



General Electric Company  
Vallecitos Nuclear Center  
PO Box 250, Vallecitos Road  
Palo Alto, CA 94303

March 21, 1991

U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attention: Document Control Desk

Reference: License DR-10, Docket 50-183

Gentlemen:

In accordance with the requirements of 10CFR50.33(k)(2) and 50.75(d) published in 53FR24018, June 27, 1988, "General Requirements for Decommissioning Nuclear Facilities", a Decommissioning Report for the Empire State Atomic Development Associates Incorporated [ESADA] Vallecitos Experimental Superheat Reactor (EVESR) is provided. The cost estimate for decommissioning the EVESR is based on the estimates performed by Battelle Pacific Northwest (PNL) published in NUREG/CR-1756, "Technology, Safety and Costs of Decommissioning Reference Nuclear Research and Test Reactors", March, 1982. This estimate includes costs for facilities related to EVESR but not described in License DR-10 as part of the EVESR facility. This approach to estimating the cost of decommissioning the EVESR is in accordance with Draft Regulatory Guide, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors", May, 1989. Adjustments for inflation or for site specific factors will be made every five years or when significant changes such as burial costs or changes in facility conditions occur.

On August 20, 1990, General Electric (GE) submitted a Petition for Reconsideration to the Nuclear Regulatory Commission (NRC) requesting the NRC reconsider and reverse the denial of specific exemptions from the financial assurance mechanism requirements in 10 CFR Parts 50 and 70 by allowing GE to act as a self-guarantor to satisfy the requirements. GE also requested a time extension to the filing deadline until 15 days after GE is notified of the Commission's ruling on the Petition. This request for a time extension to the filing deadline was granted on August 27, 1990, in a letter to Dr. Bertram Wolfe from Mr. Robert M. Bernero. The decision denying GE's request for reconsideration was received by GE on March 11, 1991.

The cost data contained in NUREG/CR-1756 for the Plum Brook Test Reactor (PBTR) were allocated to the EVESR facilities. Comparisons of the facilities at EVESR to the facilities at the PBTR were based on number of square feet, size, volume, and other suitable factors to establish a ratio that was applied to the PBTR cost estimate. In this way, an estimated cost in direct proportion to that for the PBTR facilities was established.

Financial Assurance for Decommissioning under 10 CFR Parts 30, 40, 50 and 70 in the amount of \$35,600,000 has been arranged through an Irrevocable Standby Letter of Credit with Manufacturers Hanover Trust Company for the following NRC licenses held by the General Electric Company (GE).

Table 1  
GE Nuclear Energy Licenses

<u>Location</u>	<u>License No.</u>	<u>Type</u>	<u>Funding Requirement</u>
Vallecitos Nuclear Center P.O. Box 460 Pleasanton, CA 94566	R-33	Part 50	Cost estimate based on PNL studies. \$810,000
"	TR-1	Part 50	Cost estimate based on PNL studies. \$12,816,000
"	DR-10	Part 50	Cost estimate based on PNL studies. \$9,984,000
"	DPR-1	Part 50	Cost estimate based on PNL studies. \$6,652,000
"	SNM-960	Part 70	Certification \$750,000
Wilmington Nuclear Fuel Manufacturing P.O. Box 780 Wilmington, NC 28402	SNM-1097	Part 70	Certification \$750,000
		TOTAL	<u>\$31,762,000</u>

Table 2  
Other GE Facilities

<u>Location</u>	<u>License No.</u>	<u>Type</u>	<u>Funding Requirement</u>
GE Lighting 1975 Noble Road Cleveland, OH 44112	3400054-04	Part 30	Certification \$750,000
GE Lighting 1975 Noble Road Cleveland, OH 44112	3400054-05	Part 30	Certification \$750,000
GE Lighting 1975 Noble Road Cleveland, OH 44112	SMB-191	Part 40	Certification \$750,000
GE Aircraft Engine 1 Jimson Road Cincinnati, OH 45215	STB-53	Part 40	Certification \$750,000
GE Aerospace 3198 Chestnut Street, 401 E. Hunting Pak Ave. Philadelphia, PA 230 Goddard Blvd. 970 Pulaski Road 720 Vandeburt Road King of Prussia, PA & at temporary job sites of the licenses anywhere in the U.S.	SUB-831	Part 40	Cost Estimate* \$266,000
GE Aerospace 780 Third Avenue King of Prussia, PA	37-02006-09	Part 30	Cost Estimate* \$267,000
General Electric Company Space Systems Division Valley Forge Space Center Valley Forge, PA	37-02006-05	Part 30	Cost Estimate* \$267,000
		TOTAL	<u>\$3,800,000</u>

\*An estimated cost, \$800,000 was provided for the three facilities.

FINAL REPORT

The EVESR decommissioning cost estimate is in the same format used for the PBTR. Because there are multiple reactor licenses at the Vallecitos Nuclear Center (VNC), the total decommissioning costs for all units are indicated as well as each unit individually.

If there are any questions regarding the above submittal, please contact G. E. Cunningham at (415) 862-4330.

Very truly yours,

  
R. W. Darmitzel, Manager  
Environmental Programs

/ca

Attachment

cc: USNRC, Region V

**ESADA VALLECITOS EXPERIMENTAL  
SUPERHEAT REACTOR**

**DECOMMISSIONING**

**COST ESTIMATE**

**JANUARY, 1990**

Table 1

EVESR DECOMMISSIONING  
COST ESTIMATE SUMMARY

(1990 DOLLARS IN THOUSANDS)

	PBTR REACTOR & PUMP HOUSE (1990 \$)	EVESR	NTR	VBWR	GETR	TOTAL VNC
LABOR	\$ 6,583	\$4,660	\$290	\$3,184	\$ 4,559	\$12,693
SUBCONTRACT	470	333	N/A	227	325	885
ENERGY	58	41	8	28	40	117
SPECIAL TOOLS & EQUIP.	275	195	12	133	191	531
MISC. MATERIALS	155	110	3	75	107	295
WASTE DISPOSAL	<u>3,597</u>	<u>2,423</u>	<u>312</u>	<u>1,450</u>	<u>4,806</u>	<u>8,991</u>
SUBTOTAL	11,138	7,762	625	5,097	10,028	23,512
NUCLEAR INSURANCE	N/A	175	18	175	175	543
LICENSE FEES	N/A	50	5	50	50	155
CONTINGENCY	<u>2,785</u>	<u>1,997</u>	<u>162</u>	<u>1,330</u>	<u>2,563</u>	<u>6,052</u>
TOTAL COST	\$13,923	\$9,984	\$810	\$6,652	\$12,816	\$30,262

The PBTR estimate is included for comparison purposes and represents the 1990 costs to decommission the reactor building and containment vessel, the pump house, and those parts of the general site activities associated with them. The waste disposal represents current cost.

EVESR DECOMMISSIONING  
COST ESTIMATE

I. SCOPE

- A. This cost estimate includes all contaminated EVESR buildings, equipment, facilities, grounds, etc., within the EVESR compound. See Figures 1 and 2 and Table 2.
- B. Assumptions and Bases, References, and/or other related information used in this cost estimate are fully documented for future reference and updating.

