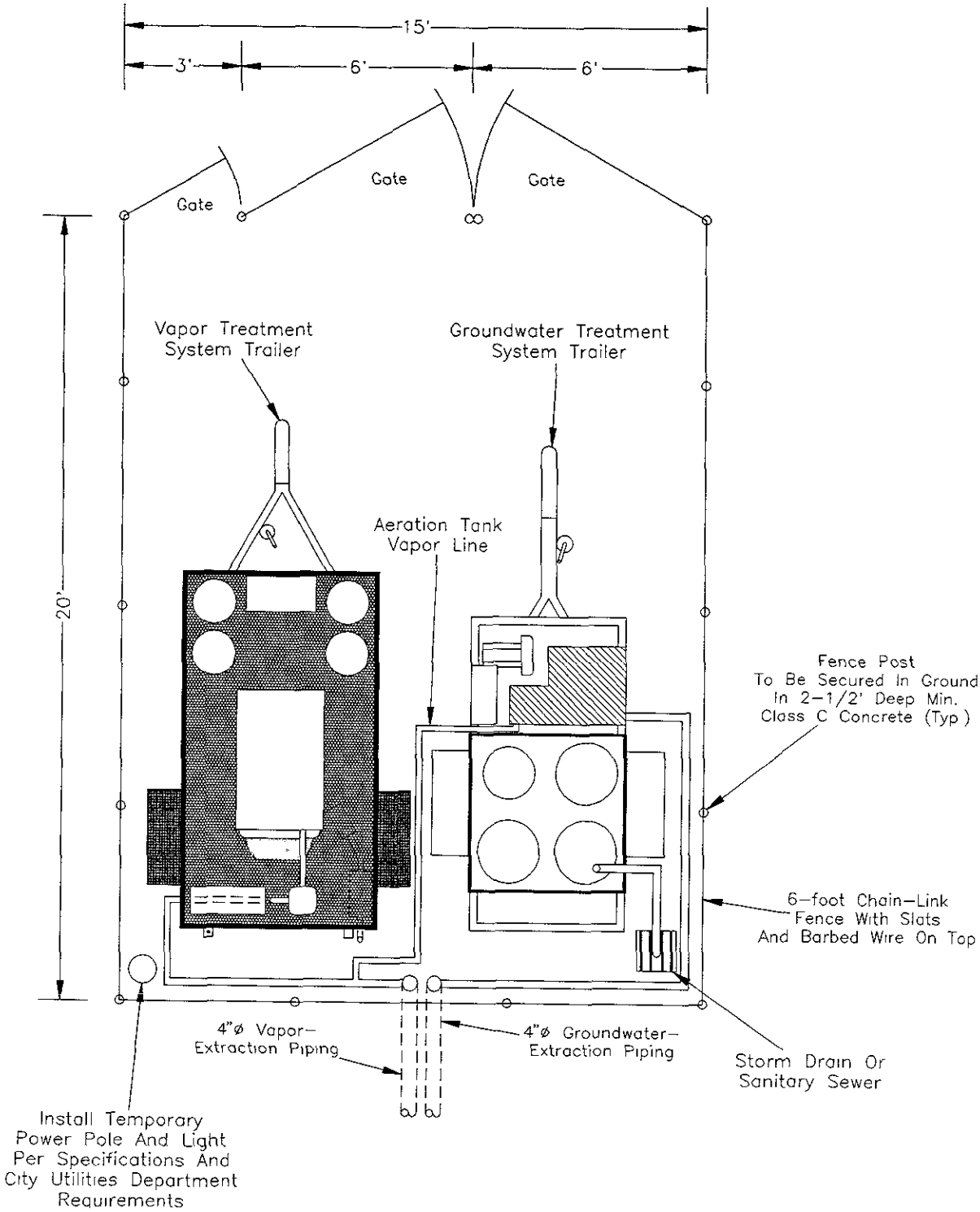


CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

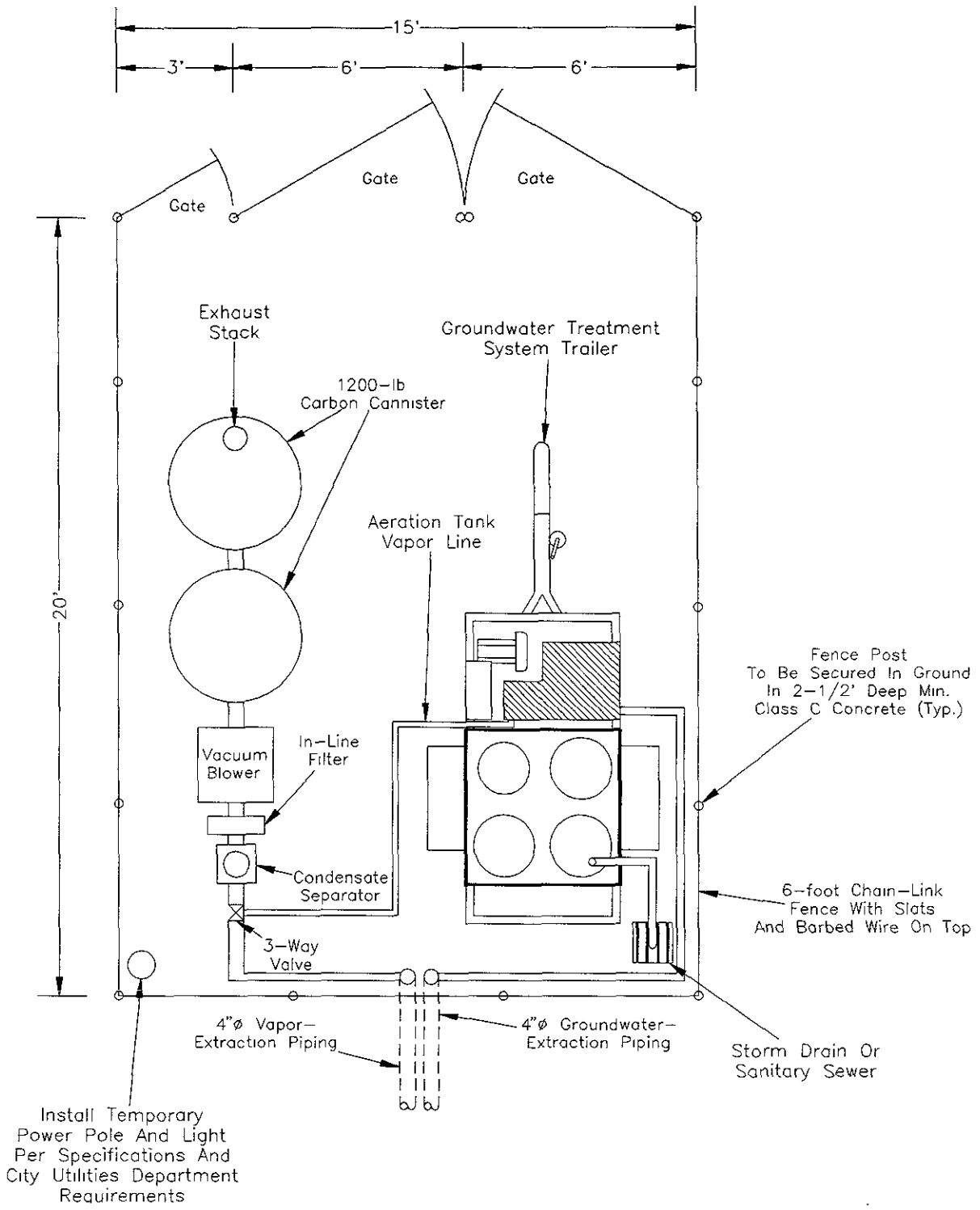
Drawing: VET-2

Date: 5/1/92

Vapor-Extraction Test Internal Combustion Engine Process Diagram


15'
3'
6'
6'
Gate
Gate
Gate
20'
Vapor Treatment System Trailer
Groundwater Treatment System Trailer
Aeration Tank Vapor Line
Fence Post To Be Secured In Ground In 2-1/2' Deep Min. Class C Concrete (Typ)
6-foot Chain-Link Fence With Slats And Barbed Wire On Top
4"ø Vapor-Extraction Piping
4"ø Groundwater-Extraction Piping
Storm Drain Or Sanitary Sewer
Install Temporary Power Pole And Light Per Specifications And City Utilities Department Requirements

CEECON


15'
3'
6'
6'
Gate
Gate
Gate
20'
Exhaust Stack
Groundwater Treatment System Trailer
1200-lb Carbon Cannister
Aeration Tank Vapor Line
Fence Post To Be Secured In Ground In 2-1/2' Deep Min. Class C Concrete (Typ.)
Vacuum Blower
In-Line Filter
Condensate Separator
6-foot Chain-Link Fence With Slats And Barbed Wire On Top
3-Way Valve
4"ø Vapor-Extraction Piping
4"ø Groundwater-Extraction Piping
Storm Drain Or Sanitary Sewer
Install Temporary Power Pole And Light Per Specifications And City Utilities Department Requirements

CEECON

BAY AREA
AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street, San Francisco, CA 94109 (415) 771-6000

DATA FORM G
General Air Pollution Source

