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General Electric Company  
Vallecitos Nuclear Center  
P.O. Box 460, Vallecitos Road  
Pleasanton, CA 94566

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AUGUST 7, 1992

Jeff Shapiro, Hazardous Material Specialist  
Alameda County Health Agency  
Division of Hazardous Materials  
80 Swan Way Rm 200  
Oakland, CA 94621

Dear Jeff

This memo and attachment is to follow up on our conversation Friday, August 7, 1992. Enclosed is your copy, for your reference, of the Bioremediation Plan for Diesel Contaminated Soils at the Vallecitos Nuclear Center.

If you should have any questions regarding this plan, please feel free to call me at (510) 862-4345.

Sincerely

Susan A. Dahlin

SEACOR

**PROPOSAL TO PROVIDE  
ENVIRONMENTAL SERVICES  
FOR  
BIOREMEDIATION OF DIESEL CONTAMINATED SOILS  
GENERAL ELECTRIC COMPANY  
VALLECITOS NUCLEAR CENTER**

**Submitted by  
*SEACOR***

**for**

**General Electric Company  
Vallecitos Nuclear Center  
P.O Box 460, Vallecitos Road  
Pleasanton, California 94560**

**March 4, 1992**

*4970 El Camino Real  
Suite 250  
Los Altos, CA 94022  
(415) 691-0131*

SEACOR

March 4, 1992

Ms. Susan Dahlin  
General Electric Company  
Vallecitos Nuclear Center  
P.O. Box 460, Vallecitos Road  
Pleasanton, California 94560


**PROPOSAL TO PROVIDE ENVIRONMENTAL ENGINEERING SERVICES FOR  
BIOREMEDIATION OF DIESEL CONTAMINATED SOIL FROM REMOVAL OF  
DIESEL PIPING, "300 AREA", VALLECITOS NUCLEAR CENTER PLEASANTON  
CALIFORNIA.**

Dear Ms. Dahlin:

SEACOR is pleased to submit this proposal to provide General Electric Company with environmental consulting services. The scope of services presented in this proposal is based on our field observation and testing services during removal of the diesel piping.

SEACOR trusts that the services outlined in this proposal meet your requirements. We sincerely appreciate the opportunity to be of service and assistance to General Electric Company and look forward to working with you again. If you have any questions concerning our proposal please feel free to call our office at (415) 691-0131.

Sincerely yours,

  
John Lambie C.E.G.  
Principal Geologist

*4970 El Camino Real  
Suite 250  
Los Altos, CA 94022  
(415) 691-0131*

## 1.0 INTRODUCTION

At your request, Science & Engineering Analysis Corporation (SEACOR) is pleased to submit this cost proposal for providing environmental engineering services related to bioremediation of diesel contaminated soil. The soil was excavated during removal of diesel fuel tank piping at the "300 Area", General Electric Company Vallecitos Nuclear Center (GE-VNC) and is currently stored on site in 43 drums. Analytical test results of samples collected from the drums and excavated trench floor are given on Table 1 (attached). Analytical test results indicated TPH(diesel) concentrations ranging from 61 to 13,000 ppm(parts per million) for the soils stored in 55 gallon drums. Test results from samples taken from the excavation trench floor indicated non-detect for TPH(diesel) at reporting limits of one ppm.

## 2.0 SCOPE OF WORK

Based on the available information and discussions with GE-VNC staff, we propose to provide the following services:

### Task 1) **BIOREMEDIATION PLAN**

SEACOR will prepare a bioremediation plan for GE-VNC review and submittal to the Alameda County Health Care Services Agency (ACHCSA). As part of the plan SEACOR will prepare a site specific health and Safety Plan for the bioremediation project. SEACOR staff will provide office coordination with GE-VNC staff regarding field procedures and scheduling for implementation of the workplan. SEACOR will also provide periodic consultation with regulatory agency personnel regarding reporting and approval requirements, job status and progress toward final clean up approval.