II. ASSUMPTIONS AND BASES

- A. Cost estimates are based on: NUREG/CR-1756, "Technology, Safety and Costs of Decommissioning Reference Nuclear Research and Test Reactors"; March, 1982. Table 3 is a comparison of the EVESR facility to the PBTR facility.
- B. The Cost Estimate Format is consistent with NUREG/CR-1756 referenced above.
- C. All source and special nuclear material has been previously removed from the EVESR facilities.
- D. All nuclear sources and/or standards, other than those required for decommissioning, will have been previously removed.
- E. All decommissioning activities will be performed by GE personnel or by contracted labor and/or services. Contracted labor and services will be directed and controlled by GE personnel.
- F. Existing Vallecitos Nuclear Center (VNC) policies, procedures, etc., will be used for safety, training, etc., purposes for both GE and contracted activities.
- G. Wastes will be categorized as two types: Low Dose Rate (LDR) Wastes and High Dose Rate (HDR) Wastes.
- H. Low Dose Rate Wastes are those which will be buried in the shipping container.
- I. High Dose Rate Wastes are those which must be shipped to the burial site in inner containers in shielded casks. Dose rates on individual inner containers may not exceed 40 R/hr at the liner surface.



## II. ASSUMPTIONS AND BASES (Continued)

- J. All equipment and material which is contaminated or potentially contaminated will be surveyed and released or disposed of as contaminated waste.
- K. Structures which are released for "Unrestricted Use" will not be demolished or removed unless they pose an immediate safety problem.
- L. All liquid radioactive wastes will be either solidified in situ or concentrated and solidified at the site liquid waste evaporator facility.
- M. Every effort will be made to use individual building services, particularly exhaust ventilation, for decontamination and possibly dismantling of other building equipment. Close capture systems will also be used when appropriate.
- N. Removal of non-contaminated equipment, material, and facilities will not be included in this estimate unless such removal is essential to the decommissioning activities. Essentially all non-contaminated equipment and facilities will either be removed for other use prior to decommissioning or will remain in place for future use or disposition.
- O. There will be no costs included for the disposal of Casks and/or Shipping Containers. It is assumed that these will have a salvage value which will cover decontamination, retrofit, and/or transportation, which might be required.
- P. The EVESR cooling tower structure is not included in this cost estimate since it is expected to be removed prior to the decommissioning of the other EVESR facilities.
- Q. Decommissioning will result in the NRC release of the EVESR facilities for unrestricted use and the approval to use this site for non-nuclear purposes.