If in addition to the general process described hereon this source burns fuel, then complete Form C also.
Use specific forms if applicable: Form T (organic tankage, loading), Form S (surface coating, solvent use).

1 Business Name: Former Bay Street Texaco Station Plant No: _____ (If unknown, leave blank)

2 SIC Number: _____ Date of Initial Operation: Upon Permit Approval

3 Name or Description: Soil & Groundwater Remediation System Source No.: S -1

4 Make, Model, and Rated Capacity of Equipment: CEECON 10 GPM GTS Water Aeration System 125 cfm

5 Process Code* (Column A): 7098 Materials Code* (Column B): 504 Usage Unit* (Column C): cf

6 Total throughput, last 12 months: N/A Usage Units* Max operating rate: 7,500 Usage Units*/hr

7 Typical % of total throughput: Dec-Feb 25 % Mar-May 25 % Jun-Aug 25 % Sep-Nov 25 %

8 Typical operating times: 24 hrs/day 7 days/week 52 weeks/year

9 For batch or cyclic processes: N/A min/cycle N/A min. between cycles

10 Exhaust gases from source: (at max. operation)
Wet gas flow rate 125 cfm at 70 °F
Approximate water vapor content 1.8 vol %

EMISSION FACTORS (at maximum operating rate)

If this form is being submitted as part of an application for an AUTHORITY TO CONSTRUCT, completion of the following table is mandatory. If not, and the Source is already in operation, completion of table is requested but not required.

