R. William Rudolph, Jr., PE
Thomas E. Cundey, PE
Jeriann N. Alexander, PE

ENVIRONMENTAL PROTECTION
96 APR -9 PM 2:04

STID 469

April 8, 1996
SCI 447.055

Mr. James Munch
Technical Review Unit
State Water Resources Control Board
Division of Clean Water Programs
2014 T Street, Suite 130
P.O. Box 944212
Sacramento, California 94244-2120

Request for Reconsideration of
Corrective Action Plan
Cost Preapproval
Claim No. 001673
W. A. Connell Trust
3093 Broadway
Oakland, California

Dear Mr. Munch:

This letter is in response to the Underground Storage Tank Fund (FUND) letter dated February 6, 1996 regarding preapproval of Corrective Action Plan (CAP) activities and associated costs prepared by Subsurface Consultants, Inc. (SCI). Although the FUND indicates that the preapproval amount does not represent a minimum nor a maximum amount to be reimbursed, it is desired to close the gap between the requested and preapproved amounts. This not withstanding, SCI has begun implementing the CAP and has performed Task 1.3 Free Product Removal by skimming, Task 2 - Groundwater Monitoring, and Task 4 - Biotreatability.

In general, it appears that the FUND agrees in principal with the scope of services outlined in the CAP and approved by the Alameda County Health Care Services Agency (ACHCSA), the Local Oversight Program (LOP). However, just about half of the requested amount has not been preapproved. A variety of reasons are cited in the FUND letter as generally summarized below.

- Task and individual staff level of effort costs are higher than FUND comparisons costs (costs incurred within the same geographic region for "similar activities).

- Portions of some of the tasks do not appear regulatory driven.
- The FUND needs more documentation to support equipment costs.
- The FUND needs additional justification for operating the proposed treatment system for 6 months versus 3 months.

In this regard, SCI offers the following clarifications for your subsequent review.

Task 1.1 - VES Design/Permitting

The Associate Engineer assigned to this case is a registered professional engineer responsible for overall project coordination, direction and review. However, from time to time, the Associate Engineer will confer with the Principal Engineer to insure quality assurance/quality control. SCI will make every effort to keep the Principal Engineer's time to a minimum. Regarding permits, SCI will request that the responsible party directly pay for all permits, thereby not incurring a markup from SCI. With these clarifications, SCI requests that the FUND reconsider preapproving the requested amount for this task.

Task 1.2 - VES Setup/Operation/Maintenance

Rental Costs - The rationale employed by SCI in developing the monthly rental and operation costs appears to be in general accordance with the FUND requirements. Due to market pressures the vendors have reduced rental and maintenance costs. Our revised fee estimate reflects these price reductions. Attached are revised bids from three equipment vendors in support of the requested costs for your review and consideration.

Proposed 6 Months of System Operation - The LOP originally requested that active product removal other than by skimming be implemented for a **12 month** period. SCI petitioned and received approval from the LOP to reduce the operation time to 6 months so that system effectiveness could be evaluated. It has been our experience that it takes about 3 months for VES system data to stabilize. Evaluation of remedial effectiveness, prior to system stabilization, can result in an inaccurate evaluation. Accordingly, SCI requests that the FUND reconsider preapproving 6 months of operation.

Task 2.2 - Free Product Characterization

This task is necessary to 1) provide additional information regarding the treatability of the plume, and 2) determine whether the plume characteristics are changing over time. In addition, one of the requirements for site closure presented in the San Francisco Regional Water Quality Control

Board review letter of the LLNL study is to fully characterize the plume. Accordingly, SCI requests that the FUND reconsider preapproving this task.

Task 2.3 - Groundwater Monitoring

It appears that the each monitoring event is to include performing the event and preparing a report. However, the costs preapproved are less than those presented in the FUND draft cost guideline. To assist the FUND in reconsidering the costs preapproved, we offer the following clarifications

SCI has been performing groundwater monitoring events at the site since 1990. During this time we have become very familiar with the level of effort required due to the local hydrogeology. There are two very distinct lithogic units at the site. Some of the wells are screened within highly permeable stream channel deposits; whereas others are screened within thinly interbedded alluvial deposits possessing relatively lower permeabilities. Accordingly, well recovery times vary across the site resulting in increasing the amount of time required for the events. In addition, the LOP has requested that the monitoring reports, irrespective of how many wells are included, present an update on the progress of remediation, conclusions regarding plume migration, and isoconcentration maps in addition to the laboratory test results. Accordingly, SCI requests that the FUND reconsider the amount requested for this task.

Task 3 - VES Pilot Test

SCI will make every effort to keep the Principal Engineers involvement to a minimum. Accordingly, SCI requests that the FUND reconsider the amount requested for preapproval.

Task 4 - Biotreatability

SCI will make every effort to keep the Staff Engineer's time to a minimum, however it is our experience that the level of effort proposed is justified. Accordingly, SCI requests that the FUND reconsider the amount requested for preapproval.

Task 5 - Development of Risk Based Cleanup Levels

SCI will make every effort to keep the Principal Engineer's and Staff Engineer's time to a minimum, however it is our experience that the level of effort proposed is justified. Accordingly, SCI requests that the FUND reconsider the amount requested for preapproval.

Task 6 - Feasibility/CAP

SCI will present a combined report and the amount preapproved appears acceptable.

Consultation

It has been SCI's experience that a certain amount of time is required to keep the client informed of the progress achieved at the site since it is ultimately their fiscal responsibility to cleanup the site. In addition, it is important to discuss findings and technical details with the LOP. SCI encourages the FUND to reconsider preapproving the requested amount for this task.

To further assist the FUND during their review of the CAP costs, the CAP estimated fee breakdown has been reformatted and modified to match the FUND's nomenclature. A copy of the revised breakdown is attached.