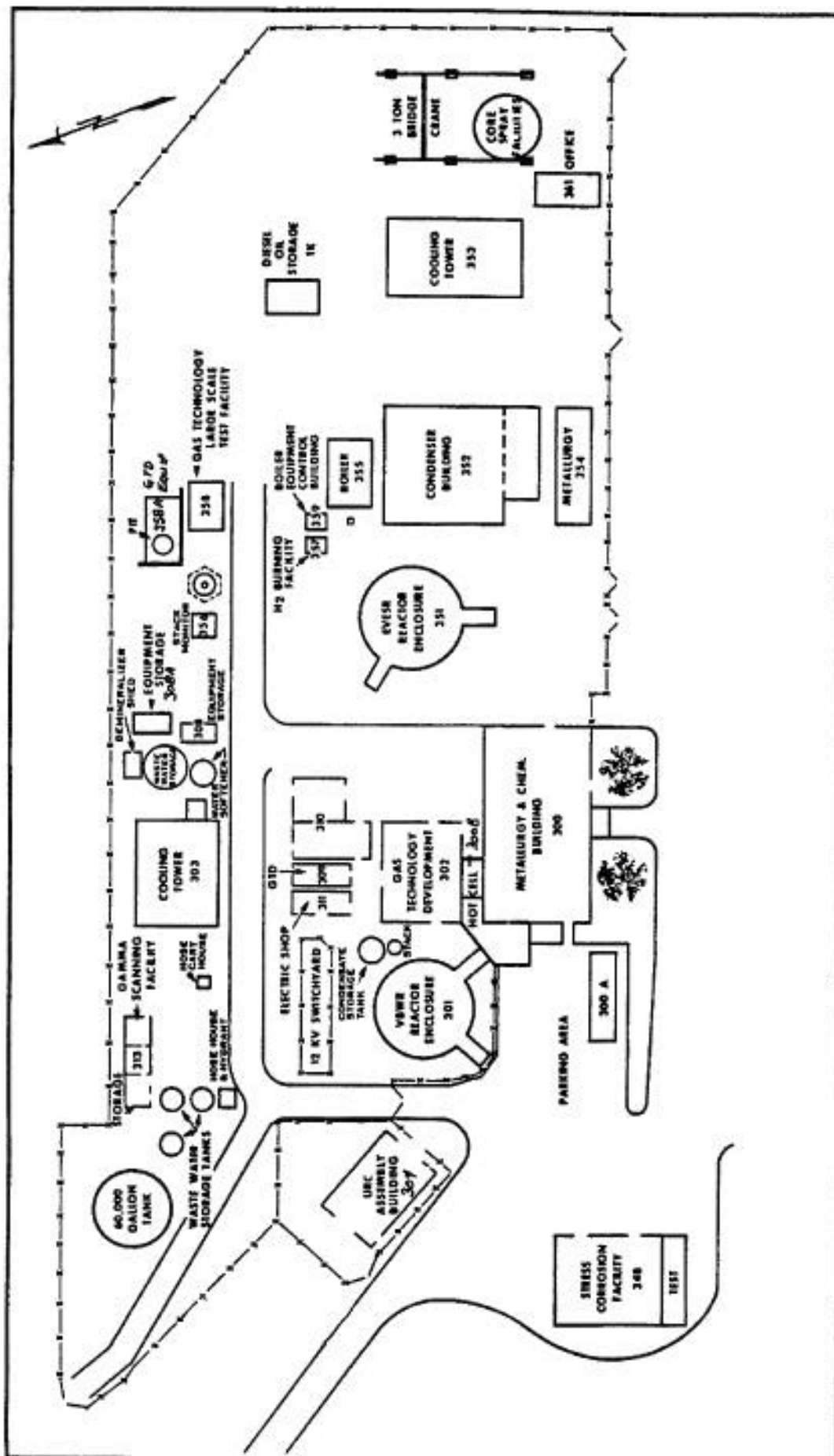


Figure 1. VBWR AND EVESR FACILITIES

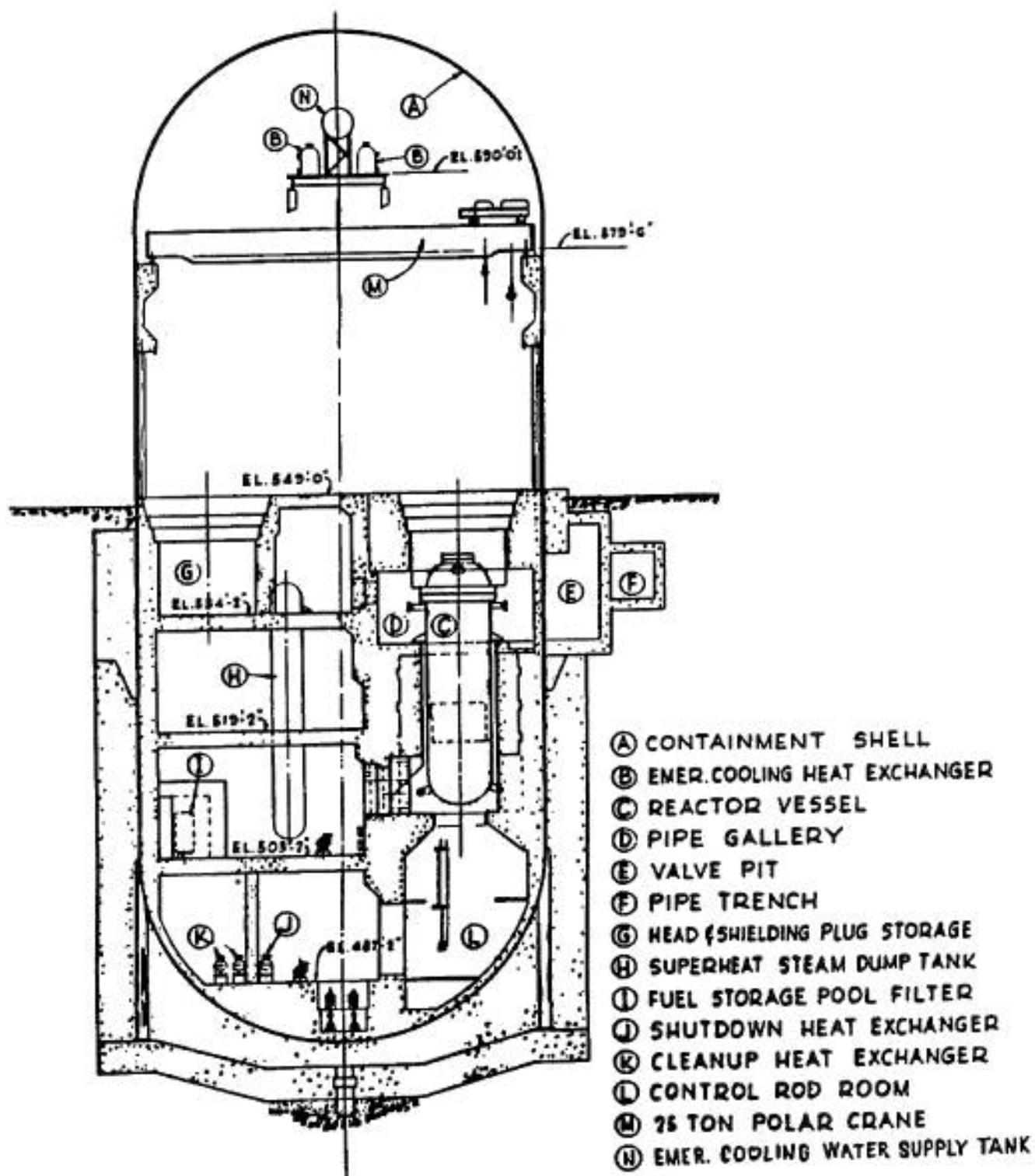


Figure 2. EVESR CONTAINMENT BUILDING

Table 2

## EVESR FACILITY BUILDINGS

BUILDING	FACILITY	FLOOR AREA (FT <sup>2</sup> )	DECOM REQUIRED
351	REACTOR ENCLOSURE (EVESR)	3,980	YES
352	DUMP CONDENSER	4,085	PARTIAL
353	COOLING TOWER	2,160	NO
354	METALLURGY	480	NO
355	FF BOILER FACILITY (EVESR)	600	YES
356	STACK GAS MONITORING	80	YES
357	H <sub>2</sub> BURNING	110	NO
358A	GTD EQUIPMENT	600	NO
359	BOILER CONTROL EQUIP	100	NO
-	VENTILATION STACK	155	YES
361	CORE SPRAY OFFICE	100	NO
TOTAL FLOOR AREA - EVESR FACILITIES		12,450	

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Table 3

## EVESR REACTOR COMPARISONS WITH PLUMBROOK

	EVESR -----	PLUMBROOK -----
POWER	12.5 MW(th)	60 MW(th)
CORE DIMENSIONS	3.5' X 4' HIGH	2' X 3' HIGH
VESSEL DIMENSIONS	7 FT DIA	9 FT DIA
HEIGHT	31 FT - 8"	31 FT
MATERIAL THICKNESS	3.66" STEEL	1 TO 2" STEEL
PRIMARY COOLANT	N/A	17,500 GPM
PRESSURE	1,000 PSIG	160 PSIG, S.S.
PIPE LENGTH	N/A	387 FT
PUMP/HX (QTY)	N/A	3/2
CONTAINMENT	48' DIA	100' DIA
	128' HIGH	111' HIGH
TOTAL VOLUME (FT <sup>3</sup> )	203,000	709,000
BELOW GRADE	69 FT	56 FT
REACTOR BLDG VOL	203,000	1,160,350
EVESR CONTAINMENT ONLY		
PLUMBROOK REACTOR BLDG ONLY		
CANALS & QUADRANT		
SURFACE AREA (FT <sup>2</sup> )	1,495	94,820

EVESR HAS NO SEPARATE PUMP HOUSE  
 EVESR HAS NO SEPARATE FAN HOUSE  
 EVESR HAS NO HOT LAB BUILDING  
 EVESR HAS NO WASTE HANDLING BUILDING  
 EVESR HAS NO OFFICE & LAB BUILDING  
 ALL EQUIPMENT IN THE DUMP CONDENSER AND EQUIPMENT BUILDING  
 HAS BEEN REMOVED WITH THE EXCEPTION OF THE DUMP CONDENSER.  
 ALL PIPING IN THE VALVE PIT AND PIPE TRENCH HAS BEEN REMOVED  
 UP TO THE ISOLATION VALVES OUTSIDE THE CONTAINMENT. THE  
 UNDERGROUND CIRCULATING WATER PIPES WILL BE REMOVED IN 1990.  
 THE GAS-FIRED BOILER WAS INCLUDED IN THE LIST OF EQUIPMENT.  
 THE LOWER LEVEL OF THE DUMP CONDENSER BUILDING, THE VALVE PIT  
 AND PIPE TRENCH FLOORS AS WELL AS THE INSIDE OF THE EXHAUST  
 STACK WERE INCLUDED IN THE CONCRETE TO BE SPALLED.  
 THE CONDENSER SHELL, STEAM DUMP TANK AND EMERG. COOLING SUPPLY  
 TANK WERE INCLUDED IN THE TANKS TO BE CUTUP FOR DISPOSAL.  
 THE VENTILATION EXHAUST LINE TO THE STACK WILL REMAIN IN PLACE  
 UNTIL AFTER CONTAINMENT DECONTAMINATION IS COMPLETED.

## REFERENCES:

EVESR LICENSE NO. DR-10, DOCKET 50-183

FINAL HAZARDS SUMMARY REPORT FOR THE ESADA VALLECITOS  
 EXPERIMENTAL SUPERHEAT REACTOR, APED-3958, DATED  
 OCTOBER, 1962.



## COST ESTIMATE METHOD

A method of allocating the Plumbrook Test Reactor costs, as summarized in Table 4, was developed utilizing the person-hours for each identifiable task for each facility. The person-hours were used to allocate not only the total labor costs, but also the special tools and equipment costs, the miscellaneous supplies and energy costs. The total costs developed for the PBTR tasks were then used to establish the cost of performing similar tasks at the EVESR.

