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# Report on Waste Burial Charges

Escalation of Decommissioning Waste Disposal Costs at  
Low-Level Waste Burial Facilities

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**U.S. Nuclear Regulatory  
Commission**

Office of Nuclear Regulatory Research



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Escalation of Decommissioning Waste Disposal Costs at  
Low-Level Waste Burial Facilities

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Division of Engineering  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555



## ABSTRACT

One of the requirements placed upon nuclear power reactor licensees by the U.S. Nuclear Regulatory Commission (NRC) is for the licensees to periodically adjust the estimate of the cost of decommissioning their plant, in dollars of the current year, as part of the process to provide reasonable assurance that adequate funds for decommissioning will be available when needed. This report, which is scheduled to be revised annually, contains the development of a formula for escalating decommissioning cost estimates that is acceptable to the NRC, and contains values for the escalation of radioactive waste burial costs, by site and by year. The licensees may use the formula, the coefficients, and the burial escalation factors from this report in their escalation analysis, or may use an escalation rate at least equal to the escalation approach presented herein.

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## 1.0 INTRODUCTION

One of the requirements placed upon nuclear power reactor licensees by the U.S. Nuclear Regulatory Commission (NRC) is for the licensees to periodically adjust the estimate of the cost of decommissioning their plant, in dollars of the current year, as part of the process to provide reasonable assurance that adequate funds for decommissioning will be available when needed. This report, which is scheduled to be revised annually, contains the development of a formula for escalating decommissioning cost estimates that is acceptable to the NRC, and contains values for the escalation of radioactive waste burial costs, by site and by year. The licensees may use the formula, the coefficients, and the burial escalation factors from this report in their escalation analysis, or may use an escalation rate at least equal to the escalation approach presented herein.

The formula and its coefficients are summarized in Chapter 2. The development of the formula and its coefficients are presented in Chapter 3. Price schedules for burial for the year of issue of this report are given in Appendix A, for currently operating burial sites. The calculations performed to determine the burial cost escalation factors,  $B_x$ , for each site for the year 1988 are summarized in Appendix B.

## 2.0 SUMMARY

The elements of decommissioning cost are assigned to three categories: those that will escalate proportional to labor costs,  $L_x$ ; those that escalate proportional to energy costs,  $E_x$ ; and those that escalate proportional to burial costs,  $B_x$ . Then, the escalation of the total decommissioning cost estimate can be expressed by

$$\text{Estimated Cost (Year X)} = [\text{1986 \$ Cost}] [A L_x + B E_x + C B_x]$$

where A, B, and C are the fractions of the total 1986 \$ costs that are attributable to labor (0.65), energy (0.13), and burial (0.22), respectively, and sum to 1.0. The factors  $L_x$ ,  $E_x$ , and  $B_x$  are defined by

$L_x$  = labor cost escalation, January of 1986 to January of Year X,

$E_x$  = energy cost escalation, January of 1986 to January of Year X, and

$B_x$  = burial cost escalation, January of 1986 to January of Year X, i.e.,  
burial cost in January of Year X / burial cost in January of 1986.

Evaluation of  $L_x$  and  $E_x$  for the years subsequent to 1986 is to be performed by the licensees, based on the national consumer price indices and on local conditions for a given site. Evaluation of  $B_x$  is accomplished by recalculating the costs of burial of the radioactive wastes from the reference PWR(1) and the reference BWR(2), based on the price schedules issued by the available burial sites for the year of interest. The results of these recalculations ( $B_x$ ) are presented in Table 2.1, by site and by year.

TABLE 2.1. Values of  $B_x$  as a Function of Burial Site and Year  
Values of  $B_x$  (PWR/BWR)

<u>YEAR</u>	<u>WASHINGTON</u>	<u>NEVADA</u>	<u>SO. CAROLINA</u>
1986	1.000/1.000	0.741/0.747	1.323/1.422
1988	1.010/1.019	0.959/0.942	1.536/1.626

The values presented in the above table are developed in Appendix B, with all values normalized to the Washington (PWR/BWR) values.

### 3.0 DEVELOPMENT OF COST ESCALATION FORMULA

In the years since the initial studies were completed for decommissioning a reference PWR(3) and a reference BWR(4) power station, a number of updates were prepared in which the estimated costs were adjusted for escalation in the various cost elements. As a result of these analyses, it became apparent that the cost elements could be separated into three categories: those that escalate proportional to labor costs; those that escalate proportional to energy costs; and those that escalate proportional to burial costs. Thus, it was possible to write a relatively simple equation that could be used to estimate the cost of decommissioning at some future time, given a cost estimate in present year dollars and the fractional escalation of these three categories of cost over the time period of interest. That equation is:

$$\text{Estimated Cost (Year X)} = [1986 \$ \text{ Cost}] [A L_x + B E_x + C B_x]$$

where A, B, and C are the fractions of the total 1986 \$ cost that are attributable to labor, energy and burial, respectively, and sum to 1.0. Evaluation of these factors for the 1986 \$ cost, are contained in Appendix B. The factors  $L_x$ ,  $E_x$ , and  $B_x$  are defined below.

$L_x$  = labor cost escalation, January of 1986 to January of year X

$E_x$  = energy cost escalation, January of 1986 to January of year X

$B_x$  = burial cost escalation, January of 1986 to January of year X, i.e.,  
burial cost in January of year X / burial cost in January of 1986.

Values for  $L_x$  and  $E_x$  for years subsequent to 1986 are to be based on the national consumer price indices and on local conditions for a given site. Thus, the licensee can evaluate these parameters appropriately for his particular site. Evaluation of  $B_x$  is provided to the licensees via this report.

The evaluations presented in this chapter are based on information presented in NUREG/CR-0130 (Addendum 4)(1) and NUREG/CR-0672 (Addendum 3)(2), in which the estimated costs for immediate dismantlement of the reference PWR and BWR are escalated to January, 1986 dollars.

The cost elements for the PWR and the BWR are rearranged into the three categories, labor-related, energy-related, and burial-related, in Tables 6.3 and 5.3 of Addendum 4 and 3, respectively, and are combined for presentation in Table 3.1.



TABLE 3.1. Evaluation of the Coefficients A, B, and C, in January 1986 Dollars

<u>Cost Category</u>	<u>Reference PWR Values</u>		<u>Reference BWR Values</u>	
	<u>1986 \$ (million)</u>	<u>Coefficient</u>	<u>1986 \$ (millions)</u>	<u>Coefficient</u>
Labor	17.98	(a)	35.12	(c)
Equipment	1.64	(a)	4.03	(c)
Supplies	3.12	(a)	3.71	(c)
Contractor	12.9	(a)	21.1	(c)
Insurance	1.9	(a)	1.9	(c)
Containers	10.9	(b)	8.14	(d)
Added Staff	7.5	(a)	4.4	(c)
Added Supplies	1.2	(a)	0.2	(c)
Spec. Contractor	0.78	(a)	0.71	(c)
Pre-engineering	7.4	(a)	7.4	(c)
Post TMI backfits	0.9	(a)	0.1	(c)
Surveillance	0.31	(a)	--	
Fees	0.14	(a)	0.14	(c)
Subtotal	<u>66.67</u>	A = 0.64	<u>86.95</u>	A = 0.66
Energy	8.31	(a)	8.84	(c)
Transportation	6.08	(b)	7.54	(d)
Subtotal	<u>14.39</u>	B = 0.14	<u>16.38</u>	B = 0.12
Burial	22.48	(b) C = 0.22	28.34	(d) C = 0.22
Total	<u><u>103.5</u></u>		<u><u>131.7</u></u>	

Note: All costs include a 25% contingency

- (a) Table 3.1, NUREG/CR-0130, Addendum 4
- (b) Table 6.2, NUREG/CR-0130, Addendum 4
- (c) Table 3.1, NUREG/CR-0672, Addendum 3
- (d) Table 5.2, NUREG/CR-0672, Addendum 3

Considering the uncertainties and contingencies contained within these numbers, and considering that the values of the coefficients for the PWR and the BWR are so similar, the best estimates of their values are their averages:

$$\bar{A} = 0.65$$

$$\bar{B} = 0.13$$

$$\bar{C} = 0.22$$

for both the PWR and BWR estimates.