If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

Jeriann N. Alexander
Civil Engineer 40469 (exp. 3/31/99)

JNA:sld

Attachment: Equipment Bids
Fee Estimate

cc: Mr. George Linden
655 University Avenue, Suite 100
Sacramento, California 95825

Mr. George Hill
150 La Salle Avenue
Piedmont, California 94611

✓ Ms. Susan Hugo
ACHCSA
1131 Harbor Bay Parkway
Alameda, California 94501

ESTIMATED FEE BREAKDOWN
CORRECTIVE ACTIONS
3093 BROADWAY
OAKLAND, CALIFORNIA
November 1995

Task 1 - Interim Free Product Removal

Task 1.1 - VES Design/Permitting

Principal Engineer	2 hours @	$130 \hr	$260
Associate Engineer	10 hours @	$100 \hr	$1,000
Engineer	20 hours @	$70 \hr	$1,400
Permits			$2,000
		Subtotal	**$4,660**

Task 1.2 - VES Setup/Operation/Maintenance for 6 Months

Setup/Startup			
Contractor Delivery, Installation, Pickup			$220
SCI Coordination			
Associate Engineer	4 hours @	$100 \hr	$400
Engineer	8 hours @	$70 \hr	$560
Equipment Rental	6 months @	$2,650 \mo	$15,900
Equipment Maintenance	6 months @	$550 \mo	$3,300
Propane Tank Permit			$230
Propane Tank Rental	6 months @	$35 \mo	$210
Propane Usage	6 months @	$100 \mo	$600
Temporary Fence			$1,200
System Monitoring			
Principal Engineer	2 hours @	$130 \hr	$260
Associate Engineer	4 hours @	$100 \hr	$400
Engineer	10 hours @	$70 \hr	$700
Technician	24 hours @	$60 \hr	$1,440
Analysis			
TVH/BTEX	12 tests @	$85 \ea	$1,020
DCA	12 tests @	$100 \ea	$1,200
		Subtotal	**$27,640**

Task 1.3 - Free Product Removal by Skimming (Monthly)

Associate Engineer	0.5 hour @	$100 \hr	$50
Engineer	1 hour @	$70 \hr	$70
Technician	4 hours @	$60 \hr	$240
Materials			$50
		Subtotal/month	$410
		Subtotal/year	**$4,920**
		Total Task 1	**$37,220**

Task 2 - Groundwater Monitoring (November '95 - November '96)

Task 2.1 - Measure Water Levels/Check for Free Product

Technician	2 hours @	$60 \hr	$120
Materials			$50
		Subtotal	$170
		4 Events/year	**$680**

Task 2.2 - Free Product Characterization

Analytical Testing			
Product Sample	1 scans @	$250 \ea	$250
Water Sample	2 scans @	$250 \ea	$500
		Subtotal	**$750**

Task 2.3 - 3-Well Event

Technician	8 hours @	$60 \hr	$480
Materials			$50
Analytical Testing			
TVH/BTEX	3 tests @	$85 \ea	$255
TEH	3 tests @	$75 \ea	$225
DCA	3 tests @	$100 \ea	$300
		Subtotal/event	$1,310
		2 events/year	**$2,620**

Task 2.4 - 7-Well Event

Technician	16 hours @	$60 \hr	$960
Materials			$100
Analytical Testing			
TVH/BTEX	7 tests @	$85 \ea	$595
TEH	7 tests @	$75 \ea	$525
DCA	7 tests @	$100 \ea	$700
		Subtotal/event	**$2,880**

Task 2.5 - 12-Well Event

Technician	24 hours @	$60 \hr	$1,440
Materials			$150
Analytical Testing			
TVH/BTEX	12 tests @	$85 \ea	$1,020
TEH	12 tests @	$75 \ea	$900
DCA	12 tests @	$100 \ea	$1,200
		Subtotal/event	**$4,710**

Task 2.6 - Quarterly Reports

Principal Engineer	0.5 hour @	$130 \hr	$65
Associate Engineer	2 hours @	$100 \hr	$200
Engineer	16 hours @	$70 \hr	$1,120
Drafting	4 hours @	$40 \hr	$160
Clerical	4 hours @	$35 \hr	$140
		Subtotal	$1,685
		4 Events/year	**$6,740**
		Total Task 2	**$18,380**

Task 3 - VES Pilot Test

Task 3.1 - Field Effort

Drill Rig to Install Probes			$1,500
Materials & Supplies (probes, gages, flow meters)			$500
Principal Engineer	0.5 hour @	$130 \hr	$65
Associate Engineer	2 hours @	$100 \hr	$200
Engineer	10 hours @	$70 \hr	$700
Technician	20 hours @	$60 \hr	$1,200

Task 3.2 - Analytical

TVH/BTEX	2 tests @	$85 \ea	$170
DCA	2 tests @	$100 \ea	$200

Task 3.3 - Data Evaluation

Principal Engineer	4 hours @	$130 \hr	$520
Associate Engineer	12 hours @	$100 \hr	$1,200
Engineer	30 hours @	$60 \hr	$1,800
		Total Task 3	**$8,055**

Task 4 - Biotreatability

Ammonia Nitrogen	4 tests @	$30 \ea	$120
Nitrate Nitrogen	4 tests @	$35 \ea	$140
Ortho-Phosphate	4 tests @	$35 \ea	$140
pH	4 tests @	$20 \ea	$80
Dissolved Oxygen	4 tests @	$20 \ea	$80
Plate Count	4 tests @	$70 \ea	$280
Cytoculture Evaluation			$500
Principal Engineer	2 hours @	$130 \hr	$260
Associate Engineer	8 hours @	$100 \hr	$800
Engineer	16 hours @	$60 \hr	$960
		Total Task 4	**$3,360**

Task 5 - Development of Risk-Based Cleanup Levels per ASTM ES 38-94, RBCA Tier 1

Principal Engineer	2 hours @	$130 \hr	$260
Associate Engineer	12 hours @	$100 \hr	$1,200
Engineer	24 hours @	$70 \hr	$1,680
		Total Task 5	**$3,140**

Task 6 - Feasibility Study/CAP Report

Principal Engineer	2 hours @	$130 \hr	$260
Associate Engineer	12 hours @	$100 \hr	$1,200
Engineer	25 hours @	$70 \hr	$1,750
Drafting	10 hours @	$40 \hr	$400
Clerical	10 hours @	$35 \hr	$350
		Total Task 6	**$3,960**

Consultation Discussions with Client and Local Oversight Program re. Feasibility Study Results and Corrective Action

Principal Engineer	4 hours @	$130 \hr	$520
Associate Engineer	8 hours @	$100 \hr	$800
		Task Total	**$1,320**
		TOTAL	**$75,435**

BEaR

(Battram Environmental and Remediation)
ENVIRONMENTAL CONSULTING CONTRACTORS
GENERAL ENGINEERING & BUILDING \ HAZ MAT CA. LIC # 657840 Class A/B

Charles E. Battram III
900 Maria Drive
Oakdale, CA 95361
Telephone (209)848-3747

Feb 21,1996

Dear Mr. Helge,

Pursuant to the Lawrence Livermore National Laboratory report dated October 16,1995 *Recommendations To Improve the Cleanup Process for California's Leaking Underground Fuel Tanks (LUFTs)*, BEaR has lowered the standard monthly rental rates for IC Engine Soil Vapor Extraction equipment in prospect of continued application of this remediation technology.