If this source also burns fuel, do not include those combustion products in the emission factors below; they are accounted for on Form C. If source test or other data are available for composite emissions only, estimate from those data the emissions attributable to just the general process and show below.

[ ] Check box if factors apply to emissions after Abatement Device(s).

		EMISSION FACTORS lbs/Usage Unit*	Basis Code (see reverse)
11	Particulate		
12	Organics	1.06×10^{-5}	4
13	Nitrogen Oxides (as NO_2)		
14	Sulfur Dioxide		
15	Carbon Monoxide		
16	Other:		
17	Other:		

18 With regard to air pollutant flow from this source, what source(s), abatement device(s) and/or emission points(s) are immediately downstream?

S	S	S					
A -1	A -2	A	P	P	P	P	P

*From Tables C-1 through C-7 (See listing on reverse side)

Person Completing this form Michael Hodges Date 1/11/93

6-8-77

BAY AREA
AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street, San Francisco, CA 94109 (415) 771-6000

DATA FORM G
General Air Pollution Source

If in addition to the general process described hereon this source burns fuel, then complete Form C also.
Use specific forms if applicable: Form T (organic tankage, loading), Form S (surface coating, solvent use).

1 Business Name: Former Bay Street Texaco Station Plant No: _____ (If unknown, leave blank)

2 SIC Number: _____ Date of Initial Operation: Upon Permit Approval

3 Name or Description: Soil & Groundwater Remediation System Source No.: S-2

4 Make, Model, and Rated Capacity of Equipment: CEECON C-100 Internal Combustion Engine 150 cfm

5 Process Code* (Column A): 7098 Materials Code* (Column B): 504 Usage Unit* (Column C): cf

6 Total throughput, last 12 months: N/A Usage Units* Max operating rate: 9000 Usage Units*/hr

7 Typical % of total throughput: Dec-Feb 0 % Mar-May 50 % Jun-Aug 50 % Sep-Nov 0 %

8 Typical operating times: 24 hrs/day 7 days/week 26 weeks/year

9 For batch or cyclic processes: N/A min/cycle N/A min. between cycles

10 Exhaust gases from source: (at max. operation) Wet gas flow rate 150 cfm at 70 °F

Approximate water vapor content 1.8 vol %

EMISSION FACTORS (at maximum operating rate)

If this form is being submitted as part of an application for an AUTHORITY TO CONSTRUCT, completion of the following table is mandatory. If not, and the Source is already in operation, completion of table is requested but not required.

If this source also burns fuel, do not include those combustion products in the emission factors below; they are accounted for on Form C. If source test or other data are available for composite emissions only, estimate from those data the emissions attributable to just the general process and show below.

[ ] Check box if factors apply to emissions after Abatement Device(s).

		EMISSION FACTORS lbs/Usage Unit*	Basis Code (see reverse)
11	Particulate		
12	Organics	9.3×10^{-4}	4
13	Nitrogen Oxides (as NO_2) . .		
14	Sulfur Dioxide		
15	Carbon Monoxide		
16	Other: _____		
17	Other _____		

18 With regard to air pollutant flow from this source, what source(s), abatement device(s) and/or emission points(s) are immediately downstream?

S	S	S					
A	A	A	P-1	P	P	P	P

*From Tables C-1 through C-7 (See listing on reverse side)

6-8-77

Person Completing this Form Michael Hodges Date 1/11/93

BAY AREA
AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street, San Francisco, CA 94109 (415) 771-6000

DATA FORM A
ABATEMENT DEVICE

Abatement Device: Equipment/process whose primary purpose is to reduce the quantity of pollutant(s) emitted to the atmosphere.

1. Business Name: Former Bay Street Texaco Station Plant No.: _____ (If unknown, leave blank)

2. Name or Description: Soil & Groundwater Remediation System Abatement Device No.: A-1

3. Make, Model and Rated Capacity: CEECON C-1000 Internal Combustion Engine 150 cfm

4. Abatement Device Code (Table on reverse side): 6 Date of Initial Operation: Upon Permit Approval

5. With regard to air pollutant flow into this abatement device, what source(s) and/or abatement device(s) are immediately upstream?

S-1	S-2	S	S	S	A	A	A
A	A	A					

6. Typical Gas Stream Temperature at Inlet: 70 °F

If this form is being submitted as part of an application for an AUTHORITY TO CONSTRUCT, completion of the following table is mandatory. If not, and the Abatement Device is already in operation, completion of table is requested but not required.