Based on our field visit and discussions with you an existing concrete pad adjacent to the diesel tank area will be used as the bioremediation area. Diesel-affected soils will be removed from 55 gallon drums and spread on the pad. Placement of the soils will be performed by a Bobcat loader to two foot maximum thickness. Plastic sheeting will be placed over the soil and a plastic sheeting covered berm will be constructed at the perimeter of the pad. These measures are intended to contain the diesel-affected soil and prevent rain or surface run-off from affecting the treatment area.

The effectiveness of bioremediation is dependent on oxygen levels, nutrient levels, temperature and soil moisture content. The moisture content of the soils should be controlled and adjusted at the time of spreading and during the course of remediation. Although nutrient requirements are dependent upon naturally existing nutrients in the soil, we anticipate that approximately one pound of ammonium nitrate and super phosphorus fertilizer will be required per ton of soil. Periodic laboratory analysis will be performed to evaluate the reduction of hydrocarbon contamination in the soil. Oxygen entrainment will be performed by turning and aerating the soils by Bobcat loader. Once it is determined that TPH concentrations have been reduced to non-detectable (for the lab method) levels the material can be replaced on site as fill.

**Task 2) FIELD SERVICES (Bioremediation Pad Preparation)**

SEACOR will provide field coordination of bioremediation pad preparation, initial soil moisture conditioning, aeration, and fertilization to enhance natural bacterial breakdown of hydrocarbons in soil. Also SEACOR will conduct initial baseline sampling of diesel contaminated soils on the bioremediation pad.

**Task 3) FIELD SERVICES (Monthly Sampling)**

SEACOR field personnel will perform periodic (monthly) sampling for analytical testing to monitor and document the reduction of diesel contamination toward regulatory agency acceptable levels. Soil samples will be collected in clean brass tubes, sealed with teflon tape, placed in a cooler and transported to NET labs under chain-of-custody. Samples will be analyzed for TPH(diesel). It is anticipated that two samples per month will be collected and analyzed.

Based on our past experience it is anticipated that elevated TPH levels may be successfully reduced to acceptable regulatory levels in a time period of two to six months depending on the initial TPH concentration, bacteria population density, weather, soil type, soil moisture content and PH.

**Task 4) MONTHLY REPORTING**

SEACOR will prepare monthly letter progress reports documenting the work accomplished, budget tracking and remediation progress results. In addition a monthly or as needed phone conference, will be conducted to keep GE-VNC abreast of the project status.

TABLE 1  
 TPH(diesel) Concentration  
 "300 Area" GE-VNC

SAMPLE NUMBER	SAMPLE DATE	EPA METHOD	REPORTING		DESCRIPTION
			LIMIT (ppm)	TPH(diesel) (ppm)	
DS-1	1/30/92	3550	1	61	Drum No. DS-1
DS-2	1/30/92	3550	1	160	Drum No. DS-2
DS-3	1/30/92	3550	1	450	Drum No. DS-3
DS-4	1/30/92	3550	1	710	Drum No. DS-4
DS-5	1/30/92	3550	1	210	Drum No. DS-5
DS-6	1/30/92	3550	1	170	Drum No. DS-6
DS-7	1/30/92	3550	1	430	Drum No. DS-7
DS-8	1/30/92	3550	1	250	Drum No. DS-8
DS-9	1/30/92	3550	1	560	Drum No. DS-9
DS-10	1/30/92	3550	1	210	Drum No. DS-10
DS-11	1/30/92	3550	1	130	Drum No. DS-11
DS-12	1/30/92	3550	1	760	Drum No. DS-12
DS-13	1/30/92	3550	1	360	Drum No. DS-13
DS-14	1/30/92	3550	1	720	Drum No. DS-14
DS-15	1/30/92	3550	1	480	Drum No. DS-15
DS-16	1/30/92	3550	1	490	Drum No. DS-16
DS-17	1/30/92	3550	1	430	Drum No. DS-17
DS-18	1/30/92	3550	1	250	Drum No. DS-18
DS-19	1/30/92	3550	1	250	Drum No. DS-19
C-1	1/30/92	3550	1	750	Composite 8 drums
C-2	1/30/92	3550	1	900	Composite 8 drums
C-3	1/30/92	3550	1	13000	Composite 8 drums
RTS-1	1/30/92	3550	1	ND	trench floor
RTS-3	1/30/92	3550	1	ND	trench floor