There is some question regarding the variance in expense between the purchase and the rental of environmental treatment equipment. As a manufacturer, vendor and environmental contractor, I understand the concern that an equipment may be paid for many times over during the life of the equipment. BEaR has found a niche in the environmental industry whereby we can provide reliable remediation equipment that is "previously owned" at a reasonable and cost effective price. The most important factor in this relationship is **equipment maintenance**. Short term rentals are problematic due to the very nature of the equipment use, where there is not a great commitment by the end user to carry out the necessary weekly maintenance as required or an inadequate knowledge of how the equipment is designed to perform under various conditions or what adjustments may be made to optimize performance.

Typical equipment maintenance includes not only the tedious elements such as oil and filter change, various parts lubrication, coolant level checks, belt tension adjustments, ignition timing, etc.,but also fuel mixture and air flow adjustments that affect contaminant mass removal rates. Contamination constituents and levels as well as inerts may vary during the removal process requiring an experienced technician's adjustments to maximize removal rates.

In consideration of the importance of equipment maintenance, it is clear that rental rates must either be reflected as part of the rental rate or as a necessary additional expense. BEaR offers the six cylinder Ford industrial IC Engine w/ a generator set Vapor Extraction System for the basic rate of $2000.00 per month with a maintenance agreement for $1000.00 per month for the duration of the rental period. Given these fixed charges and the assumption that the engine will need to be overhauled at the end of the rental period if it is **not** properly maintained, it may be deduced that for a short term rental period of 6 months or less, the rental rate, without a maintenance agreement, should be $2,833.00 per month. The end user must then perform the maintenance or the equipment will not work.

"Previously owned" equipment is typically one half the cost of the new unit, which is in this case $17,000.00. Rental for 6 months @ $2,000.00 = $12,000.00. It is understandable that a client would not wish to purchase this equipment and that maintenance is an unavoidable cost.

Sincerely —

Charles E Battram III

BEaR
ENVIRONMENTAL CONSULTING CONTRACTORS
GENERAL ENGINEERING \ HAZ MAT CA. LIC # 657840

Charles E. Battram III
900 Maria Drive
Oakdale, CA 95361
Telephone (209)848-3747

Subsurface Consultants
171 12th Street, Suite 201
Oakland, CA 94067
(510)268-0461
Ms. Jeri Alexander

Dear Ms. Alexander

Battram Environmental and Remediatuon is pleased to confirm a phone quote for rental of an IC Engine Vapor Extraction System for use at your Oakland (Project #447055) site.

IC Engine Rental	$2400.00 / month	2000/month verbal check
Maintenance	$1000.00 / month	
Condensate removal tank	$ 750.00 purchase	
Mobilization & Demob	$ 500.00 flat rate	

BEaR wishes to receive first and last months rental in advance of delivery to the site and receive 1/2 of the mobilization charge at the time of delivery. BEaR will provide 4 hours site assistance and start-up / operation orientation for Subsurface Consultants personnel.

Please call me at (209)848-3747 if I may be of any further assistance.

Sincerely,

Charles E. Battram III

BEaR
ENVIRONMENTAL CONSULTING CONTRACTORS CA LICENSE #567340
Charles E. Bettram III • 900 Marla Drive • Oakdale, California 95361 • Telephone (209)848-3747

Equipment Description for IC Engine - Soil Vapor Extraction Unit

- Ford Power Unit : 6 cylinder, 300 cubic inch, industrial engine
- Generator : ElectroMotion 20 KW, 110 / 240 VAC, single or 3 phase
- Trailer mounted w/ 4 corner leveling jack stands & removable tongue w/ wheel
- Weather enclosure w/ sound attenuation
- Fuel System; Propane or Optional Natural Gas
- S-20 Stationary engine micro-processor fuel controller w/ O2 sensor
- Process air filter - 10 micron w/ replaceable filter
- Magnehelic type vacuum gauge (process vapor)
- Magnehelic type air flow gauge w/ averaging pitot tube (process vapor)
- Engine monitoring / instrumentation package
- Custom exhaust system w/ catalytic converter & Smog Pump
- Manual Air Dilution Control
- Air / Fuel Mixture indicator gauge w/ remote S-20 LED

Price: $17,000.00

Price includes: **Delivery and set up (within 100 miles of FOB: Oakdale,CA 95361)**
Balance of delivery day for on site operation orientation and/or site work as required.
2000 Hour or 90 Day Warranty (with approved maintenance)

Deposit: $8,500.00 + TAX @ Time of Order
Balance Due: Upon Delivery $8,500.00
Allow 3 weeks for Delivery & Set-Up Schedule

Optional Equipment Maintenance Contract Available @ $1000.00 per month

Original Equipment Manufacture (OEM) by BEaR & Crawford Enterprises
Custom built power unit with 900 original hours and modified for work as a soil vapor extraction unit. It is designed to process 0 to 75 CFM @ 10 in. Hg.(***NO UPPER LIMIT LEL***),under a 70 amp load. The power may be used to operate other on-site remediation equipment such as a groundwater treatment system or provide supplemental power for any other site requirements(Co-generation capabilities).

Post-it® Fax Note 7671	Date 3-4-96	# of pages ▶ 1
To JIM HELGE	From CHUCK BATTRAM	
Co./Dept. SUBSURFACE CONSULT	Co. BEAR	
Phone # 510/268-0461	Phone # 209/848-3747	
Fax # 510/268-0137	Fax #	

ENVIRONMENTAL INSTRUMENTS MFG. CO.
657-D Armstrong Way, Oakdale, California 95361
Tel: (209) 848-0154 Fax: (209) 848-3459

February 28, 1996

Mr. Jim Halge
Project Manager
Subsurface Consultants, Inc.,
171- 12th Street, Suite 201
Oakland, California 94607

Dear Mr. Halge:

RE: Addendum to the cost estimate provided regarding an I.C. engine rental

At the request of Subsurface Consultants, EICO., provided a cost estimate to rent an I.C. engine on November 2, 1995. The intention of this letter is to offer you additional discounts on this I.C. engine rentals. Currently we are renting I.C. engines at $2,800.00 per month on a month to month rental. Please note that a deposit of first and last month is required at the time of issuing a contract. One month notice is required before decommissioning the equipment. The permit handling fee for this system can be performed by EICo., for an additional cost of $1,000.00. Please call me if you need further information.