#### 4.0 REFERENCES

- (1) Technology, Safety and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station - Technical Support for Decommissioning Matters Related to the Final Decommissioning Rule. NUREG/CR-0130 Addendum 4, Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, May, 1988.
- (2) Technology, Safety and Costs of Decommissioning a Reference Boiling Water Reactor Power Station - Technical Support for Decommissioning Matters Related to the Final Decommissioning Rule. NUREG/CR-0672 Addendum 3, Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, May, 1988.
- (3) Technology, Safety and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station. NUREG/CR-0130, Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, June, 1978.
- (4) Technology, Safety and Costs of Decommissioning a Reference Boiling Water Reactor Power Station. NUREG/CR-0672, Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, June, 1980.

APPENDIX A

BURIAL SITE PRICE SCHEDULES FOR THE CURRENT YEAR

APPENDIX A

BURIAL SITE PRICE SCHEDULES FOR THE CURRENT YEAR

Contained in this appendix are the price schedules for burial of low level wastes at the Washington, Nevada and South Carolina sites, effective during January of 1988. These schedules are used in the calculations contained in Appendix B to develop the waste burial escalation factor,  $B_x$ , for the year 1988.

US ECOLOGY  
 WASHINGTON NUCLEAR CENTER  
 SCHEDULE OF CHARGES  
 RADIOACTIVE WASTE

**USEcology**

an American Ecology company

EFFECTIVE: August 17, 1987

1. DISPOSAL CHARGES

A. SOLID MATERIAL

i. Packages 12.0 cu.ft. each or less

<u>R/HR AT CONTAINER SURFACE</u>	<u>PRICE PER CU.FT.</u>
0.00 - 0.20	\$ 29.60
0.201 - 1.00	31.10
1.01 - 2.00	32.25
2.01 - 5.00	33.50
5.01 - 10.00	36.75
10.01 - 20.00	40.00
20.01 - 40.00	45.00
Over 40.00	By Request

ii. Disposal Liners Removed from Shield: (Greater than 12.0 cu.ft. each)

<u>R/HR AT CONTAINER SURFACE</u>	<u>SURCHARGE PER LINER</u>	<u>PRICE PER CU.FT.</u>
0.00 - 0.20	No Charge	\$ 29.60
0.201 - 1.00	\$ 193.50	29.60
1.01 - 2.00	441.00	29.60
2.01 - 5.00	747.00	29.60
5.01 - 10.00	1,192.50	29.60
10.01 - 20.00	1,566.00	29.60
20.01 - 40.00	1,791.00	29.60
Over 40.00	By Request	By Request

B. LIQUID WASTES

1. Aqueous liquids in vials, less than 50 ml. each \$36.54/cu.ft.
2. Aqueous liquids, absorbed \$29.60/cu.ft.

C. BIOLOGICAL WASTE, ANIMAL CARCASSES \$31.46/cu.ft.

(Continued from previous page)

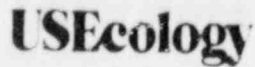
2. SURCHARGE FOR HEAVY OBJECTS:
- |   |   |
|---|---|
| Less than 10,000 pounds                     | No Charge   |
| 10,001 pounds to capacity of site equipment | \$215.52 plus 10¢ per lb. above 10,000 lbs. per package |
3. SURCHARGE FOR CURIES (Per Load):
- |                      |                                     |
|----------------------|-------------------------------------|
| Less than 100 curies | No Charge                           |
| 101 - 300 curies     | \$1,569.00 plus 21¢/Ci above 100 Ci |
| 301 - License Limits | By Request                          |
4. SURCHARGE FOR SPECIAL NUCLEAR MATERIAL (SNM) (Greater than 5 grams per shipment)
- \$2.83 per gram of Special Nuclear Material by isotope weight
5. MINIMUM CHARGE PER SHIPMENT
- \$485.00
6. CASK HANDLING FEE:
- \$550.00 minimum each
7. WASTE CONTAINING CHELATING AGENTS IN AMOUNTS GREATER THAN 0.1% BY WEIGHT AFTER TREATMENT:
- By Request
8. SOLIDIFIED OILY WASTES REQUIRING SEGREGATION:
- By Request
9. SURCHARGE FOR NONROUTINE MAN-REM EXPOSURE (DUE TO DESIGN OR PHYSICAL DEFECT OF CONTAINER OR SHIELD):
- \$29.50 per man millirem
10. DECONTAMINATION SERVICES (If Required)
- \$96.92 per man hour plus supplies at cost plus 21%
11. CONTAINER VOLUMES:
- |                 |   |             |
|-----------------|---|-------------|
| 55-Gallon Drums | - | 7.50 cu.ft. |
| 30-Gallon Drums | - | 4.01 cu.ft. |
| 5-Gallon Drums  | - | 0.67 cu.ft. |
12. All waste material shall be properly classified, described, packaged, marked, labeled and certified in accordance with all applicable federal, state and local laws, rules and regulations and shall be in compliance with all license requirements and amendments thereto applicable at the Richland, Washington disposal facility.
13. This Schedule of Charges does not constitute an offer of contract which is capable of being accepted by any party and is subject to change solely upon notice by US Ecology.

Effective August 17, 1987  
Washington Nuclear Center



US Ecology, Inc.  
 9200 Shelbyville Road, Suite 300  
 P.O. Box 7246  
 Louisville, Kentucky 40207  
 502/426-7160

US ECOLOGY  
 NEVADA NUCLEAR CENTER  
 SCHEDULE OF CHARGES  
 RADIOACTIVE WASTE



an American Ecology company

EFFECTIVE: January 18, 1988

1. DISPOSAL CHARGES

A. SOLID MATERIAL

i. All Disposal Packages (except those in item A(ii) below):

<u>R/HR AT CONTAINER SURFACE</u>	<u>PRICE PER CU. FT.</u>
0.00 - 0.20	\$28.36
0.201 - 1.00	29.10
1.01 - 2.00	30.60
2.01 - 5.00	31.50
5.01 - 10.00	36.00
10.01 - 20.00	43.85
20.01 - 40.00	51.25
Over 40.00	By Request

ii. Disposal Liners Removed From Shield (Greater Than 12.0 Cu.Ft. Each)

<u>R/HR AT CONTAINER SURFACE</u>	<u>SURCHARGE PER LINER</u>	<u>PRICE PER CU. FT.</u>
0.00 - 0.20	No Charge	\$28.36
0.201 - 1.00	125.00	28.36
1.01 - 2.00	201.60	28.36
2.01 - 5.00	282.60	28.36
5.01 - 10.00	687.60	28.36
10.01 - 20.00	1,394.10	28.36
20.01 - 40.00	2,060.10	28.36
Over 40.00	By Request	By Request

- B. BIOLOGICAL WASTE, ANIMAL CARCASSES \$30.12/cu.ft.
- C. ABSORBED AQUEOUS LIQUIDS \$28.36/cu.ft.
- D. ABSORBED AQUEOUS VIALS \$28.36/cu.ft.