### PBTR COST ALLOCATION DETAIL (TABLE 5)

1. The information in NUREG/CR-1756 allowed GE to determine the WORKER HOURS that were required for each identifiable task associated with the decontamination and removal of contaminated material and equipment.
2. The same document identified the total PERSON HOURS that were estimated to be required to perform the total decommissioning effort.
3. The ratio of PERSON HOURS to WORKER HOURS was established and applied to the WORKER HOURS for each identifiable task to establish the PERSON HOURS for each identifiable task.
4. The total STAFF LABOR COST was divided by the total PERSON HOURS to determine an overall hourly rate, which was multiplied by the PERSON HOURS for each task to establish an overall labor cost for each task.
5. The cost for ENERGY, SPECIAL TOOLS & EQUIPMENT, and MISCELLANEOUS SUPPLIES was allocated to the identifiable tasks based on the PERSON HOURS established for each task. (Note: It was determined that the escalation factor used for each of these elements of cost would be the same, allowing all the cost to be combined prior to escalating the cost to a current base date.)
6. The information in NUREG/CR-1756 permitted allocation of the Speciality Contractor cost to each identifiable task.  
  
(Note: By adding items 4, 5 and 6, the cost of labor, energy, special tools & equipment, miscellaneous supplies and speciality contractors for each identifiable task was obtained.)
7. Waste Volume and Burial Cost were determined for each identifiable task. (Note: The Burial Cost was determined to assure that all costs for the PBTR were properly allocated. GE used current January 1, 1990, burial cost for the EVESR facilities contaminated equipment and waste.)

8. For comparison purposes, the January, 1990, cost to decommission the PBTR reactor building, containment vessel, primary pump house and those parts of the general site activities associated with them was calculated using the information in Table 5. The PBTR reactor building and containment vessel costs were developed by deleting Tasks 2, 3 and 7 and using 50% of Tasks 1 and 4. The costs for the primary pump house were taken directly from Table 5. The costs were divided into labor, subcontract, energy, special tools & equipment, miscellaneous materials, and waste disposal in a similar fashion to the original estimate published in NUREG/CR-1756. All costs, except waste disposal, were escalated using a factor of 1.491. The waste disposal costs were calculated using the waste volumes associated with the above items and the January, 1990, disposal cost rates. A contingency of 25% was applied.

Table 4

## PLUMBROOK TEST REACTOR DECOMMISSIONING COST SUMMARY

REFERENCE: MUREG/CR-1756, "TECHNOLOGY, SAFETY AND COSTS OF DECOMMISSIONING  
REFERENCE NUCLEAR RESEARCH & TEST REACTORS", MARCH 1982.

REF: TABLE 1.2 SUMMARY OF ESTIMATED COSTS OF DECON OF REFERENCE TEST REACTOR (PAGE 1-62)

COST CATEGORY	EST COST PERCENT OF (SM)(a,b) TOTAL (c)	
DISPOSAL OF RADIOACTIVE MATERIAL		
NEUTRON ACTIVATED MATERIALS		
REF TEST REACTOR	\$0.131	
MOCK-UP REACTOR (MUR)	0.004	
CONTAMINATED MATERIALS	2.338	
RADIOACTIVE WASTES (d)	0.099	
TOTAL DISPOSAL COSTS	2.572	20.7%
STAFF LABOR	8.630	69.3%
ENERGY	0.076	0.6%
SPECIAL TOOLS & EQUIPMENT (STEE)	0.261	2.0%
MISCELLANEOUS SUPPLIES	0.203	1.6%
SPECIALTY CONTRACTORS (e)	0.616	4.9%
NUCLEAR INSURANCE	...	...
LICENSE FEES	...	...
	12.458	100.0%
SUBTOTAL	3.115	
CONTINGENCY (25%)		
TOTAL DECOMMISSIONING COSTS	\$15.573	

## NOTES:

- a COSTS ARE MID 1981.
- b SIGNIFICANT FIGURES FOR COMPUTATIONAL ACCURACY/NOT TO IMPLY PRECISION.
- c INDIVIDUALLY ROUNDED TO 0.1%
- d INCLUDES BOTH WET SOLID WASTES & DRY SOLID WASTES RESULTING DIRECTLY FROM DECON ACTIVITIES.
- e INCLUDES DEMOLITION/EXPLOSIVE/TEMP RAD WASTE/ENVIRON. MONITORING
- f INDEMNITY FEES CURRENTLY \$100/YR FOR EACH LICENSE - NOT INCLUDED
- g NOT APPLICABLE - GOV'T REACTOR



Table 5

## ALLOCATION OF COSTS TO DECOMMISSION THE PLUMBROOK TEST REACTOR

REF: FIG 1.2-1 TASK SCHEDULE .....& DECOM. WORKER REQUIREMENTS - REACTOR BLDG/PRIN CONTAIN/NEW (PAGE 1-49)														
PLUMBROOK COST ALLOCATION														
TASK	WORKERS NO.	WORKER HOURS (MONTHS)	TIME (MONTHS)	PERSON HOURS	LABOR COST (\$)	S/C COST (TABLE 1.2-18) COMMENT	5-TIME (T-1.2-16)	MISC (T-1.2-17)	ENERGY (T-1.2-15)	TOTAL MISC	WASTE VOL (K3)	WASTE COST	REFERENCE TABLE	TOTAL WASTE
DECOM OF REACTOR/CONTAINMENT BUILDING														
1 RAD SURVEY - TOT FACILITY	6	520	1.00	632	959,331	100,000 ENV MONITOR	82,483	81,396	8524	\$163,736	11			\$163,736
2 DISCHNG FUEL (EDEL MON)	5	44	0.10	52	7,416	(FUEL DISCHNG NOT DECOM)	310	175	66	7,967	11			7,967
3 PREP/SHIP FUEL	8	2,500	3.00	3,089	280,022	(FUEL SHIP NOT DECOM)	11,718	6,619	2,462	301,781	11			301,781
4 GEN CLEANUP & EQUIP INV (ALL BLDG)	14	924	0.50	1,142	103,829	13,000 TEMP RADIOASTE	4,346	2,447	917	124,538	11	1.9	81,248	1.2-12
5 DRAIN/CLEAN/DRY QUAD A,B,C,D	10	780	0.60	954	87,648		3,668	2,065	774	94,156	11			94,156
6 DRAIN/CLEAN/DRY CANAL N	10	180	0.14	222	20,226		667	477	179	21,728	11			21,728
7 REMOVE PREP/SHIP MAR	10	576	0.45	712	64,724		2,709	1,525	572	69,530	11	6.1	3,997	1.2-10
8 DRAIN/CLEAN/DRY CANAL S	10	180	0.14	222	20,226		667	477	179	21,728	11			21,728
9 REMOVE EQUIP IN QUAD/CANALS	10	936	0.55	1,156	105,177		4,402	2,478	929	112,987	11	34.9	17,481	1.2-11
10 DRAIN/FLUSH PONS	5	72	0.10	89	8,091		339	191	71	8,691	11			8,691
11 ISOLATE RV/NO DRAIN WATER FOR SHIELD	6	72	0.10	89	8,091		339	191	71	8,691	11			8,691
12 REMOVE RV INTERNALS & SHIP ACTIVATED	14	10,366	3.75	12,808	1,164,814		48,752	27,447	10,292	1,291,304	11	6.2	101,417	1.2-9
13 REMOVE RV & SHIP BY SEGMENTS	16	2,916	1.14	3,605	327,667		13,714	7,721	2,895	351,997	11	49.8	29,015	
14 REMOVE ACTIVATED BIO-SHIELD CONCRETE	8	120	0.11	148	13,484		564	318	119	14,485	11			14,485
15 REMOVE FIXED EQUIP IN CONTAIN VESSEL	24	5,890	1.50	7,278	661,852		27,291	15,295	5,848	710,996	11	9.1	5,402	1.2-11
16 REMOVE FIXED EQUIP OUTSIDE CONTAIN VESSEL (PACKAGE/SHIP EQUIP IN ANNULUS)	24	1,728	0.55	2,135	194,173		8,127	4,575	1,716	208,591	11	47.4	23,498	1.2-11
17 REMOVE QUADRANT PIPING (PACKAGE/SHIP NOT DRAIN SYSTEM)	12	360	0.25	445	40,453		1,693	953	357	43,456	11	12.5	6,357	1.2-11
18 REMOVE/REMOVE SHIELD ROOM	6	252	0.32	311	28,317		1,105	667	250	30,420	11	11.0	6,780	1.2-11
19 REMOVE LEAD SHIELD FROM BELOW REACTOR	6	252	0.32	311	28,317		1,105	667	250	30,420	11			30,420
20 REMOVE PIPES FROM BIO-SHIELD	8	1,000	0.82	1,236	112,369		4,703	2,648	993	120,712	11			120,712
21 REMOVE PONS PIPING TO PPN	10	2,820	2.14	3,484	316,880		13,263	7,642	2,800	340,409	11	87.4	39,010	1.2-11
22 REMOVE BIO/CONTAMINATED CONCRETE	10	3,240	2.50	4,065	364,075		15,238	8,579	3,217	391,108	11	508.3	369,070	1.2-11
23 REMOVE QUAD/CANAL & MISC DRAINS	15	2,520	1.42	3,114	283,169		11,852	6,872	2,502	304,195	11			304,195
24 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11	13.8	6,233	1.2-11
25 FINAL RADIATION SURVEY (NET SOLID WASTE)	2	100	1.00	124	11,237		470	265	99	12,071	11	89.4	40,748	1.2-11
26 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11	4.2	2,795	1.2-12
27 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11	44.6	41,953	1.2-13
28 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11			115,886
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42 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11			115,886
43 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11			115,886
44 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11			115,886
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47 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11			115,886
48 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11			115,886
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51 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11			115,886
52 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11			115,886
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80 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11			115,886
81 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11			115,886
82 REMOVE CONTAMINATED HVAC FROM RV/PPN (PACK/SHIP CV AIR HAND EQUIP)	8	960	0.91	1,186	107,074		4,515	2,542	953	115,886	11			115,886