Sincerely,
EICO.,

Naresh Channaveerappa
Senior Engineer

ENVIRONMENTAL INSTRUMENTS MFG. CO.
657-D Armstrong Way, Oakdale, California 95361
Tel: (209) 848-0154 Fax: (209) 848-3459

November 2, 1995

Ms. Jeri Alexander

Dear Ms. Alexander:

Environmental Instruments Company (EICo.,) is pleased to present this proposal to provide an I.C. engine for your interim remediation of gasoline impacted soil. Cost summary to provide this system follows:

Item	Description	Q	Unit	Total
1	I.c.engine rental	mon	$3000.00	$3000.00 2800.00
2	O&M manual			Included
3	Propane	mon	$800.00	$800.00
4	Permits(permit fee not included)	ea	$1,200.00	$1,200.00 $1000.00
5	Temporary Fence	ea	$3,000.00	$3,000.00
6	Ballards	ea	$300.00	$300.00
7	Service Contract including Sample collection	ea	$1,500.00	$1,500.00
8	Vapor Extraction Test (technician services)	day	$400.00	$400.00

Please note that you can choose the line item options provided to suite your system requirements. EICo., will offer one day test services at no additional expenses towards the system rental.

Ms. Jeri Alexander

Please call me at 209-848-0154 should you need any additional information or need further clarification on this proposal.

Sincerely,
ElCo.,

Naresh Channaveerappa
Senior Engineer

EI'S *COMMUTER*™

Fast Response Internal Combustion Remediation Engines.

EI has been active with Internal Combustion (IC) Engines since they were first introduced as a Soil Vapor Remediation Technology. Now, based on years of experience and requests from our customers, EI has developed the ***COMMUTER*** - an innovative and reliable IC Engine specifically designed to treat vapor flow rates up to 250 CFM with enough destruction efficiency to be EPA or AQMD permitted.

COMMUTER **IC Engines** are designed for remediation projects where:

- ☐ High concentrations of Volatile Organic Compounds (VOC's) are present.
- ☐ Soils Yield low vapor flow rates
- ☐ Thermal/Catalytic Oxidation or Activated Carbon treatment is cost-prohibitive
- ☐ Supplemental fuel or electric power is not available or cost-effective
- ☐ A small footprint system is required

Quiet-Running!

The ***EI COMMUTER*** is engineered to be today's most quiet-running IC system. Specially designed silencers and vibration isolators keep operating noise at a low db level to make it the correct soil remediation system even for noise sensitive residential areas.

Fully Automated, Fuel Efficient and Safe!

The entire ***COMMUTER*** Combustion process is managed by a microprocessor-based control system. Supplemental fuel rates and air-to-fuel ratios are continuously monitored and adjusted for optimum engine performance to maximize VOC destruction efficiency and minimize fuel costs.

Also, a Safety System is integrated into the controls to provide a high level of safety related cutoffs and emergency shutdowns to ensure reliable, unattended operation.

- ☐ The ***COMMUTER*** is designed for in-situ soil treatment as a cost effective alternative to excavation and disposal.
- ☐ ***COMMUTER*** Engines can be packaged for use with Ground Water Treatment Systems for vapor abatement to minimize the need for activated carbon filtration.
- ☐ ***COMMUTER*** Engines can also be used for earth mound vapor extraction, tank de-gassing, and pilot testing.

How the *COMMUTER* Works

EI's ***COMMUTER*** vacuum extracts VOC's from contaminated soil, underground storage tanks or air stripper off-gasses and destroys them by using a high-efficiency combustion process as shown in FIGURE 1:

1. Vapor is extracted from a recovery well by the ***COMMUTER's*** IC Engine-driven positive displacement blower. The IC Engine then uses the vapor as fuel to continue the process.

   If soil vapor concentrations are too low to support combustion, Propane or Natural Gas may be used to supplement the IC Engine's fuel requirements.

   In cases where soil vapor concentrations do support combustion, the IC Engine's processor minimizes supplemental fuel usage to optimize the air-to-fuel mixture.

2. After combustion, the exhaust stream passes through a 3-Way Catalytic Converter to oxidize Hydrocarbons and Carbon Monoxide. The NOx elements undergo a reduction similar to the process that takes place in an automotive application.

Summary of Specifications

Model Number	COMMUTER 300F
Maximum Flow Rate:	120 CFM
Maximum Vacuum @ 90 CFM:	14 -Inches Hg
Destruction Capacity:	30-LBS /Hr
Total Destruction Efficiency:	99.9%
Influent Concentration Range: *(Undiluted)*	70,000 ppm VOC
Influent Concentration Range: *(Optimum)*	200-20,000 ppm VOC
Discharge Air Temperature:	750° F
Discharge Air Velocity:	16,000-Feet/Minute
Dimensions Without Stack:	90"L x 64"W x 54"H
Weight:	1,500 Lbs
Natural Gas Pressure:	20 Inches WC
Natural Gas Flow:	10 CFM
Approximate Operating Noise Level:	72dB @ 15-Feet