	POLLUTANT	WEIGHT PERCENT REDUCTION (at typical operation)	BASIS CODE (Codes on reverse side)
7.	Particulate	%	
8.	Organics	98 %	1
9.	Nitrogen Oxides (as NO_2)	%	
10.	Sulfur Dioxide	%	
11.	Carbon Monoxide	%	
12.	Other: _____	%	
13.	Other: _____	%	

14. [X] Check box if this Abatement Device burns fuel, complete lines 1, 2 and 15-36 on Form C (using the Abatement Device No. above for the Source No.) and attach to this form.

15. With regard to air pollutant flow from this abatement device, what source(s), abatement device(s) and/or emission point(s) are immediately downstream?

S	A	A	P-1	P	P	P	P

Michael Hodges 1/11/93

Person Completing this Form: _____ Date: _____

11-30-87

BAY AREA
AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street, San Francisco, CA 94109
(415) 771-6000

DATA FORM C
FUEL COMBUSTION SOURCE

District Use Only
New [ ]
Modified [ ]
Retro [ ]

Form C is for all operations which burn fuel. If the operation also involves evaporation of any organic solvent, complete Form S and attach to this form. If the operation involves a process which generates any other air pollutants, complete Form G and attach to this form.

[X] Check box if this source has a secondary function as an abatement device for some other source(s); complete Lines 1, 2, & 7-13 on Form A (using the source number below for the Abatement Device No.) and attach to this form.

1. Company Name Former Bay Street Texaco Station Plant No. _____ (If Unknown, Leave Blank) Source No. S-2
2. Equipment Name and Number, or Description C-1000 Internal Combustion Engine
3. Make, Model CEECON C-1000 Maximum Firing Rate 170,000 BTU/Hr
4. Date of Modification or Initial Operation Upon Permit Approval
5. Primary Use (Check One): [ ] Electrical Generation [ ] Space Heat [ ] Waste Disposal [ ] Testing
   [X] Abatement Device [ ] Cogeneration [ ] Resource Recovery [ ] Other
   [ ] Process Heat; Material Heated _____
6. SIC Number _____ (If Unknown, Leave Blank)
7. Equipment Type (Check One):

Internal Combustion	[ ] Diesel Engine [X] Otto Cycle Engine [ ] Gas Turbine [ ] Other _____	Displacement 300 cubic inches _____ hp
Incinerator	[ ] Salvage Operation [ ] Liquid Waste [ ] Pathological Waste [ ] Other _____	Temperature _____ °F Residence Time _____ Sec
Others	[ ] Boiler [ ] Afterburner [ ] Flare [ ] Open Burning [ ] Other _____	[ ] Dryer [ ] Oven [ ] Furnace [ ] Kiln Material dried, baked, or heated _____

8. [ ] Yes [X] No Overfire Air? If Yes, what percent (%) _____
9. [ ] Yes [X] No Flue Gas Recirculation? If Yes, what percent (%) _____
10. [ ] Yes [X] No Air Preheat? Temperature _____ °F
11. [ ] Yes [X] No Low NOx Burners? Make, Model _____
12. Maximum Flame Temperature 1700 °F
13. Combustion Products: Wet Gas Flow Rate 150 acfm at 70 °F
    Typical Oxygen Content _____ dry volume % or _____ wet volume %
    or _____ % excess air
14. Typical Use Hours/Day 24 Days/Week 7 Weeks/Year 26
15. Typical % of Annual Total Dec-Feb 0 % Mar-May 50 % Jun-Aug 50 % Sep-Nov 0 %
16. With regard to air pollutant flow, what source(s) or abatement device(s) are immediately upstream?
    S-1 S___ S___ S___ S___ S___ S___ A___ A___ A___
17. With regard to air pollutant flow, what source(s), abatement device(s), and/or emission points are immediately downstream?
    S___ S___ A-1 A___ P-1 P___

10/82

Person Completing This Form Michael Hodges Date 1/11/93

FUELS

INSTRUCTIONS: Complete one line in Section A for each fuel. Section B is OPTIONAL. Please use the units at the bottom of each table. N/A means "Not Applicable".

SECTION A: Fuel Data

	Fuel Name	Fuel Code **	Total Annual Usage ***	Maximum Possible Fuel Use Rate	Typical Heat Content	Sulfur Content	Nitrogen Content (OPTIONAL)	Ash Content (OPTIONAL)
1.	propane		9.1	2.1×10^{3}	92×10^{6}			
2.								
3.								
4.								
5.								

Use the appropriate units for each fuel

Natural Gas	Therms*	BTU/Hr	N/A	N/A	N/A	N/A
Other Gas	MSCF*	MSCF/Hr	BTU/MSCF	ppm	N/A	N/A
Liquid	MGAL*	MGAL/Hr	BTU/MGAL	wt %	wt %	wt %
Solid	TONS	Ton/Hr	BTU/Ton	wt %	wt %	wt %

SECTION B: Emission Factors (OPTIONAL)

	Fuel Name	Particulates		NOx		CO		Other_____		Other_____	
		Emission Factor	**Basis	Emission Factor	**Basis	Emission Factor	**Basis	Emission Factor	**Basis	Emission Factor	**Basis
1.											
2.											
3.											
4.											
5.											