LISTED TOTALS: PERSON-HOURS 279  
PERSON-HOURS 48,605  
WORKER-HOURS 39,338  
FACTOR FOR CONVERSION OF WORKER-HOURS TO PERSON-HOURS 1.2356

Table 5

TASK	WORKERS NO.	WORKER HOURS	TIME (MONTHS)	PERSON HOURS	LABOR COST	S/C COST (TABLE 1.2-10) COMMENT	5. TIE (1-1.2-16)	WISC (1-1.2-17)	ENERGY (1-1.2-15)	TOTAL WFO WASTE	WASTE VOL (M3)	WASTE COST	REFERENCE TABLE	TOTAL WASTE
DECOM AT THE HOT LAB BLDG (PAGE 1-52), FIG 1.2-2														
1. REMOVE HOT CELLS (N2)	12	624	0.91	909	82,470		3,460	1,048	770	88,690	3-6	1,665	1-2-11	88,690
2. REMOVE/PRG INT CELL EQUIP/PIPING	2	216	2.50	3,126	284,312		1,903	6,098	2,115	36,423				36,423
3. REMOVE/PRG INT CELL SS CLADDING	10	360	0.36	3,600	63,393		1,603	5,094	3,053	48,315				48,315
4. REMOVE CONTAMINATED CONCRETE - WC	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
5. DECOM THE NLS (INCLD. CRANES)	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
6. DRAIN/CLEAN DRY CANALS J & K	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
7. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
8. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
9. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
10. REMOVE SS CLADDING - DECOM ROOM 23	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
11. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
12. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
13. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
14. WASTE - PACK/SHIP NOT DRAIN SYSTEM**	2	72	0.18	720	15,608		1,603	5,094	3,053	47,820				47,820
15. REMOVE CONTAMINATED HOODS/STAIRS	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
16. LABOR FOR RTA & OTHER EQUIP(17)	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
17. WASTE VOL (N2S/OTHER EQUIP)	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
18. WET SOLID WASTE *	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
19. DRY SOLID WASTE *	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
TOTAL - BY ADDITION LISTED TOTALS:	88	10,616		15,465	1,406,457	23,400	58,866	33,161	12,427	1,534,090	219.2	117,234		1,651,324
DECOM AT OTHER CONTAMINATED STRUCTURES/AREAS (PAGE 1-54/1-57), FIG 1.2-3														
1. RAD SURVEY/INVENTORY UPDATE	6	264	0.50	357	32,428		1,357	764	287	34,836	11			34,836
2. PRIMARY PUMP HOUSE (PPH)	14	420	0.25	567	51,590		2,159	1,216	456	55,421				55,421
3. PREPARATORY TASKS (TABLE 1.2-4)	14	420	0.25	567	51,590		2,159	1,216	456	55,421				55,421
4. REMOVE FIXED EQUIP. - (TABLE C.3-5)	14	420	0.25	567	51,590		2,159	1,216	456	55,421				55,421
(PACK/SHIP NOT DRAIN SYSTEM)														
5. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
6. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
7. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
8. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
9. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
10. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
11. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
12. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
13. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
14. WASTE - PACK/SHIP NOT DRAIN SYSTEM**	2	72	0.18	720	15,608		1,603	5,094	3,053	47,820				47,820
15. REMOVE CONTAMINATED HOODS/STAIRS	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
16. LABOR FOR RTA & OTHER EQUIP(17)	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
17. WASTE VOL (N2S/OTHER EQUIP)	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
18. WET SOLID WASTE *	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
19. DRY SOLID WASTE *	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
TOTAL - BY ADDITION LISTED TOTALS:	88	10,616		15,465	1,406,457	23,400	58,866	33,161	12,427	1,534,090	219.2	117,234		1,651,324
DECOM AT OTHER CONTAMINATED STRUCTURES/AREAS (PAGE 1-54/1-57), FIG 1.2-3														
1. RAD SURVEY/INVENTORY UPDATE	6	264	0.50	357	32,428		1,357	764	287	34,836	11			34,836
2. PRIMARY PUMP HOUSE (PPH)	14	420	0.25	567	51,590		2,159	1,216	456	55,421				55,421
3. PREPARATORY TASKS (TABLE 1.2-4)	14	420	0.25	567	51,590		2,159	1,216	456	55,421				55,421
4. REMOVE FIXED EQUIP. - (TABLE C.3-5)	14	420	0.25	567	51,590		2,159	1,216	456	55,421				55,421
(PACK/SHIP NOT DRAIN SYSTEM)														
5. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
6. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
7. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
8. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
9. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
10. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
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19. DRY SOLID WASTE *	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
TOTAL - BY ADDITION LISTED TOTALS:	88	10,616		15,465	1,406,457	23,400	58,866	33,161	12,427	1,534,090	219.2	117,234		1,651,324
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3. PREPARATORY TASKS (TABLE 1.2-4)	14	420	0.25	567	51,590		2,159	1,216	456	55,421				55,421
4. REMOVE FIXED EQUIP. - (TABLE C.3-5)	14	420	0.25	567	51,590		2,159	1,216	456	55,421				55,421
(PACK/SHIP NOT DRAIN SYSTEM)														
5. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
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14. WASTE - PACK/SHIP NOT DRAIN SYSTEM**	2	72	0.18	720	15,608		1,603	5,094	3,053	47,820				47,820
15. REMOVE CONTAMINATED HOODS/STAIRS	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
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17. WASTE VOL (N2S/OTHER EQUIP)	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
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19. DRY SOLID WASTE *	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
TOTAL - BY ADDITION LISTED TOTALS:	88	10,616		15,465	1,406,457	23,400	58,866	33,161	12,427	1,534,090	219.2	117,234		1,651,324
DECOM AT OTHER CONTAMINATED STRUCTURES/AREAS (PAGE 1-54/1-57), FIG 1.2-3														
1. RAD SURVEY/INVENTORY UPDATE	6	264	0.50	357	32,428		1,357	764	287	34,836	11			34,836
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4. REMOVE FIXED EQUIP. - (TABLE C.3-5)	14	420	0.25	567	51,590		2,159	1,216	456	55,421				55,421
(PACK/SHIP NOT DRAIN SYSTEM)														
5. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
6. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	44,115		1,603	5,094	3,053	47,820				47,820
7. REMOVE/PRG INT CELL EQUIP/PIPING	10	360	0.36	3,600	4									