Environmental Instru

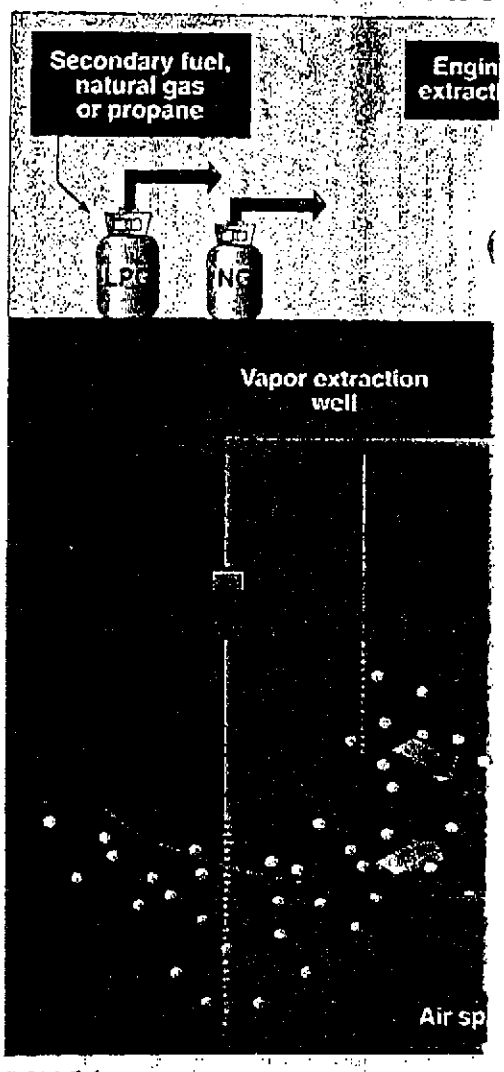
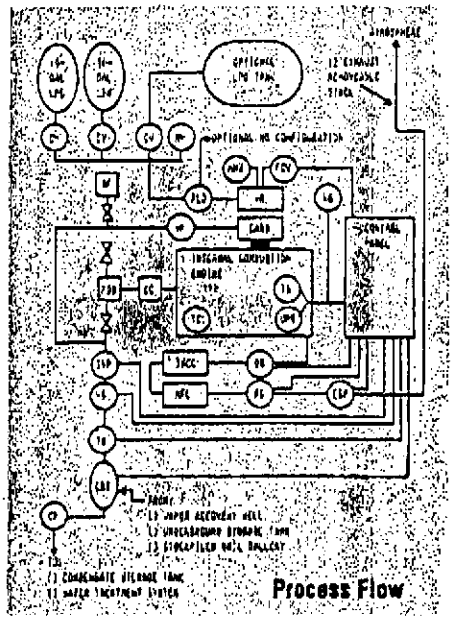


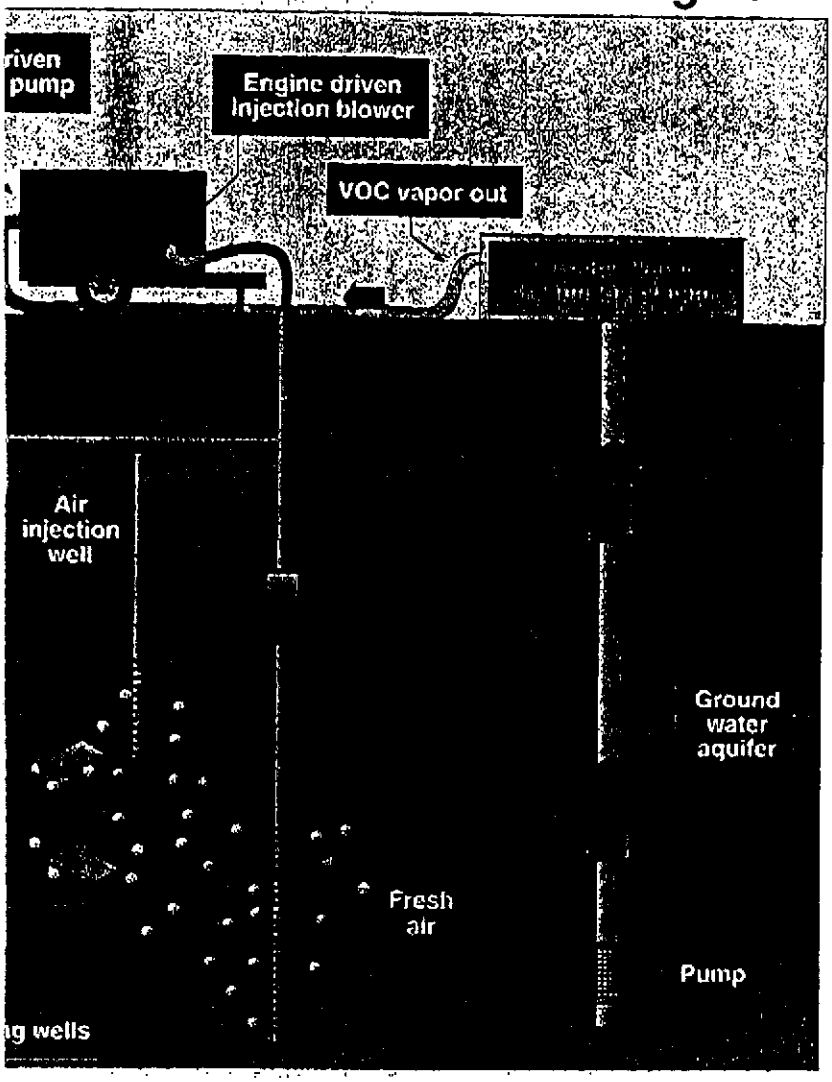
FIGURE 1



SALES ☐ RENTALS ☐ SERVICE

Soil Vapor Extraction and Thermal Treatment

ıents Internal Combustion Engine



EI
ENVIRONMENTAL INSTRUMENTS

Warranty
EI ***COMMUTER*** IC engines carry a 1 year warranty on all EI-manufactured components. Engine blocks are warranted for 1 year or 2,000 hours whichever comes first. EI will pass-on guarantees of the manufacturers of purchased parts installed on the system. *Proof of compliance with recommended maintenance schedules must be furnished in order for the warranty to remain valid.*

Call 1-800/648-9355
Fax 1-510/686-4608

The COMMUTER is built to be the most cost-effective IC Engine available at the best price, anywhere!

COMMUTER Components

COMMUTER IC Engines are supplied as self-contained trailer-mounted systems. Standard components include:

- ☐ **6 Cylinder Liquid Cooled Engine**
- ☐ **Microprocessor-Based Fuel Control System**
- ☐ **7 Hp Rotary Lobe Extraction Blower** with Clutch and Balance Valve
- ☐ **On-Board Environmental Sampling Pump** with 3-Way Selector, Teflon Fittings and Purge/Clean Air Setting
- ☐ **Moisture Separator** with Auto Drain
- ☐ **Full Instrumentation to Monitor:**
  - Extracted Vapor Flow/Vacuum
  - Water Temperature
  - Oil Pressure
  - RPM - 2,000 Typical, 2,700 Max.
  - Hours of Operation
  - DC Voltage
  - Exhaust Temperature
- ☐ **2-Stage Vaporizer/ Regulator Carburetor**
- ☐ **3-Way Catalytic Converter** for EPA and AQMD Compliance
- ☐ **Dilution and Total Air Particulate Filters**
- ☐ **Safety Controls and Equipment:**
  - Propane Disconnect
  - Master Shut-Down Switch
  - Locking Instrument/Control Panel Door
  - 10 Lb ABC Fire Extinguisher
- ☐ **Heavy Duty Trailer** with Leveling Jacks and Removable Tongue
- ☐ **10 Gallon Propane Fuel Tanks (2)**