note:  
 ND = non detect

**13.0 REVISED COST ESTIMATE**

<i>Task 1 - Bioremediation Plan</i>		
FEES		
SEACOR Fees to Date		1,700.00
Alameda County Oversight	\$500 + 15%	575.00
<b>TOTAL FOR TASK 1</b>		<b>\$2,275.00</b>

<i>Task 2 - Field Services (Bioremediation Pad Construction)</i>		
LABOR		
Associate Hydrogeologist	2 hours @ \$80/hour	160.00
Staff Engineer	16 hours @ \$60/hour	960.00
EXPENSES		
Truck Rental	1 day @ \$80/day	80.00
Administrative Fee	3 percent	33.00
REBILLABLES		
Fertilizer	2 sacks @ \$50/each	100.00
<b>TOTAL FOR TASK 2</b>		<b>\$1333.00</b>

<i>Task 3 - Field Services (Monthly Aeration and Sampling) (Assume Sampling every three months twice)</i>		
LABOR		
Associate Hydrogeologist	4 hours @ \$80/hour	320.00
Staff Engineer	16 hours @ \$60/hour	960.00
EXPENSES		
Truck Rental	2 day @ \$80/day	160.00
Administrative Fee	3 percent	43.00
<b>TOTAL FOR TASK 3</b>		<b>\$1,483.00</b>



<i>Task 4 - Two Progress Reports (every 3 months)</i>		
<b>LABOR</b>		
Principal Hydrogeologist	2 hours @ \$110/hour	\$220.00
Associate Hydrogeologist	6 hours @ \$80/hour	480.00
Clerical	2 hours @ \$35/hour	70.00
<b>EXPENSES</b>		
Administrative Fee	3 percent	23.00
<b>TOTAL FOR TASK 4</b>		<b>\$793.00</b>

**TOTAL TASK 1-4**

**\$5,884.00**

Actual costs will depend upon the length of field time required, construction scheduling and coordination, and length of time to bioremediate soils to regulatory agency acceptable levels. It is assumed that all analytical work and excavation subcontractor work will be direct billed to GE-VNC. Our cost estimates for these items and cost details are attached for your reference.

OBSCLETE SEE 5/21/92  
QUOTE

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### 3.0 COST ESTIMATE AND ASSUMPTIONS

Our services will be provided in accordance with the previously agreed upon terms, conditions and fee schedule. Based on our past experience these services are estimated as follows:

#### Task 1

##### Bioremediation Plan

Principal Hydrogeologist	4 hours	@ \$110/hour	\$ 440
Project Hydrogeologist	32 hours	@ \$ 80/hour	\$2,560
Clerical	2 hours	@ \$ 35/hour	\$ 70
Admin. Fee		% 3	<u>\$ 92</u>
			\$3,162

#### Task 2

##### Field Services (Bioremediation Pad Construction)

Associate Hydrogeologist	2 hours	@ \$ 80/hour	\$ 160
Staff Engineer	16 hours	@ \$ 60/hour	\$ 960
Admin. Fee		% 3	<u>\$ 33</u>
			\$1,253

#### Rebillables

Fertilizer	2 sacks	@ \$50/each	\$100
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TOTAL TASK 1 AND 2 \$4,415

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**Task 3**

**Field Services (Monthly Aeration and Sampling)**

**(Assume monthly sampling events for 6 months)**

Associate Hydrogeologist	6 hours	@ \$ 80/hour	\$ 480
Staff Engineer	48 hours	@ \$ 60/hour	\$2,880
Admin. Fee		% 3	<u>\$ 100</u>
			\$3,460