Table 5

TASK	WORKERS NO.	WORKER HOURS	TIME (MONTHS)	PERSON HOURS	LABOR COST	S/C COST (TABLE 1.2-10) (CONST)	5 YEAR (1.1-2-16)	MISC (1.1-2-17)	ENERGY (1.1-2-15)	TOTAL W/O WASTE	WASTE VOL (MC)	WASTE COST	REFERENCE TABLE	TOTAL WASTE
5 GOLD RETENTION AREA (CRA)														
A-1 REMOVE CONTAM CONCRETE (SECT C-4)	S/C 10	1,320	0.25	1,783	162,140	40,300 TABLE 1.2-10	0	0	0	40,300	370	195,846	1.2-11	356,146
A-2 REMOVE CONTAM SOIL			1.00				6,790	3,821	1,433	174,180	480	244,168	1.2-11	244,168
A-3 CONTAM SOIL FOR ABOVE *					4,422		185	104	39	4,750	6.5	3,403	1.2-11	4,750
B, FINAL RAD SURVEY	2	36	0.14	49								3,403	1.2-11	1,748
C, WASTE-PACK/SHIP PIPING/VALVES *														
D, WASTE-DRY SOLID WASTE														
SUBTOTAL		1,356		1,831	166,562	40,300	6,971	3,925	1,472	219,230	874	445,166		664,396
6 NOT RETENTION AREA (TOTAL)														
A, REMOVE/PAVE CONCRETE (TABLE 1.2-4)	12	1,504	1.00	2,139	194,568		8,143	5,595	1,719	209,015	10.8	9,942		209,015
B, REMOVE/PAVE CONCRETE (TABLE 1.2-4)	14	1,008	0.50	1,361	123,816		5,182	2,011	1,004	131,010				142,952
C, ACCESS TO ROA TRENCH (1.3-2.6)	S/C 14		0.14			1,500 TABLE 1.2-10		0	0	1,500				1,500
D, REMOVE/PAVE TRENCH (1.3-2.6)	14	3,108	1.00	4,198	381,767		15,978	8,996	3,373	410,114	109.2	54,595	1.2-11	464,709
E, SHIP PREP TRENCH (1.3-2.6)	S/C 10	100	0.14	243	22,110	16,000 TABLE 1.2-10	925	521	195	18,060	22.8	11,792	1.2-11	11,792
F, REMOVE CONTAM CONCRETE W/O WASTE	2	48	0.27	65	5,896		247	130	52	6,334	23.9	11,841	1.2-11	11,841
G, FINAL RAD SURVEY											0.8	559	1.2-11	559
H, WASTE - PACK/SHIP EXHAUST DUCT/FILTER *											2.4	1,677	1.2-11	1,677
I, WASTE - WET SOLID WASTE											8.4	3,866	1.2-11	3,866
J, WASTE - PACK/SHIP DRY SOLID WASTE *														
K, WASTE - WET SOLID WASTE														
SUBTOTAL		5,908		8,007	778,157	17,500	30,478	17,158	6,436	799,725	280.6	136,524		936,248
7 FAN HOUSE														
A, REMOVE/PAVE CONCRETE (TABLE 1.2-4)	12	792	0.50	1,070	97,294		5,072	2,292	860	104,508	6.5	3,384	1.2-11	104,508
B, REMOVE/PAVE CONCRETE (TABLE 1.2-4)	10	324	0.50	424	39,480		2,151	895	340	41,665				41,665
C, REMOVE FIXED EQUIP (TABLE 1.2-4)	12	1,585	1.00	2,141	194,093		8,169	4,548	1,720	209,547	14.6	5,890	1.2-11	215,437
D, REMOVE FIXED EQUIP (TABLE 1.2-4)	12	935	0.50	1,263	114,049		6,807	2,706	1,015	123,577				123,577
E, FINAL RAD SURVEY	S/C 2	36	0.14	49	4,422	1,600 TABLE 1.2-10	185	104	39	1,800	4.7	2,370	1.2-11	1,800
F, WASTE (PACK/SHIP EXHAUST DUCT/FILTER) *														
G, WASTE (PACK/SHIP EXHAUST DUCT/FILTER) *														
H, WASTE (PACK/SHIP EXHAUST DUCT/FILTER) *														
I, WASTE (PACK/SHIP EXHAUST DUCT/FILTER) *														
SUBTOTAL		3,568		4,846	440,727	1,600	18,446	10,385	3,894	479,052	66.2	32,574		507,626
8 WASTE HANDLING LOG (CRA)														
A, REMOVE/PAVE CONCRETE (TABLE 1.2-4)	12	792	0.50	1,070	97,294		5,072	2,292	860	104,508	6.5	3,384	1.2-11	104,508
B, REMOVE/PAVE CONCRETE (TABLE 1.2-4)	10	324	0.50	424	39,480		2,151	895	340	41,665	15.4	6,900	1.2-11	41,665
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SUBTOTAL		3,568		4,846	440,727	1,600	18,446	10,385	3,894	479,052	66.2	32,574		507,626
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I, WASTE (PACK/SHIP EXHAUST DUCT/FILTER) *														
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A, REMOVE/PAVE CONCRETE (TABLE 1.2-4)	12	792	0.50	1,070	97,294		5,072	2,292	860	104,508	6.5	3,384	1.2-11	104,508
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SUBTOTAL		3,568		4,846	440,727	1,600	18,446	10,385	3,894	479,052	66.2	32,574		507,626
14 WASTE HANDLING LOG (CRA)														
A, REMOVE/PAVE CONCRETE (TABLE 1.2-4)	12	792	0.50	1,070	97,294		5,072	2,292	860	104,508	6.5	3,384	1.2-11	104,508
B, REMOVE/PAVE CONCRETE (TABLE 1.2-4)	10	324	0.50	424	39,480		2,151	895	340	41,665	15.4	6,900	1.2-11	41,665
C, REMOVE FIXED EQUIP (TABLE 1.2-4)	12	1,585	1.00	2,141	194,093		8,169	4,548	1,720	209,547	14.6	5,890	1.2-11	215,437
D, REMOVE FIXED EQUIP (TABLE 1.2-4)	12	935	0.50	1,263	114,049		6,807	2,706	1,015	123,577	14.6	5,890	1.2-11	123,577
E, FINAL RAD SURVEY	S/C 2	36	0.14											

NOTES: \* WARE/CB-1776 COSTS ALLOCATED FROM OTHER TASKS (AREAS)  
 \*\* WARE COSTS, NOT INCLUDED IN WARE/CB-1776

#### EVESR COST ESTIMATE METHOD

The PBTR tasks which are comparable to the EVESR tasks were listed (Table 6). The PBTR costs for these tasks were multiplied by the EVESR comparison factor shown in Table 7 and escalated to January, 1990, dollars. The waste volumes resulting from each task were listed and the current disposal costs were calculated using January, 1990, disposal prices.