Use the appropriate units for each fuel

Natural Gas	lb/Therm
Other Gas	lb/MSCF
Liquid	lb/MGAL
Solid	lb/Ton

NOTES:

* MSCF = thousand standard cubic feet

* MGAL = thousand gallons

* Therm = 100,000 BTU

** See tables below for Fuel and Basis Codes

*** Total Annual Usage is: Projected usage over next 12 months if equipment is new or modified.

: Actual usage for last 12 months if equipment is existing and unchanged.

FUEL CODES

CODE	FUEL	CODE	FUEL
25	Anthracite Coal	189	Natural Gas
33	Bagasse	234	Process Gas - Blast Furnace
35	Bark	235	Process Gas - CO
43	Bituminous Coal	236	Process Gas - Coke Oven Gas
47	Brown Coal	238	Process Gas - RMG
242	Bunker C Fuel Oil	237	Process Gas - Other
80	Coke	242	Residual Oil
89	Crude Oil	495	RDF
98	Diesel Oil	493	Sludge Gas
493	Digester Gas	256	Solid Propellant
100	Distillate Oil	257	Solid Waste
128	Gasoline	304	Wood - Hogged
158	Jet Fuel	305	Wood - Other
160	LPG	198	Other - Gaseous Fuels
165	Lignite	200	Other - Liquid Fuels
167	Liquid Waste	203	Other - Solid Fuels
494	Municipal Solid Waste		

BASIS CODES

CODE	METHOD
0	Not applicable for this pollutant
1	Source testing or other measurement by plant (attach copy)
2	Source testing or other measurement by BAAQMD (give date)
3	Specifications from vendor (attach copy)
4	Material balance by plant using engineering expertise and knowledge of process
5	Material balance by BAAQMD
6	Taken from AP-42 (Compilation of Air Pollutant Emission Factors, EPA)
7	Taken from literature, other than AP-42 (attach copy)
8	Guess

BAY AREA
AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street, San Francisco, CA 94109 (415) 771-6000

DATA FORM A
ABATEMENT DEVICE

Abatement Device: Equipment/process whose primary purpose is to reduce the quantity of pollutant(s) emitted to the atmosphere.

1. Business Name: Former Bay Street Texaco Station Plant No.: _____ (If unknown, leave blank)

2. Name or Description: Soil & Groundwater Remediation System Abatement Device No.: A-2

3. Make, Model and Rated Capacity: Vapor-Phase granular activated carbon 150 cfm

4. Abatement Device Code (Table on reverse side): 56 Date of Initial Operation: Upon Permit Approval

5. With regard to air pollutant flow into this abatement device, what source(s) and/or abatement device(s) are immediately upstream?

S-1	S-2	S	S	S	A	A	A	A	A

6. Typical Gas Stream Temperature at Inlet: 70 °F

If this form is being submitted as part of an application for an AUTHORITY TO CONSTRUCT, completion of the following table is mandatory. If not, and the Abatement Device is already in operation, completion of table is requested but not required.

	POLLUTANT	WEIGHT PERCENT REDUCTION (at typical operation)	BASIS CODE (Codes on reverse side)
7.	Particulate	%	
8.	Organics	98 %	1
9.	Nitrogen Oxides (as NO_2)	%	
10.	Sulfur Dioxide	%	
11.	Carbon Monoxide	%	
12.	Other: _____	%	
13.	Other: _____	%	

14. ☐ Check box if this Abatement Device burns fuel; complete lines 1, 2 and 15-36 or Form C (using the Abatement Device No. above for the Source No.) and attach to this form.

15. With regard to air pollutant flow from this abatement device, what source(s), abatement device(s) and/or emission point(s) are immediately downstream?

S	A	A	P-2	P	P	P	P

Person Completing this Form: Michael Hodges Date: 1/11/93

11-30-87

BAY AREA
AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street, San Francisco, CA 94109 (415) 771-6000

DATA FORM P
Emission Point

Form P is for well-defined emission points such as stacks or chimneys only; do not use for windows, room vents, etc.

Business Name: Former Bay Street Texaco Station Plant No.:

Emission Point No.: P -1

With regard to air pollutant flow into this emission point,
what source(s) and/or abatement device(s) are immediately upstream?

				S-1	S-2	S
S	S	S	A-1	A	A	A

Exit Cross-section Area: 0.0218 Square feet Height above grade: 15 Feet

Effluent Flow from Stack:

	Typical Operating Condition	Maximum Operating Condition
Actual Wet Gas Flow Rate	100 cfm	150 cfm
Percent Water Vapor	1.8 Vol %	1.8 Vol %
Temperature	700 °F	800 °F

If this stack is equipped to measure (monitor) the emission of any air pollutants,

-is monitoring continuous? No

-what pollutants are monitored? Total Petroleum Hydrocarbons reported as gasoline
Benzene, Toluene, Ethlybenze, total xylenes

Person Completing this Form Michael Hodges Date 1/11/93

4-25-77

BAY AREA
AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street, San Francisco, CA 94109 (415) 771-6000

DATA FORM P
Emission Point

Form P is for well-defined emission points such as stacks or chimneys only; do not use for windows, room vents, etc.