(CONTINUED FROM PREVIOUS PAGE)

2. SURCHARGE FOR HEAVY OBJECTS:

Less than 10,000 pounds  
10,000 pounds to Capacity of Site Equipment

No Charge  
\$214.00 plus \$.10 per lb.  
above 10,000 lbs.

3. SURCHARGE FOR CURIES (Per Load)

Less than 100 curies  
100 - 300 curies  
301 - License Limits

No Charge  
\$1,554.00 plus 20¢/Ci above 100 Ci  
By Request

4. MINIMUM CHARGE PER SHIPMENT

\$485.00

5. CASK HANDLING FEE:

\$550.00 minimum each

6. WASTE CONTAINING CHELATING AGENTS IN PACKAGES  
AMOUNT GREATER THAN 1% BY WEIGHT:

By Request

7. SURCHARGE FOR NON-ROUTINE MAN-REM EXPOSURE  
(DUE TO DESIGN OR PHYSICAL DEFECT OF  
CONTAINER OR SHIELD)

\$29.50 per man millirem

8. DECONTAMINATION SERVICES (If Required)

\$106.20 per man hour plus  
supplies at cost plus 15%

9. CONTAINER VOLUMES:

55 Gallon Drums - 7.50 cu. ft.  
30 Gallon Drums - 4.01 cu. ft.  
5 Gallon Drums - 0.67 cu. ft.

10. All waste material shall be properly classified, described, packaged, marked, labeled, and certified in accordance with all applicable Federal, State and Local laws, rules and regulations and shall be in compliance with all license requirements and amendments thereto applicable at the Beatty, Nevada disposal facility.

11. This Schedule of Charges does not constitute an offer of contract which is capable of being accepted by any party and is subject to change solely upon notice by US Ecology.

Effective January 18, 1988  
Nevada Nuclear Center





# CHEM-NUCLEAR SYSTEMS, INC.

220 Stoneridge Drive • Columbia, South Carolina 29210

## BARNWELL LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT FACILITY RATE SCHEDULE

All radwaste material shall be packaged in accordance with Department of Transportation and Nuclear Regulatory Commission Regulations in Title 49 and Title 10 of the Code of Federal Regulations, CNSI's Nuclear Regulatory Commission and South Carolina Radioactive Material Licenses, CNSI's Barnwell Site Disposal Criteria, and amendments thereto.

1. BASE DISPOSAL CHARGES: (Not including Surcharges, Barnwell County Business License Tax, and Cask Handling Fee)

A. Standard Waste	\$35.32/ft. <sup>3</sup>
B. Biological Waste	\$36.97/ft. <sup>3</sup>
C. Special Nuclear Material (SNM)	\$35.32/ft. <sup>3</sup> plus \$4.50 per Gram SNM

Note: Minimum charge per shipment, excluding Surcharges and specific Other Charges is \$750.00.

2. SURCHARGES:

A. Weight Surcharges (Crane Loads Only)

<u>Weight of Container</u>	<u>Surcharge Per Container</u>
0 - 1,000 lbs.	No Surcharge
1,001 - 5,000 lbs.	\$ 405.00
5,001 - 10,000 lbs.	\$ 710.00
10,001 - 20,000 lbs.	\$1,010.00
20,001 - 30,000 lbs.	\$1,310.00
30,001 - 40,000 lbs.	\$1,915.00
40,001 - 50,000 lbs.	\$2,520.00
greater than 50,000 lbs.	By Special Request

B. Curie Surcharges For Shielded Shipments:

<u>Curie Content Per Shipment</u>	<u>Surcharge Per Shipment</u>
0 - 5	\$ 2,500.00
> 5 - 15	\$ 2,820.00
> 15 - 25	\$ 3,750.00
> 25 - 50	\$ 5,650.00
> 50 - 75	\$ 6,900.00
> 75 - 100	\$ 9,350.00
> 100 - 150	\$11,200.00
> 150 - 250	\$15,000.00
> 250 - 500	\$18,800.00
> 500 - 1,000	\$22,500.00
>1,000 - 5,000	\$30,000.00
>5,000	By Special Request

Effective January 15, 1988  
(2515g)

- C. Curie Surcharges for Non-Shielded Shipments Containing Tritium and Carbon 14:

<u>Curie Content Per Shipment</u>	<u>Surcharge Per Shipment</u>
0-100	No Surcharge
greater than 100	By Special Request

- D. Special Handling Surcharge may apply on unusually large or bulky containers. These types of containers are acceptable upon approval of prior request.

3. OTHER CHARGES

- A. Cask Handling Fee \$1,000.00 per cask, minimum
- B. Taxes and Special Funds
1. Extended Care Fund \$ 2.80 per ft.<sup>3</sup>
  2. South Carolina Low-Level Radioactive Waste Disposal Tax \$ 6.00 per ft.<sup>3</sup>
  3. Southeast Regional Compact Fee 66¢ per ft.<sup>3</sup>
  4. A 2.4% surcharge is added to each bill to cover Barnwell County Business License Taxes.

NOTE: ITEMS 3.B. 1, 2, AND 3 ARE INCLUDED IN ITEM 1, BASE DISPOSAL CHARGES.

4. MISCELLANEOUS:

- A. Transport vehicles with additional shielding features may be subject to an additional handling fee which will be provided upon request.
- B. Decontamination services (if required): \$100.00 per man-hour plus supplies at current CNSI rate.
- C. Customers may be charged for all special services as described in the Barnwell Site Disposal Criteria.
- D. Terms of payment are NET 30 DAYS upon presentation of invoices. A service charge per month of 1-1/2% shall be levied on accounts not paid within thirty (30) days.

Miscellaneous (cont.)

- E. Company purchase orders or a written letter of authorization in form and substance acceptable to CNSI shall be received before receipt of radioactive waste material at the Barnwell Disposal Site and shall refer to CNSI's Radioactive Material Licenses, the Barnwell Site Disposal Criteria, and subsequent changes thereto.
- F. All shipments shall receive a CNSI allocation number and conform to the Prior Notification Plan. Additional information may be obtained at (803) 259-3577 or (803) 259-3578.
- G. This Rate Schedule is subject to change and does not constitute an offer of contract which is capable of being accepted by any party.
- H. A charge of \$7,500.00 is applicable to all shipments which require special site set-up for waste disposal.
- I. Class B/C waste received with chelating agents, which requires separation in the trench, may be subject to a surcharge if Stable Class A waste is not available for use in achieving the required separation from other wastes.

APPENDIX B

CALCULATION OF BURIAL COST ESCALATION FACTORS

## APPENDIX B

### CALCULATION OF BURIAL COST ESCALATION FACTORS

The calculations necessary to determine the costs for burial of the radioactive wastes postulated to result from decommissioning of the reference PWR and BWR are performed using a detailed spreadsheet. The spreadsheet evaluates the burial costs for each of the items originally costed in the reference PWR(3) and BWR(4) decommissioning studies and in the updated costs presented in Addendums 4(1) and 3(2), respectively, to those reports. Those costs are based on the burial price schedule for U.S. Ecology's Washington Nuclear Center, located on the Hanford Site near Richland, Washington.

To account for the differences in burial price schedules between the Washington facility and the facilities in Nevada and South Carolina, the base burial costs for each of those latter sites are also calculated, using the spreadsheet, and are normalized to the costs calculated for the Washington site. In addition, to account for the different mixture and volume of waste associated with the reference BWR, the escalation factors are also calculated for the BWR, which are also normalized to the value for the Washington Nuclear Center. Thus, in the base year (1986), for the Washington site,  $B_x = 1.0/1.0$ , where (PWR/BWR) is the order of presentation. For the Nevada site,  $B_x = 0.741/0.747$ , for the South Carolina site  $B_x = 1.323/1.422$ , as shown in Table 2.1 of the summary.

The spreadsheet calculations, which are too voluminous to present here, are summarized in Tables B.1 through B.6, for the years 1986 and 1988 and for each of the three sites. Recalculation of the costs for burial is based on the same inventory of radioactive wastes as was postulated in the 1986 and 1978-80 analyses. Using the 1988 price schedules for the three sites, and dividing the calculated burial costs at each site by the Washington site burial costs calculated for the year 1986, results in 1988 values for  $B_x$  at each of the three sites, as listed in Table 2.1 of the summary.

As other low-level radioactive waste burial sites come into service in the various interstate compacts, values for  $B_x$  will be calculated using the price schedules for each of those sites, and will be incorporated into subsequent issues of this report.

TABLE B.1 BURIAL COSTS AT THE WASHINGTON SITE  
REFERENCE PWR (1986 DOLLARS)

ACTIVATED MATERIAL	CRANE SURCHARGE	CASK HANDLING	SLINGS (SPECIAL)	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	29671	20000	0	62710	144400	119548	377229
VESSEL HEAD & BOTTOM	0	22000	0	0	0	125840	147840
UPPER CORE SUPPORT ASSM	0	2200	0	0	4770	12584	19554
UPPER SUPPORT COLUMN	0	2200	0	0	4770	12584	19554
UPPER CORE BARREL	0	1100	0	3300	7600	6292	18298
UPPER CORE GRID PLATE	0	2750	0	12295	19000	15730	49775
GUIDE TUBES	0	3300	0	0	4482	18876	26658
LOWER CORE BARREL	0	17600	0	172599	121600	100672	412471
THERMAL SHIELDS	0	3300	0	34400	22000	18876	79464
CORE SHROUD	0	2200	0	730079	15200	12584	768063
LOWER GRID PLATE	0	2750	0	119178	19000	15730	156658
LOWER SUPPORT COLUMN	0	550	0	3417	3800	3146	10913
LOWER CORE FORGING	0	6050	0	17495	41800	34606	99951
MISC INTERNALS	0	4400	0	12759	30400	25168	72727
BIO SHIELD CONCRETE	0	0	0	0	0	785242	785242
REACTOR CAVITY LINER	0	0	0	0	0	16108	16108
REACTOR COOLANT PUMPS	65787	0	0	0	0	132132	197919
PRESSURIZER	13224	0	0	0	0	113256	126480
R. Hx, EHx, SUMP PUMP, CAVITY PUMP	0	0	0	0	0	12584	12584
PRESSURIZER RELIEF TANK	1151	0	0	0	0	37752	38903
SAFETY INJECTION ACCUM TANKS	24324	0	0	0	0	125840	150164
STEAM GENERATORS	250097	0	0	0	0	672049	922145
REACTOR COOLANT PIPING	16700	0	0	0	0	103818	120526
REMAINING CONTAM. MATLS	0	0	0	0	0	1655048	1655048
CONTAMINATED MATRL OTHR BLD	0	0	0	0	0	15009629	15009629
FILTER CARTRIDGES	0	3300	0	10338	18522	9910	42069
SPENT RESAIS	0	11000	0	39700	65000	62920	178700
COMBUSTIBLE WASTES	0	33000	0	0	0	318533	351533
EVAPORATOR BOTTOMS	0	51700	0	0	63700	295724	411132
TOTAL PWR	400962	190300	0	1226444	586852	19872779	22277336

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TABLE B.1 BURIAL COSTS AT THE WASHINGTON SITE (cont.)  
REFERENCE BWR (1986 DOLLARS)

ACTIVATED MATERIAL	CRANE SURCHARGE	CASK HANDLING	SLINGS (SPECIAL)	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	15400	0	23689	106400	11105	156594
FUEL SUPPORT & PIECES	0	7700	0	0	53200	5568	66468
CONTROL RODS/INCORES	0	0	0	52074	30400	16674	99148
CONTROL RODS GUIDES	0	6600	0	0	18792	4436	29828
JET PUMPS	0	22000	0	35160	152000	12073	224733
TOP FUEL GUIDES	0	39600	0	117776	27360	26710	457686
CORE SUPPORT PLATE	0	17050	0	0	48540	12269	77865
CORE SHROUD	0	77000	0	1539720	532000	52224	2200944
REACTOR VESSEL WALL	17435	0	0	0	34452	8985	59973
SAC SHIELD	48857	0	0	0	0	113130	161988
REACT. WATER REC	35978	0	0	0	0	97841	133818
SAC SHIELD	138788	0	0	0	0	344487	483275
OTHER PRIMARY CONTAINMENT	0	0	0	0	0	3928347	3928347
CONTAINM. ATMOSPHERIC	931	0	0	0	0	53293	54224
HIGH PRESSURE CORE SPRAY	4531	0	0	0	0	18876	23407
LOW PRESSURE CORE SPRAY	1416	0	0	0	0	11168	12584
REACTOR BLDG CLOSED COOLING	2747	0	0	0	0	35613	38359
REACTOR CORE ISO COOLING	716	0	0	0	0	14472	15187
RESIDUAL HEAT REMOVAL	12909	0	0	0	0	68960	81869
POOL LINES & RACKS	51833	0	0	0	0	423231	476064
CONTAMINATED CONCRETE	9648	0	0	0	0	482125	491973
OTHER REACTOR BUILDING	0	0	0	0	0	1576681	1576681
TURBINE	128303	0	0	0	0	1561832	1890135
NUCLEAR STEAM CONDENSATE	18687	0	0	0	0	403286	421972
LOW PRESSURE FEEDWATER HEATERS	140751	0	0	0	0	818778	959529
MAIN STEAM	4747	0	0	0	0	78933	83680
MOISTURE SEPARATOR REHEATERS	86204	0	0	0	0	794208	880411
REACTOR FEEDWATER PUMPS	9155	0	0	0	0	216665	225820
HIGH PRESSURE FEEDWATER PUMPS	27724	0	0	0	0	134397	162121
OTHER TG BLDG	0	0	0	0	0	5406841	5406841
REED WASTE BLDG	0	0	0	0	0	2671961	2671961
REACTOR BLDG	0	35200	0	0	0	269766	304966
TG BLDG	0	23100	0	0	0	182110	205210
RAD WASTE & CONTROL	0	20900	0	0	0	157173	178073
CONCENTRATOR BOTTOMS	0	123750	0	0	150898	0	274648
OTHER	0	23100	0	0	3677	904381	931157
TOTAL BWR	741559	411400	0	1768419	1403965	20921199	25246542

TABLE B.2 BURIAL COSTS AT THE WASHINGTON SITE  
REFERENCE PWR (1988 DOLLARS)

ACTIVATED MATERIAL	CRANE SURCHARGE	CASK HANDLING	SLINGS (SPECIAL)	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	29071	45000	0	62710	144400	119548	401929
VESSEL HEAD & BOTTOM	0	48000	0	0	0	125840	173840
UPPER CORE SUPPORT ASSM	0	4800	0	0	4770	12584	22154
UPPER SUPPORT COLUMN	0	4900	0	0	4770	12584	22154
UPPER CORE BARREL	0	2400	0	3300	7600	6292	19598
UPPER CORE GRID PLATE	0	6000	0	12295	19000	15730	53025
GUIDE TUBES	0	7200	0	0	4482	10876	30558
LOWER CORE BARREL	0	36400	0	172599	121000	100672	433271
THERMAL SHIELDS	0	7200	0	34488	22800	10876	83364
CORE SHROUD	0	4800	0	738079	15200	12584	770663
LOWER GRID PLATE	0	6000	0	119178	19000	15730	159900
LOWER SUPPORT COLUMN	0	1200	0	3417	3800	3140	11563
LOWER CORE FORGING	0	13200	0	17495	41800	34600	107101
MISC INTERNALS	0	9600	0	12759	30400	25168	77927
BIO SHIELD CONCRETE	0	0	0	0	0	785242	785242
REACTOR CAVITY LINER	0	0	0	0	0	16100	16100
REACTOR COOLANT PUMPS	65787	0	0	0	0	132132	197919
PRESSURIZER	13224	0	0	0	0	113256	126400
R. Hx, EHx, SUMP PUMP, CAVITY PUMP	0	0	0	0	0	12584	12584
PRESSURIZER RELIEF TANK	1151	0	0	0	0	37752	38903
SAFETY INJECTION ACCUM TANKS	24324	0	0	0	0	125840	150164
STEAM GENERATORS	250097	0	0	0	0	672049	922145
REACTOR COOLANT PIPING	16700	0	0	0	0	103018	120526
REMAINING CONTAM. MATLS	0	0	0	0	0	1655048	1655048
CONTAMINATED WATRL OTHR BLD	0	0	0	0	0	15009629	15009629
FILTER CARTRIDGES	0	7200	0	10338	18522	9910	45969
SPENT RESAIS	0	24000	0	39780	65000	62920	191700
COMBUSTIBLE WASTES	0	72000	0	0	0	318533	390533
EVAPORATOR BOTTLWS	0	112000	0	0	63700	295724	472232
TOTAL PWR	400962	415200	0	1226444	586852	19872779	22502236

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TABLE B.2 BURIAL COSTS AT THE WASHINGTON SITE (cont.)  
REFERENCE BWR (1988 DOLLARS)

ACTIVATED MATERIAL	CRANE SURCHARGE	CASK HANDLING	SLINGS (SPECIAL)	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	33600	0	23689	106400	11105	174794
FUEL SUPPORT & PIECES	0	16800	0	0	53200	5568	75568
CONTROL RODS/INCORES	0	0	0	52074	30400	15674	99148
CONTROL RODS GUIDES	0	14400	0	0	18792	4436	37028
JET PUMPS	0	48000	0	35100	152000	15573	250733
TOP FUEL GUIDES	0	86400	0	117776	273600	26710	504486
CORE SUPPORT PLATE	0	37200	0	0	48546	12269	98015
CORE SHROUD	0	168000	0	1539720	532000	52224	2291944
REACTOR VESSEL WALL	17435	0	0	0	34452	8065	59973
SAC SHIELD	48857	0	0	0	0	113130	161988
REACT. WATER REC	35978	0	0	0	0	97841	133818
SAC SHIELD	138708	0	0	0	0	344487	483275
OTHER PRIMARY CONTAINMENT	0	0	0	0	0	3928347	3928347
CONTAINM. ATMOSPHERIC	931	0	0	0	0	53293	54224
HIGH PRESSURE CORE SPRAY	4531	0	0	0	0	18876	23407
LOW PRESSURE CORE SPRAY	1416	0	0	0	0	11168	12584
REACTOR BLDG CLOSED COOLING	2747	0	0	0	0	35613	38359
REACTOR CORE ISO COOLING	716	0	0	0	0	14472	15187
RESIDUAL HEAT REMOVAL	12909	0	0	0	0	88960	81869
POOL LINES & RACKS	51833	0	0	0	0	423231	475064
CONTAMINATED CONCRETE	9848	0	0	0	0	482125	491973
OTHER REACTOR BUILDING	0	0	0	0	0	1576661	1576661
TURBINE	126303	0	0	0	0	1561832	1690135
NUCLEAR STEAM CONDENSATE	18687	0	0	0	0	403286	421972
LOW PRESSURE FEEDWATER HEATERS	140751	0	0	0	0	818778	959529
MAIN STEAM	4747	0	0	0	0	78933	83680
MOISTURE SEPARATOR REHEATERS	86204	0	0	0	0	794208	880411
REACTOR FEEDWATER PUMPS	9155	0	0	0	0	216665	225820
HIGH PRESSURE FEEDWATER PUMPS	27724	0	0	0	0	134397	162121
OTHER TG BLDG	0	0	0	0	0	5406841	5406841
REED WASTE BLDG	0	0	0	0	0	2671961	2671961
REACTOR BLDG	0	76800	0	0	0	269766	346566
TG BLDG	0	50400	0	0	0	182110	232510
RAD WASTE & CONTROL	0	45000	0	0	0	157173	202773
CONCENTRATOR BOTTOMS	0	270000	0	0	150898	0	420898
OTHER	0	50400	0	0	3677	904381	958457
TOTAL BWR	741559	897600	0	1768419	1403965	20921199	25732742

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TABLE B.3 BURIAL COSTS AT THE NEVADA SITE  
REFERENCE PWR (1986 DOLLARS)

ACTIVATED MATERIAL	CRANE SURCHARGE	CASK HANDLING	SLINGS (SPECIAL)	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	29613	30172	0	61993	112161	85006	318945
VESSEL HEAD & BOTTOM	0	31760	0	0	0	89480	121240
UPPER CORE SUPPORT ASSM	0	3176	0	0	5441	8948	17565
UPPER SUPPORT COLUMN	0	3176	0	0	5441	8948	17565
UPPER CORE BARREL	0	1588	0	3268	8704	4474	16034
UPPER CORE GRID PLATE	0	3970	0	12008	18759	11185	43922
GUIDE TUBES	0	4764	0	0	5648	13422	23832
LOWER CORE BARREL	0	25400	0	186291	107259	71584	370542
THERMAL SHIELDS	0	4764	0	33204	20111	13422	71501
CORE SHROUD	0	3176	0	706575	13407	8948	732107
LOWER GRID PLATE	0	3970	0	114100	18759	11185	146014
LOWER SUPPORT COLUMN	0	794	0	3314	3352	2237	9697
LOWER CORE FORGING	0	8734	0	17318	36870	24607	87530
MISC INTERNALS	0	6352	0	12629	26815	17896	63692
BIO SHIELD CONCRETE	0	0	0	0	0	558355	558355
REACTOR CAVITY LINER	0	0	0	0	0	11453	11453
REACTOR COOLANT PUMPS	65768	0	0	0	0	93954	159722
PRESSURIZER	13212	0	0	0	0	80532	93744
R. Hx, EHx, SUMP PUMP, CAVITY PUMP	0	0	0	0	0	8948	8948
PRESSURIZER RELIEF TANK	1148	0	0	0	0	26844	27992
SAFETY INJECTION ACCUM TANKS	24312	0	0	0	0	89480	113792
STEAM GENERATORS	250048	0	0	0	0	477868	727916
REACTOR COOLANT PIPING	16698	0	0	0	0	73821	90519
REMAINING CONTAM. MATLS	0	0	0	0	0	1176841	1176841
CONTAMINATED MATRL OTHR BLD	0	0	0	0	0	10672772	10672772
FILTER CARTRIDGES	0	4764	0	10204	28079	7047	50093
SPENT RESAIS	0	15880	0	39080	51144	44740	150844
COMBUSTIBLE WASTES	0	47640	0	0	0	226496	274136
EVAPORATOR BOTTOMS	0	74636	0	0	68486	210278	353400
TOTAL PWR	400000	274724	0	1179984	524432	14130771	16510711