#### EVESR COST ALLOCATION DETAIL

1. The information in NUREG/CR-1756 allowed GE to establish data about the PBTR that would be necessary to compare to the known and similar data associated with the facilities at the EVESR. This included surface area, building volume, equipment size, line size, tank volume, trench volume, burial volume, and other similar items necessary to make viable comparisons.
2. Comparison factors for similar tasks associated with the EVESR facilities were established for each of the areas to be decommissioned at the identifiable task level, and the cost was computed for each task (Table 7).
3. The volume of waste to be buried for the EVESR facilities was estimated based on actual equipment and building size. The one exception is that the volume of waste for the tanks was determined by using the ratio of the surface area of the PBTR tanks to the surface area of the EVESR tanks. The waste was sorted into low dose rate (LDR) concrete/soil, LDR waste and high dose rate (HDR) waste. This division of LDR waste was necessary because it had been determined the burial cost for these two types of LDR waste would be slightly different because different containers are planned to be used.
4. Current January, 1990, costs to transport and bury the waste at the U.S. Ecology Nevada Nuclear Center in Beatty, Nevada, were established as well as current container costs. These costs consider surcharges for radiation levels, liners, heavy objects and curies and were applied to the calculated waste volume to derive a total burial cost.
5. The escalation factor for labor was obtained from the "Monthly Labor Review" published by the U.S. Department of Labor, Bureau of Labor Statistics. Specifically, Table 2a., Employment Cost Index (Compensation), Private Industry Worker, (excluding farm and household workers) was used. The escalation factor for energy was obtained from the "Producer Price Indexes" published by the U.S. Department of Labor, BLS. Specifically, Industrial Power for the Pacific Region (series WPU05431927) was used. It was

determined that there was only a slight variation in the escalation of these two indices, so the higher one was used to escalate the PBTR from the base date of 1981 to a current base date of January, 1990. (Note: This factor was not used to escalate burial cost; current January, 1990, rates were used for burial, transportation and container costs.)

6. Nuclear Insurance and License Fees not included in the PBTR estimate were estimated for the EVESR decommissioning cost estimate.
7. The EVESR escalated costs were then allocated to cost categories of total labor, subcontractor, special tools & equipment and miscellaneous supplies to be comparable to the PBTR cost categories. This allocation was done using a percentage basis which reflects to PBTR relative costs.

EVERS REACTOR DECOMMISSIONING COST ESTIMATE

[illegible]



Table 6  
(Continued)

TASK	TOTAL PERSON-HOURS	UNESC. COST W/O WASTE	PLUMBING WASTE VOL. (FT3)	EVEER REACTOR FACTOR	UNESC. COST W/O WASTE	ESCALATED COST W/O WASTE	WASTE VOLUME (FT3)	WASTE VOLUME COMMENT	WASTE COST	TOTAL COST	RATIO BASES
4. EMERGENCY RETENTION BASIN (ERR)/DITCHES											
DRAIN EDR											
REMOVE/PRG CONTAIN PIP/SOIL... (TAB C.4-1)	1,807	\$319,855	2,291.8	0.03	\$10,267	\$19,309	2,597	SOIL	\$211,920	\$227,229	EVEER SOIL/ERR
DITCHES & C. COST		254,100	1.9	0.03	0	0	2		166	166	EVEER SOIL/ERR
(DRY SOLID WASTE)*											
SUBTOTAL	1,807	573,955	2292.9		10,267	19,309	2,599		212,086	227,395	
6. NOT RETENTION AREA (NRA)											
A. PREPARATORY TASKS (TABLE 1.2-4)	2,139	209,015		0.09	17,766	26,499	0		0	26,499	EVEER/NRA TASKS
B. REMOVE/PRG CONTAIN PIPING (TAB C.3-11)	1,361	133,010	18.8	N/A		N/A	N/A		N/A	N/A	
C. ACCESS TO & NRA TASKS (L.3.2.6)		1,500		N/A							
D. REMOVE/PRG TKS 1-8 (TAB C.3-10/L.3.2.)	6,198	410,114	109.2	0.09	34,869	51,976	328		25,764	77,760	EVEER/NRA TASKS
E. SHIP PREP TKS 9-12 (TAB C.3-10/L.3.2.6)		16,000	114.2	N/A					N/A	N/A	
F. 1 REMOVE -CONTAIN CORNER COST W/O WASTE	243	23,752		N/A					N/A	N/A	
2 WASTE -REMOVE CONTAIN CONCRETE (TAB D.2-3)	65	6,334	22.8	0.09	538	803	8		0	803	EVEER/NRA TASKS
G. FINAL PAD SURVEY				N/A							
EPACKAGE/SHIP STRUCT STEEL)*			21.9	N/A					N/A	N/A	
(PACK/SHIP EXHAUST DUCT/FILTER)*			0.8	N/A					N/A	N/A	
(DRY SOLID WASTE)*			2.5	0.09	0	0	8		595	595	EVEER/NRA TASKS
(DRY SOLID WASTE)*			8.4	0.09	0	0	25		1,975	1,975	EVEER/NRA TASKS
SUBTOTAL	8,007	799,725	298.6		53,164	79,268	340		26,334	107,602	
TOTAL OTHER - BY ADDITION	16,171	\$1,408,516	2591.5		\$77,366	\$119,353	2,940		\$240,428	\$355,773	
GRAND TOT W/O MR & FUEL	54,894	\$5,890,820	3601.9		\$5,580,126	\$5,337,967	29,695		\$2,423,297	\$7,761,264	

EVEER REACTOR SUMMARY

CONCRETE/SOIL FOR WASTE	VOLUME	WASTE COST	TOTAL LABOR, ETC.
15,135	15,135	\$1,234,976	TOTAL WASTE COST
14,381	14,381	1,135,334	
180	180	51,987	
TOTAL	29,695	\$2,423,297	TOTAL COST
			\$7,761,264