Business Name: Former Texaco Service Station Plant No.:

Emission Point No.: P-2

With regard to air pollutant flow into this emission point,
what source(s) and/or abatement device(s) are immediately upstream?

				S-1	S-2	S	
S	S	S	A	A	A	A	

Exit Cross-section Area: 0.0218 Square feet Height above grade: 15 Feet

Effluent Flow from Stack:

	Typical Operating Condition		Maximum Operating Condition	
Actual Wet Gas Flow Rate	100	cfm	185	cfm
Percent Water Vapor	1.8	Vol %	1.8	Vol %
Temperature	70	°F	100	°F

If this stack is equipped to measure (monitor) the emission of any air pollutants,

-is monitoring continuous? No

-what pollutants are monitored? Total Petroleum Hydrocarbons reported as gasoline
Benzene, Toluene, Ethylbenzene, total Xylenes

PERMIT SERVICES DIVISION

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 ELLIS STREET SAN FRANCISCO, CA 94109 / (415) 749-5000

FORM P-101B

BAAQMD PLANT # _____ [LEAVE BLANK IF UNKNOWN]

APPLICATION # _____ [FOR BAAQMD USE]

APPLICATION FOR AUTHORITY TO CONSTRUCT, PERMIT TO OPERATE, OR BANKING

BUSINESS NAME (*Operator*) Texaco Environmental Services

OTHER BUSINESS NAME California Environmental Engineers & Contractors PARENT COMPANY _____

MAILING ADDRESS 1517 Palmetto Avenue, Suite 4, Pacifica, CA 94044
Street *City* *State* *Zip Code*

PLANT ADDRESS 1127 Lincoln Avenue, Alameda, CA
Street *City* *State* *Zip Code*

MAILING TELEPHONE # (415) 738-1115 PLANT TELEPHONE # None

NAME OF CONTACT Michael Hodges TITLE Engineering Manager

EQUIPMENT DESCRIPTION Soil and Groundwater Remediation Equipment

NUMBER OF SOURCES Two (2)

SKIP IF PLANT # IS ALREADY ASSIGNED. DISTRICT HAS CURRENT INFORMATION

PLANT AREA (*Acres*) less than 1

NUMBER OF EMPLOYEES no direct employees

PRINCIPAL PRODUCT Former Petroleum Retailer

OWNERSHIP

[x] PRIVATE
[ ] UTILITY
[ ] LOCAL GOVERNMENT
[ ] STATE GOVERNMENT
[ ] FEDERAL GOVERNMENT

PLEASE SUBMIT A NAME AND ADDRESS TO WHOM ALL CORRESPONDENCE REGARDING AIR POLLUTION CONTROL SHOULD BE SENT.

_____
Contact Name

_____
Street *City* *State* *Zip Code*

_____
Telephone Number

-OVER-

CHECK ALL THAT APPLY

NEW CONSTRUCTION [ ] MODIFICATION [X] REPLACEMENT [ ] BANKING [ ]

CHANGE OF CONDITIONS [ ] EXISTING UNPERMITTED *[ ]

*Date Installed_____

HAS AN ENVIRONMENTAL IMPACT REPORT OR OTHER CALIFORNIA ENVIRONMENTAL QUALITY ACT DOCUMENT BEEN PREPARED FOR THIS PROJECT? YES_____ NO__X__

IF YES, BY WHOM?_____ ID #_____

IS THIS APPLICATION A RESULT OF A VIOLATION NOTICE(S)? YES_____ NO__X__

IF YES, GIVE THE VIOLATION NOTICE(S)_____

IN ORDER TO EXPEDITE YOUR APPLICATION THE FOLLOWING ITEMS SHOULD BE ENCLOSED: (A) STREET MAP MARKING THE LOCATION OF THIS FACILITY; (B) PROJECT DESCRIPTION AND PROCESS FLOW DIAGRAM [IF APPLICABLE]; (C) A DESCRIPTION OR MANUFACTURER'S CATALOGUE OF EQUIPMENT AND AIR POLLUTION ABATEMENT EQUIPMENT; (D) EMISSION QUANTIFICATION; (E) SOURCE OF OFFSETS; (F) PSD INFORMATION [MAJOR PROJECTS ONLY]. [SEE AB884 - LIST AND CRITERIA FOR FURTHER DETAILS.]

IMPORTANT: ALL INFORMATION THAT YOU SUBMIT WILL BE CONSIDERED PUBLIC INFORMATION UNLESS YOU INDICATE THAT IT IS CONSIDERED TRADE SECRET.