System Options

- ☐ Natural Gas Supplemental Fuel
- ☐ 2-Amp, 110 V AC Electrical Service
- ☐ Strip Chart Recorder
- ☐ Remote Data Acquisition/Control Package

Engine Options

Model	Engine/CID	Typical Flow	Typical Destruction Capacity
140-F	Ford 140	70 CFM	14 Lbs/Hr
300-N	Navistar 304	120 CFM	30 Lbs/Hr
300-F	Ford 300	120 CFM	30 Lbs/Hr
350-N	Navistar 345	150 CFM	34 Lbs/Hr
350-F	Ford 351	150 CFM	35 Lbs/Hr
400-N	Navistar 392	180 CFM	39 Lbs/Hr
460-F	Ford 460	250 CFM	55 Lbs/Hr

All models supplied with direct drive coupling to blower, standard. Rockford Power Take-Off or Pitts Electric Clutches are optional.

EnviroSupply Service INC.

5653 Stoneridge Drive, Suite 122
Pleasanton, CA 94588
Tel: (510) 734-9595
Fax: (510) 734-9611

March 7, 1996

Mr. Jim Helge
SUBSURFACE CONSULTANTS
171 12th Street, Suite 201
Oakland, CA 94607

RE: PROPOSAL FOR RENTAL OF A VR SYSTEMS MODEL V3 INTERNAL COMBUSTION ENGINE FOR SIX MONTHS AT YOUR SITE IN OAKLAND, CALIFORNIA.
PROPOSAL NUMBER 96SF100.A

Dear Mr. Helge :

Thank you for taking the time to meet with me on Monday, Jim. I appreciate the opportunity you have given us to be of service to you on this project. Please keep in mind that the VR Systems V3 is capable of a maximum of 250 SCFM. Realistically, the highest you will see in the field is 160 SCFM. This is a 460 cid V-8 engine. My competitors are offering a 6 cylinder unit capable of 120 SCFM maximum. Realistically, I do not believe that you will see any more than 77 SCFM maximum in the field. Please find below the investment amount associated with the rental, installation, propane tank installation, and O & M, for the above referenced project:

VR SYSTEMS MODEL V3		ESTIMATED TOTAL
EQUIPMENT RENTAL	$2,400/Month	$14,400.00
DELIVERY & PICKUP		$ 90.00
INSTALLATION & STARTUP		$ 135.00
PROPANE TANK DELIVERY, PICKUP, & INSTALLATION		$ 200.00
PROPANE	$ 1.35/Gallon	
PROPANE TANK PERMIT		$ 200.00
PROPANE TANK RENTAL	$30.00/Month	$ 180.00
OPERATIONS & MAINTENANCE.	$500/Month	$ 3,000.00

This quote is valid for 90 days. These prices do not include applicable sales tax.

Thank you for the opportunity to be of service to you. If we can be of any further assistance or you have any questions, please feel free to contact me at (510) 734-9595.

Sincerely,

S. Dunbar

Sean Dunbar
Sales Engineer

V3 STANDARD FEATURES

* FIRE CONTROL SYSTEM
* INPUT FLAME ARRESTER
* AUTO SHUT DOWN
  - High Water Temperature
  - High Oil Temperature
  - Low Oil Level
* AUTOMATIC OIL LEVEL REGULATOR
* "0" PRESSURE COOLANT SYSTEM
  (Safety & Long Life)
* 16 ITEM PRINTOUT CAPABILITY
* WELL GAS FLOW METER
* EASILY TRANSPORTED - ONE MAN SETUP
* SHUTDOWN/CALL-UP CAPABILITY
* PERMITTABILITY IN SCAQMD
  - Soil Remediation (Various Locations)
  - Underground Tank Degassing (Various Locations
  - Above Ground Tank Degassing (In Progress)
* L.A. CITY FIRE DEPARTMENT
  General Approval
* SANTA ANA FIRE DEPARTMENT
  General Approval
* 20 MINUTE INSTALLATION CAPABILITY
* SLIDE IN/SLIDE OUT ENGINE PACKAGE
* LARGE SERVICE DOORS
* PERMANENT STAND OR TRANSPORTABILITY
* PRINTER AND PRINTER STAND
* 15' x 2" INTERNALLY GROUNDED VAPOR HOSE
* 50' STATIC REELS

AVAILABLE OPTIONS

* MONITORING BY MODEM
* FOXBORO OVA
* KIT FOR NATURAL GAS OPERATION
* LONG RUN OIL TANK
* LCD MONITOR W/DISC DRIVE
  For Report Accumulation
* INVERTER PACKAGE
  For "Stand Alone" Capability

4/27/93

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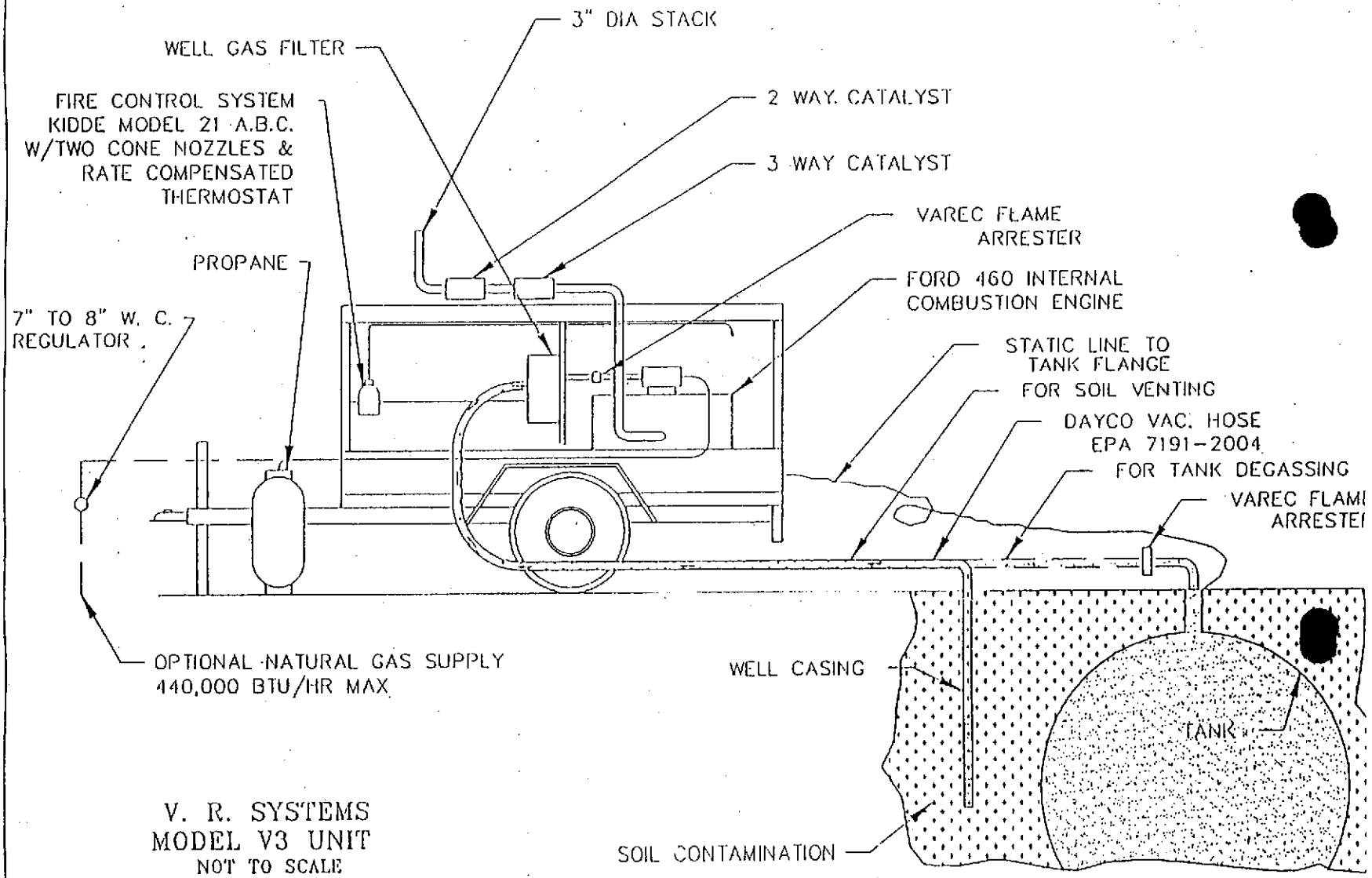
MATL	FINISH	DESC.	SHEET	ITEM NO.
		V3 SYSTEM SCHEMATIC	OF	EC2H0



V. R. SYSTEMS
MODEL V3 UNIT
NOT TO SCALE

DRAWN BY: DBG	DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.	VR SYSTEMS
SCALE: NONE	TOLERANCES UNLESS OTHERWISE SPECIFIED ARE AS FOLLOWS: ANGLES: ±1° FRACTIONS ±1/16 .XX ±.01 .XXX ±.001	ANAHEIM, CA.

SPECIFICATIONS - MC[redacted] V3

1.00 GENERAL

It is the intent of these specifications to describe a "State of the Art" Soil Remediation System including an internal combustion engine capable of extracting hydrocarbon vapors from contaminated soil or storage tanks without the use of a compressor or pump, and destruct such vapors as fuel in a controlled manner by the use of an on-board computer system.

2.00 DETAILED DESCRIPTION

System shall conform to the following minimum requirements:

2.01 ENGINE

The engine shall be a Ford 460 C.I.D. long block altered to design specifications exclusive to VR Systems Vapor Extraction Equipment. The engine shall be totally controlled by the computer system described below and shall be capable of operating four weeks without need of servicing. The engine shall be equipped with an automatic oil level device together with three (3) automotive type cartridge filters. The engine serves as both a vacuum pump and as a means of destroying hydrocarbon vapors removed from the soil. Engine cooling shall be by means of an oversized radiator and zero-pressure cooling system to insure safety and long life.

2.02 FUEL CONTROL SYSTEM

Supplemental fuel as may be required for proper combustion shall be either Propane (LPG) or Natural Gas. The control of the fuel to the engine shall be by the means of an electro/mechanical system including a "Master Control Unit" (MCU). The MCU shall adjust the supplemental fuel flow to compensate for changing influent hydrocarbon concentrations and maintain an air/fuel ratio at stoichiometric.

2.03 IGNITION SYSTEM

The Ignition System shall be an electronic type, automatically adjusted by commands from the computer.

2.04 ELECTRICAL POWER

No power required.

2.05 ON-BOARD COMPUTER CONTROL

The system shall include a "State of the Art" Data Acquisition System for monitoring and engine control.

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2.06 MONITORING

Monitoring s[redacted]include a 16 channel data repo[redacted] system on engine vital signs and operation. Reporting can be on regular intervals (every hour or half hour) or manually at the discretion of the operator, or stored (30 days max.) for future retrieval. Remote monitoring by modem shall also be available.

2.07 WELL GAS HOSE

An internally grounded 15' main well gas vacuum hose is also supplied.

2.08 WELL GAS FILTER

The system shall include a particulate Well Gas Filter and Moisture Knock Out. A Transducer shall be included to indicate well gas vacuum levels.

2.09 EXHAUST SYSTEM

The Exhaust System shall include a dual NOx reduction monolith and a dual HC/CO monolith. The oxygen supply to the NOx reduction unit shall be controlled at all times at 0.5% to 0.7% as read by an O_2 sensor in the exhaust system.

3.00 OPERATION

The operation of the system shall be automatic (except for start up, shut down and RPM set point) and shall not require manual adjustment of influent gas, supplemental fuel or combustion air.

4.00 CAPACITIES

4.01 VACUUM AND FLOW

The system shall be capable of developing up to 18" Hg at the well gas inlet. Flow rates shall be from 0 to 250 CFM. These conditions will depend on soil conditions, hydrocarbon concentrations and level of inerts encountered.

4.02 HYDROCARBON REMOVAL

The system shall be capable of removing up to 55 lbs/hr of hydrocarbons at a total destruction efficiency in excess of 99%.

5.00 SAFETY FEATURES

5.01 FIRE CONTROL SYSTEM

A Fire Control System shall be included as an integral part of the unit and consists of a Kidde 21# dry chemical automatic package with dual "Rate of Rise" temperature probes and a manual emergency override.

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5.03 GROUNDING

A 50' Static Grounding Line and Reel shall be included.

5.04 AUTOMATIC ENGINE SHUT DOWN

The system shall be protected by automatic shut down under the following conditions:

Overspeed
High Coolant Temperature
High Oil Temperature
Low Oil Pressure
Fire
High Water Level (Well Gas Filter)

The computer shall be programmed to store and report the reason for the automatic engine shut down.

5.05 FUEL SHUT OFF

Means shall be included to automatically shut off the fuel supply should the engine shut down for any reason.

5.06 LABEL AND INSTRUCTIONS

An Operation and Maintenance Manual shall be included establishing safe operation and required maintenance together with pertinent Material Safety Data Sheets from various suppliers. Safety and Warning Labels shall be appropriately affixed to the unit according to accepted standards. Safety and Operation instructions shall be conspicuously posted at the operation console within easy view of the operator.

6.00 TRANSPORTATION AND INSTALLATION

Included as part of the package shall be a transporter to safely move the unit from one site to another. Also, a stand shall be available and means supplied to slide the unit off of the transporter onto the stand (and vice versa) as a one-man operation.

7.00 GENERAL APPROVAL

The system shall have an approval by a registered third party testing laboratory for safety and operations.

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8.00 WARRANTY

The system shall carry a one-year warranty on all items manufactured by the seller and the seller will pass on the guarantee of the manufacturer of purchased parts installed on the unit.

9.00 MANUFACTURE

The unit shall be manufactured in the United States of America and the supplier shall hold the owner and/or its various departments free and harmless from any patent infringement suit arising out of the purchase of this Soil Venting System.

U.S. PATENTS: 4,846,134, 5,070,850, 5,101,799
CANADIAN PATENT 1,287,805

5/19/94

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STATE OF CALIFORNIA - CALIFORNIA ENV[redacted]AL PROTECTION AGENCY
PETE WILSON, Governor

STATE WATER RESOURCES CONTROL BOARD
DIVISION OF CLEAN WATER PROGRAMS
2014 T STREET, SUITE 130
P.O. BOX 944212
SACRAMENTO, CALIFORNIA 94244-2120
(916)227-4307
(916)227-4530 (FAX)

STID 469

Post-it® Fax Note 7671	Date 4/17	# of pages ▶ 2
To Susan Hugo	From Christopher Stevens	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

April 17, 1996

Mr. Jonathon Redding
Fitzgerald, Abbott & Beardsley
1221 Broadway, 21st Floor
Oakland, CA 94612-1837

Dear Mr. Redding:

PRE-APPROVAL OF CORRECTIVE ACTION COST ESTIMATE, Claim No. 1673, 3093 Broadway, Oakland

I have reviewed the supplemental information submitted by Subsurface Consultants, Inc. (SCI), received on April 9, 1996, regarding pre-approval of corrective action costs; I will place these documents in the file for future reference. This pre-approval letter does not supersede Mr. Munch's letter of February 6, 1996, except where specifically noted in the table below. I agree with most of Mr. Munch's decision, but I will modify certain items now that I have had time to more thoroughly review the information submitted.

With the following provisions, the actual costs of conducting the work proposed in the SCI, April 8, 1996 letter, and approved by the Alameda County Health Care Services Agency (County), will be eligible for reimbursement. The total cost pre-approved as eligible for the interim remediation, quarterly monitoring, feasibility testing and corrective action plan (CAP) preparation is **$55,965**; see the table below for a breakdown of the costs.

The Trust's first request has not been reviewed as yet; however, I note that you have requested approximately **$240,000** for work at your site that has been directed and approved by the County.

*Be aware that this pre-approval does not constitute a decision on reimbursement: all reasonable and necessary corrective action costs which are **directed and approved by the County** will be eligible for reimbursement at costs consistent with those pre-approved in this letter. All claims are reviewed on a case-by-case basis to account for site specific conditions.*

TASK	AMOUNT RE-QUESTED	AMOUNT PRE-APPR'D	COMMENTS
1. Int. Free Product Removal -1.1 VES Design/Permitting -1.2 VES Setup/Op/Maint. -1.3 Free Product Removal	 $4,660 $27,640 $4,920	 $4,400 $14,525 $4,920	1.2 Amount pre-approved based on three months operation. The effectiveness of additional operation should be evaluated and a decision made by consultant and County whether continued operation up to six months is necessary for system evaluation.

2. Ground Water Monitoring -2.1 Meas. Water Levels (4X) -2.2 Product Characterization -2.3 3 Well Event (2X) -2.4 7 Well Event (1X) -2.5 12 Well Event (1X) -2.6 Quarterly Reports (4X)	 $680 $750 $2,620 $2,880 $4,710 $6,740	 $680 $750 $2,620 $2,880 $4,710 $4,000	
3. VES Pilot Test -3.1 Field Work -3.2 Analytical -3.3 Data Evaluation	 $4,165 $370 $3,520	 $4,100 $370 $3,000	
4. Biotreatability	$3,360	$2,880	
5. RBCA Tier 1	$3,140	$2,170	
6. Feasibility Study/CAP	$3,960	$3,960	
Consult. w/ Client & County	$1,320	$0	Justify these costs if and when they become necessary.
TOTALS	$75,435	$55,965	

- The actual costs and scope of work performed must be consistent with those in the original cost estimate and the provisions of this letter.
- The work products must be acceptable to the County and the Regional Water Quality Control Board.

In addition, it is my opinion that it is unnecessary to obtain three bids for this contract; the Fund's three bid requirement is waived for this contract.

If a different scope of work or a new contract becomes necessary, then you must request pre-approval of costs on the new scope of work. I would recommend also that you request pre-approval and waiver of the bid requirement for any future change orders if they become necessary.

However, let me point out that it is the Fund's policy that you must obtain at least three bids from qualified firms if soil or ground water cleanup is determined necessary. Recent changes in the legislation governing the Fund require that the Fund provide you with assistance in procuring contractor and consultant services for corrective action. If you need any assistance in contracting for corrective action services, don't hesitate to call on me.

Please remember that it is still necessary to submit the actual cost of the work as explained in the Reimbursement Request Instructions to confirm that the costs are consistent with this estimate before you will be reimbursed. To make this easier, insure that your consultant prepares his invoices to match the format of the original estimate, and provides reasonable explanations for any changes made in the scope of work or increases in the costs. When the invoices are submitted you must include copies of all:

- subcontractor invoices,
- technical reports, when available, and
- applicable correspondence from the County.

Please call if you have any questions; I can be reached at the above number.

Sincerely,

Christopher Stevens, WRC Engineer
Underground Storage Tank Cleanup Fund Program

cc: Ms. Susan Hugo
by fax: (510) 337-9335