EVEER REACTOR



Table 7

## EVESR REACTOR COMPARISONS WITH PLUMBROOK

REACTOR BUILDING	PLUMBROOK (FT <sup>3</sup> )	EVESR (FT <sup>3</sup> )	EVESR FACTOR
	-----	-----	-----
HDR ACTIVATED REACTOR INTERNALS	219	180	0.822
LDR CONTAMINATED MATERIALS	12,547	12,315	0.982
LDR RADIOACTIVE WASTE (ALLOCATED)	1,723	1,691	0.982
CONCRETE WASTE	21,128	12,538	0.593
	-----	-----	
SUBTOTAL	35,617	26,724	
REMOVE PIPES FROM BIOSHIELD			0.100
EVESR HAS MANY FEWER PIPES THRU BIOSHIELD			
CANALS & QUADRANTS - SURFACE AREA (FT <sup>2</sup> )	94,820	1,495	0.016
EVESR PIPE EXCAVATION SOIL VS PLUMBROOK ERB			
SOIL VOLUME (FT <sup>3</sup> )	80,905	2,600	0.032
(EVESR 2,000 FT <sup>3</sup> * 1.3 = 2,600 FT <sup>3</sup> )			
EVESR TANKS VS PLUMBROOK HRA (8 LARGE TANKS)			
TANK SURFACE AREA (FT <sup>2</sup> )	18,759	1,594	0.085
BUILDING VOLUMES (FT <sup>3</sup> )	1,160,359	203,000	0.175

## NOTE:

ALL EVESR EQUIPMENT INCLUDING PIPING, VALVES AND VENTILATION EQUIPMENT WAS INCLUDED IN THE EVESR LIST OF EQUIPMENT. THERE IS NO SEPARATE PUMP HOUSE OR FAN HOUSE FOR EVESR. THE SOIL WHICH MUST BE REMOVED FOR THE EVESR PIPING WAS COMPARED TO THE PLUMBROOK EMERG. RETENTION BASIN. THE EVESR TANKS WERE COMPARED TO THE PLUMBROOK HOT RETENTION AREA TANKS. ALL EVESR TANKS ARE LOCATED ABOVE GROUND. THE BUILDING VOLUME FOR EVESR INCLUDES THE CONTAINMENT ONLY AND IS COMPARED TO THE PLUMBROOK REACTOR BUILDING ONLY.

VALLECITOS NUCLEAR CENTER DECOMMISSIONING COST ESTIMATE  
 ESCALATION FROM 1981 TO 1990

LABOR  
 -----

U.S. Department of Labor, Bureau of Labor Statistics  
 Table 2a. Employment Cost Index (Compensation), Private  
 Industry Workers, Excluding Farm & Household Workers.

	INDEX -----
JUNE 1981	100.0
JAN 1990	149.1
Escalation Factor	1.491

POWER  
 -----

U.S. Department of Labor, Bureau of Labor Statistics  
 Producer Price Indexes, Pacific Region, 200,000 kwh  
 Survey WP, Series WPU05431927.

	INDEX -----
JUNE 1981	80.1
JAN 1990	119.0
Escalation Factor	1.486

NOTE:

The escalation factor for labor, (1.491), was applied to  
 all cost elements for ease of calculation.

# HIGH DOSE RATE (HDR) WASTE DISPOSAL COST

## ASSUMPTIONS:

-----  
 100 CUBIC FOOT CASK (HN 100)  
 < 40 R/HR @ LINER SURFACE, < 400 CURIES/SHIPMENT  
 46,000 LBS TOTAL SHIPPING WEIGHT  
 CASK WEIGHT = 36,000 LBS.  
 WASTE WEIGHT NET = 10,000 LBS.  
 CASK LINER COST = \$ 6,000  
 CASK RENTAL COST = \$5,430/ SHIPMENT \*  
 CASK CYCLE TIME = 10 DAYS  
 TRANSPORTATION TO NEVADA = \$ 1,941 PER TRIP

BURIAL COSTS ( PER CU. FT.)	
BURIAL COST	\$30.11
SURCHARGE TO COMPACT	2.50
SURCHARGE TO NEVADA	40.00
HEAVY OBJECT (36,000 LBS)	
\$214 + \$0.10/LB ABOVE 10,000 LB	38.14
LINER SURCHARGE (\$2,060/100)	20.60
CURIE SURCHARGE (400 CURIES)	
\$1,554 + \$0.20/CURIE ABOVE 100	16.14
CASK HANDLING (\$550/100)	5.50
	-----
	\$152.99

TOTAL COST PER SHIPMENT	
BURIAL OF LINER (100 X \$153)	\$15,300
LINER COST	\$6,000
CASK RENTAL COST	5,430
TRANSPORTATION COST	1,941
	-----
	\$28,671

COST/ CU. FT. =	SEVEN SHIPMENTS X \$28,671	=	\$322.15
	-----		
	ESTIMATED 623 CUBIC FEET		

\* ASSUME SEVEN SHIPMENTS WITH A TEN DAY TURN AROUND.  
 RENTAL COST OF THE 100 CUBIC FOOT CASK WAS OBTAINED  
 FROM HITTMAN NUCLEAR FOR THEIR HN 100 CASK AS FOLLOWS:

MOBILIZATION	\$12,000
DEMOBILIZATION	12,000
LEASE COST (70 DAYS)	14,000
	-----
TOTAL COST	\$38,000
CASK COST PER SHIPMENT	\$5,430

# LOW DOSE RATE (LDR) WASTE DISPOSAL COST

## ASSUMPTIONS:

SEA VAN CONTAINER  
 8' X 8.5' X 20' = 1360 CU.FT. TOTAL BURIAL VOLUME  
 CONTAINER WEIGHT = 5,000 LBS.  
 WASTE WEIGHT NET = 41,000 LBS.  
 COST OF CONTAINER = \$ 2,350 DELIVERED  
 TRANSPORTATION TO NEVADA = \$ 1,941 PER TRIP  
 < 200 MR/HR @ SURFACE & < 100 CURIES

BURIAL COSTS ( PER CU. FT.)	
BURIAL COST	\$30.11
SURCHARGE TO COMPACT	2.50
SURCHARGE TO NEVADA	40.00
HEAVY OBJECT	
\$214 + \$0.10/LB ABOVE 10,000 LB	2.80
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	\$75.41

TOTAL COST	
BURIAL OF SEA VAN (1360 X \$75.41)	\$102,558
SEA VAN COST	2,350
TRANSPORTATION COST	1,941
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	\$106,849
COST PER CUBIC FOOT	\$78.57
USE	\$78.60

# LDR SOIL/CONCRETE WASTE DISPOSAL COST

## ASSUMPTIONS:

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 55 GAL. DRUM CONTAINERS  
 7.5 CU.FT. TOTAL BURIAL VOLUME  
 MAXIMUM CONTAINER WEIGHT = 1,000 LBS.  
 COST OF CONTAINER = \$ 35  
 TRANSPORTATION TO NEVADA = \$ 1,941 PER TRIP  
 60 DRUMS PER SHIPMENT  
 < 200 MR/HR @ SURFACE & < 100 CURIES

BURIAL COSTS ( PER CU. FT.)	
BURIAL COST	\$30.11
SURCHARGE TO COMPACT	2.50
SURCHARGE TO NEVADA	40.00
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	\$72.61

TOTAL COST PER CUBIC FOOT	
BURIAL OF DRUM	\$72.60
DRUM COST (\$35/7.5 CU. FT.)	4.70
TRANSPORTATION COST (\$1,941/60 DRUMS/7.5)	4.30
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TOTAL COST PER CUBIC FOOT	\$81.60

NOTE: ASSUME THE AVERAGE WEIGHT OF THE DRUMS DOES NOT EXCEED 765 LBS. WHICH WOULD ALLOW SHIPMENT OF 60 DRUMS WITHOUT EXCEEDING THE WEIGHT LIMIT OF 46,000 LBS.