TABLE B.3 BURIAL COSTS AT THE NEVADA SITE (cont.)  
REFERENCE BWR (1986 DOLLARS)

ACTIVATED MATERIAL	CRANE SURCHARGE	CASK HANDLING	SLINGS (SPECIAL)	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	22232	0	23397	93852	7897	147377
FUEL SUPPORT & PIECES	0	11116	0	0	41322	3959	56398
CONTROL RODS/INCORES	0	0	12320	50072	26815	11856	101063
CONTROL RODS GUIDES	0	9528	0	0	20029	3154	33511
JET PUMPS	0	31760	0	34680	134074	11073	211587
TOP FUEL GUIDES	0	57166	0	116467	241332	18992	433960
CORE SUPPORT PLATE	0	24614	0	0	53809	8724	87147
CORE SHROUD	0	111160	0	1474760	409258	37134	2092312
REACTOR VESSEL WALL	17402	0	0	0	38187	5749	61338
SAC SHIELD	48836	0	0	0	0	80443	129279
REACT. WATER REC	35970	0	0	0	0	69571	105541
SAC SHIELD	138730	0	0	0	0	244952	383682
OTHER PRIMARY CONTAINMENT	0	0	0	0	0	2793297	2793297
CONTAINM. ATMOSPHERIC	928	0	0	0	0	37895	38823
HIGH PRESSURE CORE SPRAY	4528	0	0	0	0	13422	17950
LOW PRESSURE CORE SPRAY	1414	0	0	0	0	7941	9355
REACTOR BLDG CLOSED COOLING	2742	0	0	0	0	25323	28065
REACTOR CORE ISO COOLING	714	0	0	0	0	10290	11004
RESIDUAL HEAT REMOVAL	12898	0	0	0	0	49035	61933
POOL LINES & RACKS	51810	0	0	0	0	300944	352754
CONTAMINATED CONCRETE	9824	0	0	0	0	342820	352644
OTHER REACTOR BUILDING	0	0	0	0	0	1121117	1121117
TURBINE	128215	0	0	0	0	1110559	1238773
NUCLEAR STEAM CONDENSATE	18668	0	0	0	0	286761	305429
LOW PRESSURE FEEDWATER HEATERS	140887	0	0	0	0	582202	722889
MAIN STEAM	4742	0	0	0	0	56128	60860
MOISTURE SEPARATOR REHEATERS	86184	0	0	0	0	564731	650896
REACTOR FEEDWATER PUMPS	9140	0	0	0	0	154062	163202
HIGH PRESSURE FEEDWATER PUMPS	27712	0	0	0	0	95565	123277
OTHER TG BLDG	0	0	0	0	0	3844598	3844598
REED WASTE BLDG	0	0	0	0	0	1899929	1899929
REACTOR BLDG	0	50816	0	0	0	29210	80026
TG BLDG	0	33348	0	0	0	19718	53066
RAD WASTE & CONTROL	0	30172	0	0	0	17018	47190
CONCENTRATOR BOTTOMS	0	178650	0	0	162320	0	340970
OTHER	0	48434	0	0	5163	643070	696667
TOTAL BWR	741126	608998	12320	1699376	1286959	14509137	18857915

TABLE B.4 BURIAL COSTS AT THE NEVADA SITE  
REFERENCE PWR (1988 DOLLARS)

ACTIVATED MATERIAL	CRANE SURCHARGE	CASK HANDLING	SLINGS (SPECIAL)	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	29613	29900	0	61993	144400	174458	371363
VESSEL HEAD & BOTTOM	0	22000	0	0	0	120400	142480
UPPER CORE SUPPORT ASSM	0	2200	0	0	2750	12048	16998
UPPER SUPPORT COLUMN	0	2200	0	0	2750	12048	16998
UPPER CORE BARREL	0	1100	0	3268	7600	8024	17992
UPPER CORE GRID PLATE	0	2750	0	12000	19000	15060	48818
GUIDE TUBES	0	3300	0	0	1896	18072	23068
LOWER CORE BARREL	0	17600	0	166291	121600	96384	401875
THERMAL SHIELDS	0	3300	0	33204	22800	18072	77376
CORE SHROUD	0	2200	0	706575	15200	12048	736023
LOWER GRID PLATE	0	2750	0	114100	19000	15060	150910
LOWER SUPPORT COLUMN	0	550	0	3314	3800	3012	10676
LOWER CORE FORGING	0	6050	0	17318	41800	33132	98300
MISC INTERNALS	0	4400	0	12629	30400	24096	71525
BIO SHIELD CONCRETE	0	0	0	0	0	751795	751795
REACTOR CAVITY LINER	0	0	0	0	0	15421	15421
REACTOR COOLANT PUMPS	65768	0	0	0	0	126504	192272
PRESSURIZER	13212	0	0	0	0	108432	121644
R. Hx, EHX, SUMP PUMP, CAVITY PUMP	0	0	0	0	0	12048	12048
PRESSURIZER RELIEF TANK	1148	0	0	0	0	36144	37292
SAFETY INJECTION ACCUM TANKS	24312	0	0	0	0	120480	144792
STEAM GENERATORS	250048	0	0	0	0	643423	893471
REACTOR COOLANT PIPING	18698	0	0	0	0	99396	116094
REMAINING CONTAM. MATLS	0	0	0	0	0	1584553	1584553
CONTAMINATED MATRL OTHR BLD	0	0	0	0	0	14370312	14370312
FILTER CARTRIDGES	0	3300	0	10204	8467	9488	31459
SPENT RESAIS	0	11000	0	39080	65000	60240	175320
COMBUSTIBLE WASTES	0	33000	0	0	0	304965	337965
EVAPORATOR BOTTOMS	0	51700	0	0	60625	283128	395453
TOTAL PWR	400000	190300	0	1179984	566889	19026322	21364295

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TABLE B.4 BURIAL COSTS AT THE NEVADA SITE (cont.)  
REFERENCE BWR (1988 DOLLARS)

ACTIVATED MATERIAL	CRANE SURCHARGE	CASK HANDLING	SLINGS (SPECIAL)	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	15400	0	23397	106400	10632	155829
FUEL SUPPORT & PIECES	0	7700	0	0	53200	5331	60231
CONTROL RODS/INCORES	0	0	12320	50072	30400	15964	108756
CONTROL RODS GUIDES	0	6600	0	0	16729	4247	27576
JET PUMPS	0	22000	0	34600	152000	14909	223589
TOP FUEL GUIDES	0	39600	0	116467	273600	25572	455239
CORE SUPPORT PLATE	0	17050	0	0	43217	11747	72014
CORE SHROUD	0	77000	0	1474760	532000	49999	2133759
REACTOR VESSEL WALL	17402	0	0	0	30670	7741	55813
SAC SHIELD	48836	0	0	0	0	108312	157148
REACT. WATER REC	35970	0	0	0	0	93673	129643
SAC SHIELD	138730	0	0	0	0	329814	468544
OTHER PRIMARY CONTAINMENT	0	0	0	0	0	3761024	3761024
CONTAINM. ATMOSPHERIC	928	0	0	0	0	51023	51951
HIGH PRESSURE CORE SPRAY	4628	0	0	0	0	18072	22600
LOW PRESSURE CORE SPRAY	1414	0	0	0	0	10693	12107
REACTOR BLDG CLOSED COOLING	2742	0	0	0	0	34096	38838
REACTOR CORE ISO COOLING	714	0	0	0	0	13855	14669
RESIDUAL HEAT REMOVAL	12898	0	0	0	0	86023	78921
POOL LINES & RACKS	51810	0	0	0	0	405204	457014
CONTAMINATED CONCRETE	9824	0	0	0	0	461589	471413
OTHER REACTOR BUILDING	0	0	0	0	0	1509524	1509524
TURBINE	129215	0	0	0	0	1495307	1823522
NUCLEAR STEAM CONDENSATE	18668	0	0	0	0	386108	404777
LOW PRESSURE FEEDWATER HEATERS	140687	0	0	0	0	783903	924591
MAIN STEAM	4742	0	0	0	0	75571	80313
MOISTURE SEPARATOR REHEATERS	86164	0	0	0	0	780379	840540
REACTOR FEEDWATER PUMPS	3140	0	0	0	0	207436	216576
HIGH PRESSURE FEEDWATER PUMPS	27712	0	0	0	0	128873	156385
OTHER TG BLDG	0	0	0	0	0	5170544	5170544
REED WASTE BLDG	0	0	0	0	0	2558152	2558152
REACTOR BLDG	0	35200	0	0	0	29210	64410
TG BLDG	0	23100	0	0	0	19718	42818
RAD WASTE & CONTROL	0	20900	0	0	0	17018	37518
CONCENTRATOR BOTTOMS	0	123750	0	0	143500	0	267250
OTHER	0	33550	0	0	2375	865860	901785
TOTAL BWR	741126	421850	12320	1699376	1384092	19512924	23771687

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TABLE B.5 BURIAL COSTS AT THE SOUTH CAROLINA SITE  
REFERENCE PWR (1986 DOLLARS)

ACTIVATED MATERIAL	CRANE SURCHARGE	CASK HANDLING	SLINGS (SPECIAL)	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	34500	26000	0	714400	0	106400	881900
VESSEL HEAD & BOTTOM	0	28000	0	0	0	112000	140000
UPPER CORE SUPPORT ASSM	0	2000	0	0	0	11200	14000
UPPER SUPPORT COLUMN	0	2000	0	0	0	11200	14000
UPPER CORE BARREL	0	1400	0	37500	0	5600	44800
UPPER CORE GRID PLATE	0	3500	0	150000	0	14000	187500
GUIDE TUBES	0	4200	0	58100	0	16800	77100
LOWER CORE BARREL	0	22400	0	1324000	0	89600	1932000
THERMAL SHIELDS	0	4200	0	360000	0	16800	381000
CORE SHROUD	0	2000	0	6100000	0	11200	6114000
LOWER GRID PLATE	0	3500	0	1000000	0	14000	1017500
LOWER SUPPORT COLUMN	0	700	0	36500	0	2800	40000
LOWER CORE FORGING	0	7700	0	165000	0	30800	203500
MISC INTERNALS	0	5600	0	120000	0	22400	148000
BIO SHIELD CONCRETE	0	0	0	0	0	698800	698800
REACTOR CAVITY LINER	0	0	0	0	0	14336	14336
REACTOR COOLANT PUMPS	36848	0	0	0	0	117600	154448
PRESSURIZER	9600	0	0	0	0	100800	110400
R. Hx, Ethx, SUMP PUMP, CAVITY PUMP	0	0	0	0	0	11200	11200
PRESSURIZER RELIEF TANK	1820	0	0	0	0	33600	35420
SAFETY INJECTION ACCUM TANKS	14520	0	0	0	0	112000	126520
STEAM GENERATORS	134848	0	0	0	0	598136	732984
REACTOR COOLANT PIPING	12705	0	0	0	0	92400	105105
REMAINING CONTAM. MATLS	0	0	0	0	0	1473024	1473024
CONTAMINATED MATRL OTHR BLD	0	0	0	0	0	13358856	13358856
FILTER CARTRIDGES	0	4200	0	135000	0	8820	148020
SPENT RESAIS	0	14000	0	600000	0	56000	670000
COMBUSTIBLE WASTES	0	42000	0	0	0	283500	325500
EVAPORATOR BOTTOMS	0	65800	0	0	0	263200	329000
TOTAL PWR COSTS	245001	242200	0	11298600	0	17687152	29472953

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TABLE B.5 BURIAL COSTS AT THE SOUTH CAROLINA SITE (cont.)  
REFERENCE BWR (1986 DOLLARS)

ACTIVATED MATERIAL	CRANE SURCHARGE	CASK HANDLING	SLINGS (SPECIAL)	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	19600	0	147000	0	9884	176484
FUEL SUPPORT & PIECES	0	9000	0	0	0	4958	14756
CONTROL RODS/INCORES	4880	0	0	529600	0	14840	549320
CONTROL RODS GUIDES	0	8400	0	0	0	3948	12348
JET PUMPS	0	28000	0	450000	0	13860	491860
TOP FUEL GUIDES	0	50400	0	1353600	0	23772	1427772
CORE SUPPORT PLATE	0	21700	0	116256	0	10920	148870
CORE SHROUD	0	90000	0	13230000	0	46480	13374480
REACTOR VESSEL WALL	20020	0	0	205700	0	7196	232916
SAC SHIELD	33800	0	0	39400	0	100688	174048
REACT. WATER REC	19551	0	0	0	0	87000	106631
SAC SHIELD	91960	0	0	0	0	306600	398560
OTHER PRIMARY CONTAINMENT	0	0	0	0	0	3496304	3496304
CONTAINM. ATMOSPHERIC	1820	0	0	0	0	47432	49252
HIGH PRESSURE CORE SPRAY	3630	0	0	0	0	16800	20430
LOW PRESSURE CORE SPRAY	1210	0	0	0	0	9940	11150
REACTOR BLDG CLOSE COOLING	2730	0	0	0	0	31696	34420
REACTOR CORE COOLING	910	0	0	0	0	12880	13790
RESIDUAL HEAT REMOVAL	8470	0	0	0	0	61376	69848
POOL LINES & RACKS	36300	0	0	0	0	376684	412984
CONTAMINATED CONCRETE	14560	0	0	0	0	429100	443660
OTHER REACTOR BUILDING	0	0	0	0	0	1403276	1403276
TURBINE	70100	0	0	0	0	1390060	1460240
NUCLEAR STEAM CONDENSATE	14520	0	0	0	0	358932	373452
LOW PRESSURE FEEDWATER HEATERS	101640	0	0	0	0	728728	836368
MAIN STEAM	3630	0	0	0	0	70252	75882
MOISTURE SEPARATOR REHEATERS	62920	0	0	0	0	706860	769780
REACTOR FEEDWATER PUMPS	9100	0	0	0	0	192836	201936
HIGH PRESSURE FEEDWATER PUMPS	19360	0	0	0	0	119616	138976
OTHER TG BLDG	0	0	0	0	0	4812192	4812192
REED WASTE BLDG	0	0	0	0	0	2378096	2378096
REACTOR BLDG	0	44800	0	0	0	290481	341281
TG BLDG	0	29400	0	0	0	200146	229546
RAD WASTE & CONTROL	0	26500	0	0	0	172740	199340
CONCENTRATOR BOTTOMS	0	157500	0	0	0	46715	204215
OTHER	0	29400	0	0	0	804916	834316
TOTAL BWR COSTS	521271	523600	0	16071630	0	18794281	35910782

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TABLE B.6 BURIAL COSTS AT THE SOUTH CAROLINA SITE  
REFERENCE PWR (1988 DOLLARS)

ACTIVATED MATERIAL	CRANE SURCHARGE	CASK HANDLING	SLINGS (SPECIAL)	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	38300	38000	0	714400	0	134210	924990
VESSEL HEAD & BOTTOM	0	45000	0	0	0	141200	181200
UPPER CORE SUPPORT ASSM	0	4000	0	0	0	14120	18120
UPPER SUPPORT COLUMN	0	4000	0	0	0	14120	18120
UPPER CORE BARREL	0	2000	0	37600	0	7004	46604
UPPER CORE GRID PLATE	0	5000	0	150000	0	17600	172600
GUIDE TUBES	0	0000	0	56100	0	21192	83292
LOWER CORE BARREL	0	32000	0	1824000	0	113024	1909024
THERMAL SHIELDS	0	0000	0	360000	0	21192	387192
CORE SHROUD	0	4000	0	6100000	0	14120	6118120
LOWER GRID PLATE	0	5000	0	1000000	0	17600	1022600
LOWER SUPPORT COLUMN	0	1000	0	36500	0	3532	41032
LOWER CORE FORGING	0	11000	0	165000	0	38852	214852
MISC INTERNALS	0	0000	0	120000	0	28250	156250
BIO SHIELD CONCRETE	0	0	0	0	0	881587	881587
REACTOR CAVITY LINER	0	0	0	0	0	19004	18004
REACTOR COOLANT PUMPS	38352	0	0	0	0	148344	186696
PRESSURIZER	10400	0	0	0	0	127152	137632
R. Hx, Ehx, SUMP PUMP, CAVITY PUMP	0	0	0	0	0	14120	14120
PRESSURIZER RELIEF TANK	2020	0	0	0	0	42384	44404
SAFETY INJECTION ACCUM TANKS	15320	0	0	0	0	141200	156000
STEAM GENERATORS	140352	0	0	0	0	754500	894858
REACTOR COOLANT PIPING	13405	0	0	0	0	110550	129901
REMAINING CONTAM. MATLS	0	0	0	0	0	1858115	1858115
CONTAMINATED MATL OTHR BLD	0	0	0	0	0	16851243	16851243
FILTER CARTRIDGES	0	0000	0	135000	0	11120	152120
SPENT RESAIS	0	20000	0	000000	0	70040	690040
COMBUSTIBLE WASTES	0	00000	0	0	0	357615	417615
EVAPORATOR BOTTOMS	0	94000	0	0	0	332000	426000
TOTAL PWR	258309	340000	0	11298600	0	22311079	34213988



TABLE B.6 BURIAL COSTS AT THE SOUTH CAROLINA SITE (cont.)  
REFERENCE BWR (1988 DOLLARS)

ACTIVATED MATERIAL	CRANE SURCHARGE	CASK HANDLING	SLINGS (SPECIAL)	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	28000	0	147000	0	12468	187468
FUEL SUPPORT & PIECES	0	14000	0	0	0	6252	20252
CONTROL RODS/INCORES	5680	0	0	529600	0	18720	554000
CONTROL RODS GUIDES	0	12000	0	0	0	4980	16980
JET PUMPS	0	40000	0	450000	0	17483	507483
TOP FUEL GUIDES	0	72000	0	1353600	0	29987	1455587
CORE SUPPORT PLATE	0	31000	0	118250	0	13775	181025
CORE SHROUD	0	140000	0	13230000	0	58631	13428631
REACTOR VESSEL WALL	22220	0	0	205700	0	9077	236997
SAC SHIELD	35280	0	0	39480	0	127011	201771
REACT. WALL REC	20340	0	0	0	0	109845	130194
SAC SHIELD	95760	0	0	0	0	386754	482514
OTHER PRIMARY CONTAINMENT	0	0	0	0	0	4410338	4410338
CONTAINM. ATMOSPHERIC	2020	0	0	0	0	59832	61852
HIGH PRESSURE CORE SPRAY	3830	0	0	0	0	21192	25022
LOW PRESSURE CORE SPRAY	1310	0	0	0	0	12539	13849
REACTOR BLDG CLOSED COOLING	3030	0	0	0	0	39982	43012
REACTOR CORE ISO COOLING	1010	0	0	0	0	16247	17257
RESIDUAL HEAT REMOVAL	9170	0	0	0	0	77421	86591
POOL LINES & RACKS	37800	0	0	0	0	475180	512960
CONTAMINATED CONCRETE	16160	0	0	0	0	541279	557439
OTHER REACTOR BUILDING	0	0	0	0	0	1770132	1770132
TURBINE	75980	0	0	0	0	1753461	1829441
NUCLEAR STEAM CONDENSATE	15720	0	0	0	0	452767	468487
LOW PRESSURE FEEDWATER HEATERS	105840	0	0	0	0	919238	1025078
MAIN STEAM	3930	0	0	0	0	88618	92548
MOISTURE SEPARATOR REHEATERS	65520	0	0	0	0	891653	957173
REACTOR FEEDWATER PUMPS	10100	0	0	0	0	243249	253349
HIGH PRESSURE FEEDWATER PUMPS	20100	0	0	0	0	150887	171047
OTHER TG BLDG	0	0	0	0	0	6070236	6070236
REED WASTE BLDG	0	0	0	0	0	2959798	2999798
REACTOR BLDG	0	64000	0	0	0	373990	437990
TG BLDG	0	38000	0	0	0	252469	290469
RAD WASTE & CONTROL	0	38000	0	0	0	217899	255899
CONCENTRATOR BOTTOMS	0	225000	0	0	0	44239	269239
OTHER	0	42000	0	0	0	1015344	1057344
TOTAL BWR	550069	744000	0	16071630	0	23692955	41059454

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SEE INSTRUCTIONS ON THE REVERSE		4. DATE REPORT COMPLETED <table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">MONTH</td> <td style="text-align: center;">YEAR</td> </tr> <tr> <td style="text-align: center;">July</td> <td style="text-align: center;">1988</td> </tr> </table>	MONTH	YEAR	July	1988
MONTH	YEAR					
July	1988					
2. TITLE AND SUBTITLE Report on Waste Burial Charges Escalation of Decommissioning Waste Disposal Costs at Low- Level Waste Burial Facilities		5. DATE REPORT ISSUED <table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">MONTH</td> <td style="text-align: center;">YEAR</td> </tr> <tr> <td style="text-align: center;">July</td> <td style="text-align: center;">1988</td> </tr> </table>	MONTH	YEAR	July	1988
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13. ABSTRACT (200 words or less) <p>One of the requirements placed upon nuclear power reactor licensees by the U.S. Nuclear Regulatory Commission (NRC) is for the licensees to periodically adjust the estimate of the cost of decommissioning their plant, in dollars of the current year, as part of the process to provide reasonable assurance that adequate funds for decommissioning will be available when needed. This report, which is scheduled to be revised annually, contains the development of a formula for escalating decommissioning cost estimates that is acceptable to the NRC, and contains values for the escalation of radioactive waste burial costs, by site and by year. The licensees may use the formula, the coefficients, and the burial escalation factors from this report in their escalation analysis, or may use an escalation rate at least equal to the escalation approach presented herein.</p>						
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REPORT OF WASTE BURIAL CHARGES

JULY 1988