**Task 4**

**Monthly Progress Reports (per month)**

**(Assume monthly reports for 6 months)**

Principal Hydrogeologist	4 hours	@ \$110/hour	\$ 660
Associate Hydrogeologist	24 hours	@ \$ 80/hour	\$1,920
Clerical	6 hours	@ \$ 35/hour	\$ 210
Admin. Fee		% 3	<u>\$ 83</u>
			\$ 2,873

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**TOTAL TASK 3 AND 4**

**\$6,334**

Actual costs will depend upon the length of field time required, construction scheduling and coordination, and length of time to bioremediate soils to regulatory agency acceptable levels. It is assumed that all analytical work and excavation subcontractor work will be direct billed to GE-VNC. Our cost estimates for these items and cost details are attached for your reference.

(OBSOLETE \$ AMOUNT SEE 5/21/92 QUOTE)

ATTACHMENT A  
COST DETAIL

Task 1	UNITS	RATE	SEACOR LABOR	SUBCONTRACTOR
<b>Bioremediation Plan</b>				
<b>SEACOR LABOR</b>				
Principal Hydrogeologist	4	\$110.00	hour \$440.00	
Associate Hydrogeologist	32	\$80.00	hour \$2,560.00	
Clerical	2	\$35.00	hour \$70.00	
Adimin. fee		3.00%	\$92.10	
			-----	
			\$3,162.10	
 <b>Task 2</b>				
<b>Field Services (Bioremediation Pad Construction)</b>				
<b>SEACOR LABOR</b>				
Associate Hydrogeologist	2	\$80.00	hour \$160.00	
Staff Engineer	16	\$60.00	hour \$960.00	
Adimin. fee		3.00%	\$33.60	
<b>SUBCONTRACTOR</b>				
Conco West (Bobcat +Labor)	1	\$905.00	day	\$905.00
NET LABS TPH(diesel)	4	\$100.00	each	\$400.00
<b>REBILLABLES</b>				
fertilizer	2	\$50.00	sack	\$100.00
			-----	
			\$1,253.60	\$1,305.00
<b>TOTAL TASK 1 AND 2</b>			<b>\$4,415.70</b>	<b>\$1,305.00</b>

Task 3	UNITS	RATE		SEACOR LABOR	SUBCONTRACTOR	SEACOR LABOR	SUBCONTRACTOR
				ONE MONTH	SIX MONTHS		
<b>Field Services (Monthly Aeration and Sampling)</b>							
<b>SEACOR LABOR</b>							
Associate Hydrogeologist	1	\$80.00	hour	\$80.00		\$480.00	
Staff Engineer	8	\$60.00	hour	\$480.00		\$2,880.00	
Adimin. fee		3.00%		\$16.80		\$100.80	
<b>SUBCONTRACTOR</b>							
Conco West (Bobcat +Labor)	1	\$550.00	day		\$550.00		\$3,300.00
NET LABS TPH(diesel)	2	\$100.00	each		\$200.00		\$1,200.00
				-----			
				\$576.80	\$750.00	\$3,460.80	\$4,500.00
 <b>Task 4</b>							
<b>Monthly Progress Reports</b>							
<b>SEACOR LABOR</b>							
Principal Hydrogeologist	1	\$110.00	hour	\$110.00		\$660.00	
Associate Hydrogeologist	4	\$80.00	hour	\$320.00		\$1,920.00	
Clerical	1	\$35.00	hour	\$35.00		\$210.00	
Adimin. fee		3.00%		\$13.95		\$83.70	
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				\$478.95		\$2,873.70	
<b>TOTAL TASK 3 AND 4</b>				<b>\$1,055.75</b>	<b>\$750.00</b>	<b>\$6,334.50</b>	<b>\$4,500.00</b>