[MH] ACKNOWLEDGEMENT *(Please Initial)*

PURSUANT TO SECTION 25532 AND 44321 OF THE HEALTH AND SAFETY CODE, I HEREBY CERTIFY THAT THE SOURCES IN THIS PERMIT APPLICATION *(Initial Appropriate Box)*:

[ ] ARE WITHIN 1,000 FEET OF THE OUTER BOUNDARY OF A SCHOOL

[MH] ARE NOT WITHIN 1,000 FEET OF THE OUTER BOUNDARY OF A SCHOOL

SIGNATURE_____ **TITLE** Engineering Manager

NAME (*Printed*) Michael Hodges **DATE** 1/11/93

NOTE: PERMITS FOR YOUR PROJECT MAY ALSO BE REQUIRED FROM OTHER AGENCIES. FOR FURTHER INFORMATION, YOU SHOULD CONTACT THE LOCAL CITY OR COUNTY OFFICE OF PERMIT ASSISTANCE WITHIN THE OFFICE OF PLANNING AND RESEARCH IN SACRAMENTO. THE ADDRESS IS AS FOLLOWS:

Office Planning And Research
1400 Tenth Street
Sacramento, California 95814
[916] 322-4245

REQUEST FOR INFORMATION; RISK SCREENING ANALYSIS

NOTE: You must fill out one of these forms for each source in the permit application that requires a risk screen, unless all sources exhaust through a single stack. These may be discrete sources such as stacks or area sources such as surface area fugitive emissions.

Plant name Former Bay Street Texaco Station

Source description Soil & Groundwater Remediation System

Source # _____ (if known) Emission point _____ (if known)

SECTION A

1. Is the source a clearly defined emission point, i.e., a stack *or ventilation duct*?
   YES ~~NO~~ (If NO, go on to section B)

2. Does the stack stand alone or is it located on the roof of a building?
   ALONE ~~ON ROOF~~

3. What is the stack height? 15 ~~meters or~~ feet
   (Note: stack height only, whether free-standing or on rooftop)

4. What is the combined stack height and building height (if applicable)? 15 ~~meters or~~ feet

5. What is the stack diameter? 0.0218 ~~meters or~~ feet

6. What is the stack gas flowrate? 150 cfm or ~~m^3/sec~~

7. What is the stack gas exit temperature? 700 degrees Fahrenheit or ~~Centigrade~~

8. If the stack is located on a rooftop, what are the dimensions of the building?

   height = _____ meters or feet

   width = _____ meters or feet

   length = _____ meters or feet

9. Are there any buildings, walls or other structures located near this source ?

YES XNOXX Please See Attached Area Map, AM-1

If YES, what are their dimensions?

height = _____meters or feet

width = _____meters or feet

length = _____meters or feet

distance from source _____meters or feet

(GO ON TO SECTION C)

SECTION B

1. Is the source located within a building? YES NO

(If NO, please provide a description of the source. For example, fugitive emissions that must be evaluated as an area source. If an area source, provide the dimensions of the area in question. Then go on to section C.)

(If YES, proceed to #2, below)

2. *Does the building have a ventilation system that is vented to the outside?*
YES NO

a. *If NO, are the building's doors and windows kept open during hours of operation?*
YES NO

3. Please provide the building dimensions:

   height = _____meters or feet

   width = _____meters or feet

   Length = _____meters or feet

4. Are there any buildings, walls or other structures located near this source ?

   YES NO

   If YES, what are their dimensions?

   height = _____meters or feet

   width = _____meters or feet

   length = _____meters or feet

   distance from source _____meters or feet

(GO ON TO SECTION C)

SECTION C

1. Describe the area where the source is located (select one):

   a) zoned for commercial use

   b) zoned for residential use

   c) zoned for mixed commercial and residential use

2. Distance from source (stack or building) to property line =

   15 meters or feet

(continued on p. 4)

3. Distance from source to nearest receptor** =

15 ~~meters or~~ feet

IMPORTANT:

You must provide a plot plan or a map, drawn to scale, which clearly demonstrates the location of your site, the property lines and any surrounding residences and/or businesses. The plot plan or map should also show the location of the source(s) at the site and their relationship to the property line.

** Receptors are defined as individual dwellings where persons are assumed to be in continuous residence. *Please note that this does not refer to places of business.*

CHAIN OF CUSTODY AND LABORATORY ANALYSIS REPORT FOR VAPOR SAMPLES

TABLE 1
LABORATORY ANALYSIS OF VAPOR SAMPLES
Former Texaco Station
Alameda, California
March 10, 1992

Sample ID	Sample Location	Elapsed Time of Sample	TPHg	B	T	E	X
A-MW2-10	MW-2	10	2,000	64	75	21	63
A-MW2-60	MW-2	60	1,900	55	43	17	51
A-MW2-120	MW-2	120	1,700	47	29	13	40
A-MW2-180	MW-2	180	1,800	50	26	14	42
A-EFF*	EFF*	180	51	2	7	2	7
A-VW1-10	VW-1	10	7,100	200	150	86	250
A-VW4-10	VW-4	10	850	55	100	10	40
A-VW3-10	VW-3	10	18,000	720	95	89	260
A-VW2-10	VW-4	10	34,000	620	340	110	340
A-VW5-10	VW-5	10	7,400	190	150	62	180

Concentrations reported in milligrams per cubic meter
TPHg: Total petroleum hydrocarbons reported as gasoline (analyzed by EPA Method 8015).
B: benzene, T: toluene, E: ethylbenzene, X: total xylene isomers
BTEX: Analyzed by EPA Method 8020M.
*: Effluent vapor sampled after abatement by the internal combustion engine.

RESNA

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PROJECT NO.	PROJECT NAME/SITE		P.O. #:
61006.03	Former TEXACO ALAMEDA	1127 LINCOLN AVE. ALAMEDA, CA.	

SAMPLERS (SIGN) / (PRINT) PATRICK LAMB

SAMPLE IDENTIFICATION	DATE	TIME	COMP	GRAB	PRES. USED	ICED	NO. CONTAINERS	SAMPLE TYPE	BTEX (602/8020)	TPHg (8015)	TPHd (8015)	TOG 418.1/5520	601/8010	624/8240	625/8270	Note L.E.L. Limits	REMARKS
A-MW2-10 01	3/10/92	1035			NONE		1	A	X	X					2000		PLEASE REPORT
A-MW2-60 02		1135					1		X	X					2000		RESULTS IN mg/m³
A-MW2-120 03		1216					1		X	X					2000		& FAX RESULTS
A-MW2-180 04		1335					1		X	X					2000		D. HIGGINS @
A-VW-1-10 05		1140					1		X	X					8000		(408) 264-2435
A-VW-4-10 06		1150					1		X	X					180		
A-VW3-10 07		1315					1		X	X					1900		
A-VW2-10 08		1450					1		X	X					8,000		
A-VW5-10 09		1400					1		X	X					8,000		
A-EFF 10		11:25					1		X	X					0		

RELINQUISHED BY	DATE	TIME	RECEIVED BY:	LABORATORY:	PLEASE SEND RESULTS TO:
	3/11/92	947		GTEL	DALE HIGGINS RESNA 3315 ALMADEN EXP. SAN JOSE, CA 95118
RELINQUISHED BY	DATE	TIME	RECEIVED BY:		
RELINQUISHED BY	DATE	TIME	RECEIVED BY:	REQUESTED TURNAROUND TIME: NOTE 72 HR HOLD TIME REQUESTED REGULAR T.A. TIME	
RELINQUISHED BY	DATE	TIME	RECEIVED BY LABORATORY:	RECEIPT CONDITION:	PROJECT MANAGER: DALE HIGGINS
	3/11/92	11:15			

Client Number: RSN04RSN04
Consultant Project Number: 61006.03
Project ID: 1127 Lincoln Ave.
Alameda, CA
Work Order Number: C2-03-291

Table 1

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Air

Modified EPA Methods 8020 and 8015[a]

GTEL Sample Number		01	02	03	04
Client Identification		A-MW2-10	A-MW2-60	A-MW2-120	A-MW2-180
Date Sampled		03/10/92	03/10/92	03/10/92	03/10/92
Date Analyzed		03/11/92	03/11/92	03/11/92	03/11/92
Analyte	Detection Limit, mg/m^3	Concentration, mg/m^3			
Benzene	0.5	64	55	47	50
Toluene	0.5	75	43	29	26
Ethylbenzene	0.5	21	17	13	14
Xylene, total	0.5	63	51	40	42
BTEX, total	--	220	170	130	130
Gasoline	10	2000	1900	1700	1800
Detection Limit Multiplier		1	1	1	1

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision.

Client Number: RSN04RSN04
Consultant Project Number: 61006.03
Project ID: 1127 Lincoln Ave.
Alameda, CA
Work Order Number: C2-03-291

Table 1 (Continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and
Total Petroleum Hydrocarbons as Gasoline in Air

Modified EPA Methods 8020 and 8015[a]

GTEL Sample Number		05	06	07	08
Client Identification		A-VW1-10	A-VW4-10	A-VW3-10	A-VW2-10
Date Sampled		03/10/92	03/10/92	03/10/92	03/10/92
Date Analyzed		03/11/92	03/11/92	03/11/92	03/11/92
Analyte	Detection Limit, mg/m^3	Concentration, mg/m^3			
Benzene	0.5	200	55	720	620
Toluene	0.5	150	100	95	340
Ethylbenzene	0.5	86	10	89	110
Xylene, total	0.5	250	40	260	340
BTEX, total	--	690	210	1200	1400
Gasoline	10	7100	850	18000	34000
Detection Limit Multiplier		1	1	1	1

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision.

Client Number: RSN04RSN04
Consultant Project Number: 61006.03
Project ID: 1127 Lincoln Ave.
Alameda, CA
Work Order Number: C2-03-291

Table 1 (Continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Air

Modified EPA Methods 8020 and 8015[a]

GTEL Sample Number		09	10		
Client Identification		A-VW5-10	A-EFF		
Date Sampled		03/10/92	03/10/92		
Date Analyzed		03/11/92	03/11/92		
Analyte	Detection Limit, mg/m^3	Concentration, mg/m^3			
Benzene	0.5	190	2		
Toluene	0.5	150	7		
Ethylbenzene	0.5	62	2		
Xylene, total	0.5	180	7		
BTEX, total	--	580	18		
Gasoline	10	7400	51		
Detection Limit Multiplier		1	1		

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision.