

NUREG-1307
Revision 2

Report on Waste Burial Charges

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

U.S. Nuclear Regulatory Commission

Office of Nuclear Regulatory Research



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NUREG-1307
Revision 2
1D, 1S

Report on Waste Burial Charges

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

Manuscript Completed: April 1991
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Division of Regulatory Applications
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 plants, 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. The sources of information to be used in the escalation formula are identified, and the values developed for the escalation of radioactive waste burial costs, by site and by year, are given. The licensees may use the formula, the coefficients, and the burial escalation factors from this report in their escalation analyses, or they may use an escalation rate at least equal to the escalation approach presented herein.

This second revision of NUREG-1307 contains corrected spreadsheets on the disposal costs for the reference PWR and the reference BWR and the ratios of disposal costs at the Washington, Nevada, and South Carolina sites for the years 1986 and 1988, superseding the values given in the October 1989 issue of this report. In addition, spreadsheets on the disposal costs for the reference reactors and ratios of disposal costs at the three burial sites for the year 1991 are provided.

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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 plants, 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. The sources of information to be used in the escalation formula are identified, and the values developed for the escalation of radioactive waste burial costs, by site and by year, are given in this report. The licensees may use the formula, the coefficients, and the burial escalation factors from this report in their escalation analyses, or they may use an escalation rate at least equal to the escalation approach presented herein.

The formula and its coefficients, together with guidance to the appropriate sources of data, 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 1991 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

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

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 (see Chapter 3).

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

YEAR	Values of B_x (PWR/BWR)		
	WASHINGTON	NEVADA	SG. CAROLINA
1986	1.000/1.000	0.857/0.898	1.678/1.561
1988 ^(a)	1.223/1.093	1.193/1.175	2.007/1.814
1991 ^(b)	1.326/1.178	1.334/1.288	2.494/2.331

- (a) 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 [i.e., with all values normalized to the Washington (PWR/BWR) values], as delineated in Reference 3.
- (b) The 1991 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⁽⁴⁾ and a reference BWR⁽⁵⁾ 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:

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

where A, B, and C are the fractions of the total 1986 \$ cost that are attributable to labor (0.65), energy (0.13), and burial (0.22), respectively, and sum to 1.0. Evaluation of these factors for the 1986 \$ cost is 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, as outlined in Sections 3.1 and 3.2. Thus, the licensee can evaluate these parameters appropriately for his particular site. Evaluation of B_x is provided to the licensees via this report, as described in Section 3.3.

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 the reference 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 Addenda 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 \$</u> <u>(millions)</u>	<u>Coefficient</u>	<u>1986 \$</u> <u>(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)		3.14 (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	<u>0.14</u> (a)		<u>0.14</u> (c)	
Subtotal	66.67	A = 0.64	86.95	A = 0.66
Energy	8.31 (a)		8.84 (c)	
Transportation	<u>6.08</u> (b)		<u>7.54</u> (d)	
Subtotal	14.39	B = 0.14	16.38	B = 0.12
Burial	22.48 (b)	C = 0.22	29.98 (d)	C = 0.22
Total	<u>103.5</u>		<u>133.31</u>	

Note: All costs include a 25% contingency
 (a) Based on Table 3.1, NUREG/CR-0130, Addendum 4.
 (b) Based on Table 6.2, NUREG/CR-0130, Addendum 4.
 (c) Based on Table 3.1, NUREG/CR-0672, Addendum 3.
 (d) Based on 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:

$$\bar{A} = 0.65 \qquad \bar{B} = 0.13 \qquad \bar{C} = 0.22$$

for both the PWR and BWR estimates.

3.1 LABOR ESCALATION FACTORS

The escalation factor for labor, L, can be obtained from "Monthly Labor Review," published by the U.S. Department of Labor, Bureau of Labor Statistics (BLS). Specifically, the appropriate regional data from the table (currently Table 25) entitled "Employment Cost Index, Private Nonfarm Workers," subtitled "Compensation," should be used. L should be escalated from a base value in Table 25 corresponding to the amounts in the decommissioning rule amendments that are in January 1986 dollars. The base values of L from the BLS data corresponding to January 1986 are 130.5, 127.7, 125.0, and 130.1, for the Northeast, South, Midwest, and West regions, respectively. For example, the value of L from the BLS data corresponding to December 1990 in the Northeast region is:

$$167.3 \text{ (the December 1990 value)} + 130.5 \text{ (the January 1986 value)} = 1.282.$$

This value of L could then be used in the equation for a plant in the Northeast region of the U.S.

3.2 ENERGY ESCALATION FACTORS

The escalation factor for energy, E, can be obtained from the "Producer Price Indexes," published by the U.S. Department of Labor, Bureau of Labor Statistics (BLS). Specifically, data from the table (currently Table 6) entitled "Producer Price Indexes for Commodity Groupings and Individual Items" (PPI) should be used. The energy term, E, in the equation is made up of two components, namely electric power, P, and fuel oil, F. Hence, E should be obtained from the BLS data by using the following equations: for the reference PWR, $[0.58P + 0.42F]$; and for the reference BWR, $[0.23P + 0.77F]$. These equations are derived from Table 6.3 of Reference 1 and Table 5.3 of Reference 2. P should be taken from appropriate regional data for industrial power (Commodity code 0543 in Table 6) and F should be taken from data for light fuel oils (Commodity code 0573 in Table 6). As discussed for L in Section 3.1 above, P and F should be escalated from a base value in the BLS table corresponding to the amounts in the decommissioning rule amendments that are in January 1986 dollars. The base values of P from the BLS data corresponding to January 1986 are 105.8, 111.9, 115.3, 115.65, 119.3, 117.4, 111.4, 119.3, and 112.2 for the following regions, respectively: New England, Mid-Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific. The base value of F for January 1986 is 82 (no regional BLS data for PPI is available). Thus, for example, the value of P for December 1990 (the latest data available) in the New England region is:

$$113.0 \text{ (the December 1990 value)} + 105.8 \text{ (the January 1986 value)} = 1.068.$$

Similarly, the value of F for January 1991 is $84.6 + 82$ (the January 1986 value) = 1.032. Thus, the value of E for this example for the reference PWR is:

$$E = [0.58 \times 1.068 + 0.42 \times 1.032] = 1.053.$$

3.3 WASTE BURIAL ESCALATION FACTORS

The escalation factor for waste burial, B_x , can be taken directly from data on the appropriate burial location as given in Table 2.1 of this report. For example, the value of B_x (PWR) in January 1991 for the South Carolina burial site is $2.494 \times 1.0 = 2.494$. This value of B_x could then be used in the equation for a PWR station.

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) Report on Waste Burial Charges - Escalation of Decommissioning Waste Disposal Costs at Low-Level Waste Burial Facilities. NUREG-1307 Revision 1, U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, Washington, D.C., October 1989.
- (4) 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.
- (5) 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 1991. These schedules are used in the calculations contained in Appendix B to develop the waste burial escalation factor, B_x , for the year 1991.

US ECOLOGY
 WASHINGTON NUCLEAR CENTER
 SCHEDULE OF CHARGES
 RADIOACTIVE WASTE

USEcology

an American Ecology company

EFFECTIVE: July 1, 1990

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	\$32.11
0.201 - 1.00	33.74
1.01 - 2.00	34.99
2.01 - 5.00	36.35
5.01 - 10.00	39.87
10.01 - 20.00	43.40
20.01 - 40.00	48.83
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	\$32.11
0.201 - 1.00	210.00	32.11
1.01 - 2.00	478.00	32.11
2.01 - 5.00	811.00	32.11
5.01 - 10.00	1,294.00	32.11
10.01 - 20.00	1,700.00	32.11
20.01 - 40.00	1,943.00	32.11
Over 40.00	By Request	By Request

B. LIQUID WASTES

- 1. Aqueous liquids in vials, less than 50 ml. each \$39.65/cu.ft.
- 2. Aqueous liquids, absorbed \$32.11/cu.ft.

C. BIOLOGICAL WASTE, ANIMAL CARCASSES

\$34.13/cu.ft.

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2. SURCHARGE FOR HEAVY OBJECTS:
- | | |
|---------------------------------------------|---------------------------------------------------------|
| Less than 10,000 pounds | No Charge |
| 10,000 pounds to Capacity of Site Equipment | \$235.00 plus 10¢ per lb. above 10,000 lbs. per package |
3. SURCHARGE FOR CURIES (Per Load)
- | | |
|----------------------|------------------------------------------------|
| Less than 100 curies | No Charge |
| 100 - 300 curies | \$1,700.00 plus 23¢/Ci above 100 Ci by request |
| 301 - License Limits | By Request |
4. SURCHARGE FOR SPECIAL NUCLEAR MATERIAL (SNM) (Greater Than 5 Grams Per Shipment) \$3.10 per gram of Special Nuclear Material by Isotope Weight
5. MINIMUM CHARGE PER SHIPMENT \$525.00
6. CASK HANDLING FEE: \$600.00 minimum each
7. WASTE CONTAINING CHELATING AGENTS IN AMOUNTS GREATER THAN 0.1% BY WEIGHT AFTER TREATMENT: By Request
8. SOLIDIPIED OILY WASTES REQUIRING SEGREGATION: By Request
9. SURCHARGE FOR NON-ROUTINE MAN-REM EXPOSURE (DUE TO DESIGN OR PHYSICAL DEFECT OF CONTAINER OR SHIELD) \$32.00 per man millirem
10. DECONTAMINATION SERVICES (If Required) \$100.00 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 July 1, 1990
Washington Nuclear Center

US ECOLOGY
 NEVADA NUCLEAR CENTER
 SCHEDULE OF CHARGES
 RADIOACTIVE WASTE

USEcology

an American Ecology company

EFFECTIVE: August 1, 1990

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	\$32.11
0.201 - 1.00	32.85
1.01 - 2.00	34.35
2.01 - 5.00	35.25
5.01 - 10.00	39.75
10.01 - 20.00	47.60
20.01 - 40.00	55.00
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	\$32.11
0.201 - 1.00	125.00	32.11
1.01 - 2.00	201.60	32.11
2.01 - 5.00	282.60	32.11
5.01 - 10.00	687.60	32.11
10.01 - 20.00	1,394.10	32.11
20.01 - 40.00	2,060.10	32.11
Over 40.00	By Request	By Request

- B. BIOLOGICAL WASTE, ANIMAL CARCASSES \$33.87/cu.ft.
- C. ABSORBED AQUEOUS LIQUIDS \$32.11/cu.ft.
- D. ABSORBED AQUEOUS VIALS \$32.11/cu.ft.

CONTINUED

(CONTINUED FROM PREVIOUS PAGE)

2. SURCHARGE FOR HEAVY OBJECTS:
Less than 10,000 pounds No Charge
10,000 pounds to Capacity of Site Equipment \$214.00 plus \$.10 per lb.
above 10,000 lbs.
3. SURCHARGE FOR CURIES (Per Load)
Less than 100 curies No Charge
100 - 300 curies \$1,554.00 plus 20¢/Ci above 100 Ci
301 - License Limits 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. RADIUM SEALED SOURCES By Request
8. SURCHARGE FOR NON-ROUTINE MAN-REM EXPOSURE
(DUE TO DESIGN OR PHYSICAL DEFECT OF
CONTAINER OR SHIELD) \$29.50 per man millirem
9. DECONTAMINATION SERVICES (If Required) \$106.20 per man hour plus
supplies at cost plus 15%
10. CONTAINER VOLUMES:
55 Gallon Drums - 7.50 cu. ft.
30 Gallon Drums - 4.01 cu. ft.
5 Gallon Drums - 0.67 cu. ft.
11. 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.
12. This Schedule of Charges does not constitute an offer of contract which
is capable of being accepted by any party and is subject to charge solely
upon notice by US Ecology.

Effective August 1, 1990
Nevada Nuclear Center



CHEM-NUCLEAR SYSTEMS, INC.

140 Stoneridge Drive • Columbia, South Carolina 29210

BARNWELL LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT FACILITY RATE SCHEDULE

Effective January 1, 1991

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, Chem-Nuclear's Nuclear Regulatory Commission and South Carolina Radioactive Material Licenses, Chem-Nuclear's Barnwell Site Disposal Criteria, and amendments thereto.

1. BASE DISPOSAL CHARGES:

A. Standard Waste	\$41.03/ft ³
B. Biological Waste	\$42.88/ft ³
C. Special Nuclear Material (SNM)	\$41.03/ft ³

Note 1: Minimum charge per shipment, excluding Surcharges and specific other charges is \$1,000.

Note 2: Base Disposal Charge includes:

Extended Care Fund	\$2.80 per ft ³
South Carolina Low-Level Radioactive Waste Disposal Tax	\$6.00 per ft ³
Southeast Regional Compact Fee	\$.66 per ft ³

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.	\$ 585.00
5,001 - 10,000 lbs.	\$1,040.00
10,001 - 20,000 lbs.	\$1,465.00
20,001 - 30,000 lbs.	\$1,885.00
30,001 - 40,000 lbs.	\$2,770.00
40,001 - 50,000 lbs.	\$3,640.00
>50,000 lbs.	By Special Request

B. Curie Surcharges For Shielded Shipment:

<u>Curie Content Per Shipment</u>	<u>Surcharge Per Shipment</u>
0 - 5	\$ 3,615.00
> 5 - 15	\$ 4,095.00
> 15 - 25	\$ 5,420.00
> 25 - 50	\$ 8,180.00
> 50 - 75	\$ 9,965.00
> 75 - 100	\$13,500.00
> 100 - 150	\$16,200.00
> 150 - 250	\$21,700.00
> 250 - 500	\$27,200.00
> 500 - 1,000	\$32,500.00
>1,000	By Special Request

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. Class B/C Waste Polyethylene High Integrity Container Surcharge

<u>Type of HIC</u>	<u>Surcharge Per HIC</u>
(1) Large liners with maximum dimension of 82" diameter and 79" height	\$6,500.00
(2) Overpacks with maximum dimension of 33" diameter and 79" height	\$2,150.00
(3) 55-gallon drum size with maximum dimension of 25.5" diameter and 36" height	\$550.00
(4) Poly HICs which do not conform to one of the above three categories require prior approval. Upon Request	

E. Cask Handling Surcharge \$1,560.00 per cask, minimum

F. Special Nuclear Material Surcharge \$6.85 per gram

G. Barnwell Surcharge 2.4%

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

3. 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): \$130.00 per man-hour plus supplies at current Chem-Nuclear 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.
- 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 \$11,000.00 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 the reference BWR are performed using a detailed spreadsheet. The spreadsheet evaluates the burial costs for each of the items originally costed in the reference PWR⁽⁴⁾ and BWR⁽⁵⁾ 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 reference BWR, which are also normalized to the value for the Washington site. Thus, as shown in Table 2.1 of the summary, 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, $B_x = 0.857/0.898$, and for the South Carolina site, $B_x = 1.678/1.561$.

The spreadsheet calculations, which are too voluminous to present here, are summarized in Tables B.1 through B.9, for the years 1986,⁽³⁾ 1988,⁽³⁾ and 1991 and for each of the three sites. Recalculation of the costs in 1991 dollars for burial is based on the same inventory of radioactive wastes as was postulated in the 1986 and 1978-80 analyses. Subsequently, starting in 1988, the inventories also include post-TMI-2 contributions from the reference PWR⁽¹⁾ and the reference BWR.⁽²⁾ Using the price schedules in effect for 1991 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 1991 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)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	28864	27284	56544	188224	94628	313536
VESSEL HEAD & BOTTOM	0	28720	0	0	99600	128320
UPPER CORE SUPPORT ASSM	0	2872	0	5154	9960	17980
UPPER SUPPORT COLUMN	0	2872	0	5154	9960	17980
UPPER CORE BARREL	0	1438	2981	8351	4980	15748
UPPER CORE GRID PLATE	0	3598	11898	15878	12458	43816
GUIDE TUBES	0	4388	0	5345	14948	24593
LOWER CORE BARREL	0	22978	155998	181617	79688	388278
THERMAL SHIELDS	0	4388	31173	19853	14948	89474
CORE SHROUD	0	2872	867474	12782	9960	693888
LOWER GRID PLATE	0	3598	187777	15878	12458	132694
LOWER SUPPORT COLUMN	0	718	3888	3178	2498	9478
LOWER CORE FORGING	0	7898	15772	34931	27398	85991
MISC INTERNALS	0	5744	11583	25484	19928	62571
BIO SHIELD CONCRETE	0	0	0	0	821584	821584
REACTOR CAVITY LINER	0	0	0	0	12749	12749
REACTOR COOLANT PUMPS	65532	0	0	0	184588	178112
PRESSURIZER	13854	0	0	0	89648	182694
R. Hx, EHx, SUMP PUMP, CAVITY PUMP	0	0	0	0	9960	9960
PRESSURIZER RELIEF TANK	1189	0	0	0	29888	38989
SAFETY INJECTION ACCUM TANKS	24154	0	0	0	99688	123754
STEAM GENERATORS	249417	0	0	0	531914	781331
REACTOR COOLANT PIPING	18568	0	0	0	82178	98738
REMAINING CONTAM. MATLS	0	0	0	0	1389939	1389939
CONTAMINATED MATR. OTHR BLD	0	0	0	0	11879848	11879848
FILTER CARTRIDGES	0	4388	9322	28863	7844	48137
SPENT RESINS	0	14388	35889	55987	49888	155958
COMBUSTIBLE WASTES	0	43888	0	0	252113	295193
EVAPORATOR BOTTOMS	0	67492	0	84931	234866	368483
TOTAL PWR	398691	248428	1188617	584368	15728932	17988834

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

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	20104	21361	119000	8790	169255
FUEL SUPPORT & PIECES	0	10052	0	39135	4407	53594
CONTROL RODS/INCORES	0	5744	47074	320000	13197	300015
CONTROL RODS GUIDES	0	8616	0	19730	3511	31066
JET PUMPS	0	20720	31700	670000	12320	742756
TOP FUEL GUIDES	0	51690	100101	1200000	21115	1305003
CORE SUPPORT PLATE	0	22250	0	50990	9600	62934
CORE SHROUD	0	100520	1392304	1705000	41334	3319210
REACTOR VESSEL WALL	10900	15790	0	30100	7047	75990
SAC SHIELD	40500	0	0	0	79132	127092
REACT. WATER REC	35071	0	0	0	77309	113201
SAC SHIELD	137901	0	0	0	272005	410507
OTHER PRIMARY CONTAINMENT	0	0	0	0	3109203	3109203
CONTAINM. ATMOSPHERIC	009	0	0	0	42200	43004
HIGH PRESSURE CORE SPRAY	4409	0	0	0	14940	19429
LOW PRESSURE CORE SPRAY	1394	0	0	0	8700	10184
REACTOR BLDG CLOSED COOLING	2003	0	0	0	20137	30020
REACTOR CORE ISO COOLING	004	0	0	0	11429	12123
RESIDUAL HEAT REMOVAL	12700	0	0	0	54531	67291
POOL LINES & RACKS	51514	0	0	0	305030	300544
CONTAMINATED CONCRETE	9509	0	0	0	301642	391151
OTHER REACTOR BUILDING	0	0	0	0	1247739	1247739
TURBINE	117072	0	0	0	1230335	1363400
NUCLEAR STEAM CONDEMSATE	10432	0	0	0	319193	337025
LOW PRESSURE FEEDWATER HEATERS	139000	0	0	0	640047	787907
MAIN STEAM	4003	0	0	0	02449	07132
MOISTURE SEPARATOR REHEATERS	05052	0	0	0	020725	714377
REACTOR FEEDWATER PUMPS	0943	0	0	0	170590	179533
HIGH PRESSURE FEEDWATER PUMPS	27554	0	0	0	100390	133952
OTHER TQ BLDG	0	0	0	0	4270040	4270040
RAD WASTE BLDG	0	0	0	0	2114702	2114702
REACTOR BLDG	0	45952	0	0	272059	310011
TQ BLDG	0	30100	0	0	104190	214354
RAD WASTE & CONTROL	0	27204	0	0	100975	100250
CONCENTRATOR BOTTOMS	0	101500	0	153090	00250	075090
OTHER	0	43700	0	4911	151090	200590
TOTAL BWR	735000	572240	1590700	4404000	10009704	23901094

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

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	29871	45800	62710	119320	112400	369781
VESSEL HEAD & BOTTOM	0	22000	0	0	118400	140400
UPPER CORE SUPPORT ASSM	0	2200	0	4770	11840	18810
UPPER SUPPORT COLUMN	0	2200	0	4770	11840	18810
UPPER CORE BARREL	0	2400	3300	7500	5920	19180
UPPER CORE GRID PLATE	0	8000	12295	18900	14800	51995
GUIDE TUBES	0	3300	0	4482	17700	25542
LOWER CORE BARREL	0	39400	172590	128960	94720	426679
THERMAL SHIELDS	0	7200	34488	22000	17700	82120
CORE SHROUD	0	4000	730079	15120	11840	769039
LOWER GRID PLATE	0	6000	119170	18900	14800	158870
LOWER SUPPORT COLUMN	0	1200	3417	3700	2900	11767
LOWER CORE FORGING	0	13200	17495	41500	32500	104035
MISC INTERNALS	0	9600	12759	30240	23600	76270
BIO SHIELD CONCRETE	0	0	0	0	738810	738810
REACTOR CAVITY LINER	0	0	0	0	15155	15155
REACTOR COOLANT PUMPS	154000	0	0	0	124320	279120
PRESSURIZER	13224	0	0	0	106500	119704
R. Hx, EHx, SLUMP PUMP, CAVITY PUMP	0	0	0	0	11840	11840
PRESSURIZER RELIEF TANK	1151	0	0	0	35520	36671
SAFETY INJECTION ACCUM TANKS	24324	0	0	0	118400	142724
STEAM GENERATORS	547200	0	0	0	832015	1179615
REACTOR COOLANT PIPING	18700	0	0	0	97600	114300
REMAINING CONTAM. MATLS	0	0	0	0	1557197	1557197
CONTAMINATED MATRL DTHR BLD	0	0	0	0	14122219	14122219
FILTER CARTRIDGES	0	3300	10350	10522	9324	41404
SPENT RESINS	0	24000	39700	49000	59200	172700
COMBUSTIBLE WASTES	0	33000	0	0	299700	332700
EVAPORATOR BOTTOMS	0	51700	0	83400	278240	393420
POST TMI-2 ADDITIONS	0	0	0	0	480605	480605
TOTAL PWR	787879	276100	1226444	544872	19150611	21993005

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

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIF	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	33600	20089	100000	10449	248618
FUEL SUPPORT & PIECES	0	18000	0	43000	5239	65999
CONTROL RODS/INCORES	0	9000	52074	132720	15000	210002
CONTROL RODS GUIDES	0	8000	0	18792	4174	29500
JET PUMPS	0	48000	25100	405000	14052	503412
TOP FUEL GUIDES	0	80400	117776	730000	25101	959357
CORE SUPPORT PLATE	0	17950	0	48546	11514	77110
CORE SHROUD	0	180000	1539720	1419000	49130	3170450
REACTOR VESSEL WALL	17435	12100	0	34452	8377	72304
SAC SHIELD	48057	0	0	0	94009	142926
REACT. WATER REC	79300	0	0	0	91997	171297
SAC SHIELD	138700	0	0	0	324001	402049
OTHER PRIMARY CONTAINMENT	0	0	0	0	3090152	3090152
CONTAINM. ATMOSPHERIC	931	0	0	0	50172	61103
HIGH PRESSURE CORE SPRAY	4531	0	0	0	17700	22291
LOW PRESSURE CORE SPRAY	1410	0	0	0	10449	11004
REACTOR BLDG CLOSED COOLING	2747	0	0	0	33440	30195
REACTOR CORE ISO COOLING	710	0	0	0	13500	14302
RESIDUAL HEAT REMOVAL	12909	0	0	0	04824	77733
POOL LINES & RACKS	51833	0	0	0	390200	450101
CONTAMINATED CONCRETE	9048	0	0	0	453079	463529
OTHER REACTOR BUILDING	0	0	0	0	1483250	1483250
TURBINE	120303	0	0	0	140000	150000
NUCLEAR STEAM CONDENSATE	10007	0	0	0	379442	390129
LOW PRESSURE FEEDWATER HEATERS	140751	0	0	0	770370	911121
MAIN STEAM	4747	0	0	0	74237	70903
MOISTURE SEPARATOR REHEATERS	80204	0	0	0	747400	833004
REACTOR FEEDWATER PUMPS	9155	0	0	0	202790	211945
HIGH PRESSURE FEEDWATER PUMPS	27724	0	0	0	120401	154205
OTHER TO BLDG	0	0	0	0	5070992	5070992
RAD WASTE BLDG	0	0	0	0	2513950	2513950
REACTOR BLDG	0	35200	0	0	322004	357004
TO BLDG	0	27000	0	0	217372	240472
RAD WASTE & CONTROL	0	20000	0	0	187007	200507
CONCENTRATOR BOTTOMS	0	123750	0	150370	600000	940120
OTHER	0	33550	0	3677	100500	217707
POST TWI-2 ADDITIONS	0	0	0	0	37051	37051
TOTAL BWR	784001	634000	1700419	3100000	19049272	28205907

TABLE B.3 BURIAL COSTS AT THE WASHINGTON SITE
REFERENCE PWR (1991 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	30411	49700	87902	129200	122010	399302
VESSEL HEAD & BOTTOM	0	24000	0	0	120440	152440
UPPER CORE SUPPORT ASSM	0	2400	0	5170	12044	20420
UPPER SUPPORT COLUMN	0	2400	0	5170	12044	20420
UPPER CORE BARREL	0	2620	3504	8200	0422	20620
UPPER CORE GRID PLATE	0	6550	13374	20500	10055	50479
GUIDE TUBES	0	3600	0	4000	19200	27732
LOWER CORE BARREL	0	41020	100440	131200	102752	404320
THERMAL SHIELDS	0	7000	37002	24000	19200	09300
CORE SHROUD	0	5240	007240	10400	12044	041732
LOWER GRID PLATE	0	6550	130344	20500	10055	173440
LOWER SUPPORT COLUMN	0	1310	3724	4100	3211	12340
LOWER CORE FORGING	0	14410	10950	45100	35321	113700
MISC INTERNALS	0	10400	13020	32000	25000	02794
BIO SHIELD CONCRETE	0	0	0	0	001400	001400
REACTOR CAVITY LINER	0	0	0	0	10440	10440
REACTOR COOLANT PUMPS	100000	0	0	0	134002	302002
PRESSURIZER	13300	0	0	0	115000	120000
R. Hx, EHx, SUMP PUMP, CAVITY PUMP	0	0	0	0	12044	12044
PRESSURIZER RELIEF TANK	1100	0	0	0	30532	30722
SAFETY INJECTION ACCUM TANKS	24400	0	0	0	120440	152920
STEAM GENERATORS	502400	0	0	0	000934	1200334
REACTOR COOLANT PIPING	10045	0	0	0	100903	122000
REMAINING CONTAM. MATLS	0	0	0	0	1009243	1009243
CONTAMINATED MATRL OTHR BLD	0	0	0	0	15319745	15319745
FILTER CARTRIDGES	0	3000	11212	20070	10115	40002
SPENT RESINS	0	20200	43200	54000	04220	107020
COMBUSTIBLE WASTES	0	30000	0	0	320114	301114
EVAPORATOR BOTTOMS	0	50400	0	00050	301034	427004
POST TWI-2 ADDITIONS	0	0	0	0	499720	499720
TOTAL PWR	830700	301320	1339502	500744	20703101	23001433

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TABLE B.3 BURIAL COSTS AT THE WASHINGTON SITE (cont.)
REFERENCE BWR (1991 DOLLARS)

COMPONENT	CRANE SUPCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	36600	25607	190000	11335	269702
FUEL SUPPORT & PTECES	0	18340	0	47000	5683	71623
CONTROL RODS/INCORES	0	10400	50800	144000	17018	226384
CONTROL RODS GUIDES	0	7200	0	20400	4520	32128
JET PUMPS	0	52400	38140	440000	15094	546434
TOP FUEL GUIDES	0	94320	127666	792000	27229	1041215
CORE SUPPORT PLATE	0	18600	0	52700	12491	63791
CORE SHROUD	0	183400	1083700	1540000	53303	3460463
REACTOR VESSEL WALL	17004	13200	0	37400	9007	77551
SAC SHIELD	49130	0	0	0	102046	151170
REACT. WATER REC	84000	0	0	0	99790	184598
SAC SHIELD	139520	0	0	0	351540	491009
OTHER PRIMARY CONTAINMENT	0	0	0	0	4009578	4009578
CONTAINM. ATMOSPHERIC	070	0	0	0	54426	55396
HIGH PRESSURE CORE SPRAY	4570	0	0	0	19266	23030
LOW PRESSURE CORE SPRAY	1435	0	0	0	11335	12770
REACTOR BLDG CLOSED COOLING	2005	0	0	0	36264	39009
REACTOR CORE ISO COOLING	735	0	0	0	14730	15473
RESIDUAL HEAT REMOVAL	13045	0	0	0	70321	83366
POOL LINES & RACKS	52125	0	0	0	432040	484165
CONTAMINATED CONCRETE	10100	0	0	0	492150	502310
OTHER REACTOR BUILDING	0	0	0	0	1609032	1609032
TURBINE	129433	0	0	0	1594326	1723759
NUCLEAR STEAM CONDENSATE	10920	0	0	0	411618	430536
LOW PRESSURE FEEDWATER HEATERS	141509	0	0	0	835695	977264
MAIN STEAM	4005	0	0	0	80532	85337
MOISTURE SEPARATOR REHEATERS	86710	0	0	0	810770	897480
REACTOR FEEDWATER PUMPS	9350	0	0	0	219906	229336
HIGH PRESSURE FEEDWATER PUMPS	27000	0	0	0	137200	165000
OTHER TG BLDG	0	0	0	0	5507507	5507507
RAD WASTE BLDG	0	0	0	0	2727134	2727134
REACTOR BLDG	0	36400	0	0	322664	361004
TG BLDG	0	25200	0	0	217372	242572
RAD WASTE & CONTROL	0	22000	0	0	107007	210407
CONCENTRATOR BOTTOMS	0	135000	0	183000	666000	964000
OTHER	0	30000	0	3900	180500	221150
POST TWI-2 ADDITIONS	0	0	0	0	40044	40044
TOTAL BWR	796036	692620	1932159	3437170	21300949	28256733

TABLE B.4 BURIAL COSTS AT THE NEVADA SITE
REFERENCE PWR (1986 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	29813	30172	81813	127378	78318	327887
VESSEL HEAD & BOTTOM	0	31788	0	0	82448	114288
UPPER CORE SUPPORT ASSM	0	3178	0	5441	8244	16881
UPPER SUPPORT COLUMN	0	3178	0	5441	8244	16881
UPPER CORE BARREL	0	1588	3243	8784	4122	15882
UPPER CORE GRID PLATE	0	3978	11958	16759	18385	42992
GUIDE TUBES	0	4784	0	5648	12368	22778
LOWER CORE BARREL	0	25488	185971	187259	86952	364598
THERMAL SHIELDS	0	4784	33144	28111	12368	78385
CORE SHROUD	0	2178	785985	13487	8244	738793
LOWER GRID PLATE	0	3978	114888	16759	18385	145834
LOWER SUPPORT COLUMN	0	794	3384	3352	2881	9611
LOWER CORE FORGING	0	8734	17288	38878	22671	85484
MISC INTERNALS	0	8352	12549	28815	16488	82284
BIO SHIELD CONCRETE	0	0	0	0	514428	514428
REACTOR CAVITY LINER	0	0	0	0	18552	18552
REACTOR COOLANT PUMPS	85788	0	0	0	65582	152338
PRESSURIZER	13212	0	0	0	74198	87488
R. Hx, EHx, SUMP PUMP, CAVITY PUMP	0	0	0	0	8244	8244
PRESSURIZER RELIEF TANK	1143	0	0	0	24732	25888
SAFETY INJECTION ACCUM. TANKS	24312	0	0	0	82448	188752
STEAM GENERATORS	258848	0	0	0	448271	898319
REACTOR COOLANT PIPING	18698	0	0	0	88813	84711
REMAINING CONTAM. MATLS	0	0	0	0	1884251	1884251
CONTAMINATED MATRL DTHR BLD	0	0	0	0	9833872	9833872
FILTER CARTRIDGES	0	4784	88144	28879	8492	48478
SPENT RESINS	0	11888	38888	59832	41228	155812
COMBUSTIBLE WASTES	0	4784	0	0	288678	258318
EVAPORATOR BOTTOMS	0	74838	0	88488	193734	338858
TOTAL PWR	488898	274724	1177984	547538	13819887	15428845

TABLE B.4 BURIAL COSTS AT THE NEVADA SITE (cont.)
REFERENCE BWR (1986 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	22232	23257	291200	7275	343964
FUEL SUPPORT & PIECES	0	11116	0	48926	3848	61690
CONTROL RODS/INCRESES	0	8352	49992	342400	18923	489867
CONTROL RODS GUIDES	0	9528	0	28829	2988	33263
JET PUMPS	0	31760	34480	880000	18282	756442
TOP FUEL GUIDES	0	57168	115747	1224000	17477	1414392
CORE SUPPORT PLATE	0	24614	0	53809	8017	86448
CORE SHROUD	0	111168	1473388	1792000	84213	3418733
REACTOR VESSEL WALL	17402	17468	0	35187	5833	78889
SAC SHIELD	48836	0	0	0	75499	114335
REACT. WATER REC	35970	0	0	0	64856	100926
SAC SHIELD	158730	0	0	0	275638	384369
OTHER PRIMARY CONTAINMENT	0	0	0	0	2573571	2573571
CONTAINM. ATMOSPHERIC	928	0	0	0	34934	35882
HIGH PRESSURE CORE SPRAY	4528	0	0	0	12366	16894
LOW PRESSURE CORE SPRAY	1414	0	0	0	7275	8889
REACTOR BLDG CLOSED COOLING	2742	0	0	0	23289	26031
REACTOR CORE ISO COOLING	714	0	0	0	9468	10174
RESIDUAL HEAT REMOVAL	12898	0	0	0	45138	58034
POOL LINES & RACKS	51810	0	0	0	277388	329118
CONTAMINATED CONCRETE	9624	0	0	0	315889	325713
OTHER REACTOR BUILDING	0	0	0	0	1832767	1832767
TURBINE	128215	0	0	0	1823328	1151543
NUCLEAR STEAM CONDENSATE	18888	0	0	0	264200	282868
LOW PRESSURE FEEDWATER HEATERS	148687	0	0	0	536398	677883
MAIN STEAM	4742	0	0	0	51698	68432
MOISTURE SEPARATOR REHEATERS	88164	0	0	0	528483	805587
REACTOR FEEDWATER PUMPS	9148	0	0	0	141199	158339
HIGH PRESSURE FEEDWATER PUMPS	27712	0	0	0	88887	115779
OTHER TG BLDG	0	0	0	0	3535027	3535027
RAD WASTE BLDG	0	0	0	0	1758428	1758428
REACTOR BLDG	0	58816	0	0	226461	277297
TG BLDG	0	33348	0	0	152890	188238
RAD WASTE & CONTROL	0	38172	0	0	131954	162128
CONCENTRATOR BOTTOMS	0	178858	0	182328	483725	804895
OTHER	0	48434	0	5183	125721	179318
TOTAL BWR	741128	832816	1896836	4656832	13799189	21528801

TABLE B.5 BURIAL COSTS AT THE NEVADA SITE
REFERENCE PWR (1988 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	29613	45600	61993	136800	187768	381775
VESSEL HEAD & BOTTOM	0	22000	0	0	113440	135440
UPPER CORE SUPPORT ASSM	0	4000	0	2750	11344	18094
UPPER SUPPORT COLUMN	0	4000	0	2750	11344	18094
UPPER CORE BARREL	0	2400	3200	8700	5672	20040
UPPER CORE GRID PLATE	0	6000	12000	21750	14100	53930
GUIDE TUBES	0	7200	0	1696	17016	25912
LOWER CORE BARREL	0	38400	166291	139200	99752	434543
THERMAL SHIELDS	0	7200	33204	26100	17016	83520
CORE SHROUD	0	4000	706575	17400	11344	740119
LOWER GRID PLATE	0	6000	114100	21750	14100	156030
LOWER SUPPORT COLUMN	0	1200	3314	4350	2836	11700
LOWER CORE FORGING	0	13200	17318	47850	31196	109564
MISC INTERNALS	0	9600	12629	34800	22688	79717
BIO SHIELD CONCRETE	0	0	0	0	707866	707866
REACTOR CAVITY LINER	0	0	0	0	14520	14520
REACTOR COOLANT PUMPS	163200	0	0	0	119112	282312
PRESSURIZER	13212	0	0	0	102096	115308
R. Hx, EHx, SUMP PUMP, CAVITY PUMP	0	0	0	0	11344	11344
PRESSURIZER RELIEF TANK	1148	0	0	0	34032	35180
SAFETY INJECTION ACCUM TANKS	108600	0	0	0	113440	222240
STEAM GENERATORS	569600	0	0	0	885826	1175426
REACTOR COOLANT PIPING	95200	0	0	0	93588	188788
REMAINING CONTAM. MATLS	0	0	0	0	1491963	1491963
CONTAMINATED MATRL OTHR BLD	0	0	0	0	13530613	13530613
FILTER CARTRIDGES	0	7200	10204	8467	8933	34804
SPENT RESINS	0	24000	39000	57400	56720	177200
COMBUSTIBLE WASTES	0	33000	0	0	287145	320145
EVAPORATOR BOTTOMS	0	112000	0	68765	266584	448149
POST TWI-2 ADDITIONS	0	0	0	0	441367	441367
TOTAL PWR	960773	350200	1179984	800529	18355925	21467411

TABLE B.5 BURIAL COSTS AT THE NEVADA SITE (cont.)
REFERENCE BWR (1988 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	33600	23397	267760	10011	274760
FUEL SUPPORT & PIECES	0	16800	0	50400	5020	72220
CONTROL RODS/INCORES	0	9600	50072	152640	15031	227343
CONTROL RODS GUIDES	0	14400	0	16729	3999	35120
JET PUMPS	0	48000	34600	466400	14030	563110
TOP FUEL GUIDES	0	86400	110467	839520	24049	1066430
CORE SUPPORT PLATE	0	37200	0	43217	11032	91449
CORE SHROUD	0	168000	1474766	1632400	47078	8322230
REACTOR VESSEL WALL	17402	26400	0	30670	8026	82490
SAC SHIELD	190400	0	0	0	90120	280520
REACT. WATER REC.	82000	0	0	0	80743	170943
SAC SHIELD	516000	0	0	0	310485	827235
OTHER PRIMARY CONTAINMENT	0	0	0	0	3541313	3541313
CONTAINM. ATMOSPHERIC	928	0	0	0	40070	40990
HIGH PRESSURE CORE SPRAY	27200	0	0	0	17010	44210
LOW PRESSURE CORE SPRAY	1414	0	0	0	10011	11425
REACTOR BLDG CLOSED COOLING	2742	0	0	0	32047	34789
REACTOR CORE ISO COOLING	714	0	0	0	13017	13731
RESIDUAL HEAT REMOVAL	95200	0	0	0	62100	157300
POOL LINES & RACKS	204000	0	0	0	381504	585504
CONTAMINATED CONCRETE	9824	0	0	0	434574	444490
OTHER REACTOR BUILDING	0	0	0	0	1421120	1421120
TURBINE	700000	0	0	0	1400131	2190931
NUCLEAR STEAM CONDENSATE	10660	0	0	0	363547	102215
LOW PRESSURE FEEDWATER HEATERS	571200	0	0	0	730097	1309297
MAIN STEAM	4742	0	0	0	71127	75069
MOISTURE SEPARATOR REHEATERS	353600	0	0	0	710090	1009090
REACTOR FEEDWATER PUMPS	9140	0	0	0	194294	203434
HIGH PRESSURE FEEDWATER PUMPS	100000	0	0	0	121182	229902
OTHER TG BLDG	0	0	0	0	4864307	4864307
RAD WASTE BLDG	0	0	0	0	2400543	2400543
REACTOR BLDG	0	35200	0	0	306194	341394
TG BLDG	0	23100	0	0	206702	229002
RAD WASTE & CONTROL	0	20900	0	0	178390	199290
CONCENTRATOR BOTTOMS	0	270000	0	162740	038100	1070040
OTHER	0	73200	0	2375	172996	240571
POST TWI-2 ADDITIONS	0	0	0	0	36074	36074
TOTAL BWR	3004375	862000	1099370	3604052	19011003	20183205

TABLE B.6 BURIAL COSTS AT THE NEVADA SITE
REFERENCE PWR (1991 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURSE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL MALL	29613	46600	81993	136800	122018	396025
VESSEL HEAD & BOTTOM	0	22800	0	0	128448	150448
UPPER CORE SUPPORT ASSM	0	4800	0	2750	12844	20394
UPPER SUPPORT COLUMN	0	4800	0	2750	12844	20,94
UPPER CORE BARREL	0	2400	3268	8700	6,22	20790
UPPER CORE GRID PLATE	0	8000	12000	21750	16055	55813
GUIDE TUBES	0	7200	0	1890	19266	28162
LOWER CORE BARREL	0	30400	106291	139200	102752	446643
THERMAL SHIELDS	0	7200	33204	26100	19266	86770
CORE SHROUD	0	4800	703575	17400	12844	741819
LOWER GRID PLATE	0	6000	114100	21750	16055	157905
LOWER SUPPORT COLUMN	0	1260	3314	4350	3211	12075
LOWER CORE FORGING	0	13200	17310	47850	35321	113689
MISC INTERNALS	0	9600	12629	34800	25688	82717
BIG SHIELD CONCRETE	0	0	0	0	801468	801468
REACTOR CAVITY LINER	0	0	0	0	16440	16740
REACTOR COOLANT PUMPS	184000	0	0	0	134062	319662
PRESSURIZER	13212	0	0	0	116590	128000
R. Hx, EHX, SUMP PUMP, CAVITY PUMP	0	0	0	0	12844	12844
PRESSURIZER RELIEF TANK	1148	0	0	0	38532	39680
SAFETY INJECTION ACCUM TANKS	123200	0	0	0	129440	251640
STEAM GENERATORS	827200	0	0	0	885934	1313134
REACTOR COOLANT PIPING	187800	0	0	0	185960	213760
REMAINING CONTAM. MATLS	0	0	0	0	1689243	1689243
CONTAMINATED WATK. OTHR BLD	0	0	0	0	15319745	15319745
FILTER CARTRIDGES	0	7200	10204	6767	10115	35985
SPENT RESINS	0	24000	39080	57400	64220	184700
COMBUSTIBLE WASTES	0	33000	0	0	325114	358114
EVAPORATOR BOTTOMS	0	112800	0	88765	301834	483390
POST TWI-2 ADDITIONS	0	0	0	0	499728	499728
TOTAL PWR	1086973	350200	1179964	600529	20783101	24000748

TABLE B.6 BURIAL COSTS AT THE NEVADA SITE (cont.)
REFERENCE BWR (1991 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	33600	23397	207760	11335	276092
FUEL SUPPORT & PIECES	0	16000	0	60400	6683	72883
CONTROL RODS/INCORES	0	9600	50072	152040	17010	229330
CONTROL RODS GUIDES	0	14400	0	10729	4528	35657
JET PUMPS	0	40000	34000	400400	15094	564974
TOP FUEL GUIDES	0	86400	110467	839520	27229	1009610
CORE SUPPORT PLATE	0	37200	0	43217	12491	92900
CORE SHROUD	0	160000	1474760	1032400	53303	3320463
REACTOR VESSEL WALL	17402	20400	0	30670	9007	83659
CIC SHIELD	216000	0	0	0	102040	317040
REACT. WATER REC	91000	0	0	0	99799	191690
SAC SHIELD	605200	0	0	0	351540	936740
OTHER PRIMARY CONTAINMENT	0	0	0	0	4009570	4009570
CONTAINM. ATMOSPHERIC	920	0	0	0	54420	55354
HIGH PRESSURE CORE SPRAY	30000	0	0	0	19200	50000
LOW PRESSURE CORE SPRAY	1411	0	0	0	11335	12740
REACTOR BLDG CLOSED COOLING	2742	0	0	0	36204	39020
REACTOR CORE ISO COOLING	714	0	0	0	14730	15452
RESIDUAL HEAT REMOVAL	107000	0	0	0	79321	170121
POOL LINES & RACKS	231000	0	0	0	432040	663040
CONTAMINATED CONCRETE	9024	0	0	0	492150	501974
OTHER REACTOR BUILDING	0	0	0	0	1009032	1009032
TURBINE	093200	0	0	0	1594320	2407520
NUCLEAR STEAM TRANSFERS	10600	0	0	0	411010	430200
LOW PRESSURE FEEDWATER HEATERS	640000	0	0	0	835695	1402495
MAIN STEAM	4742	0	0	0	80632	85274
MOISTURE SEPARATOR REHEATERS	400400	0	0	0	810770	1211170
REACTOR FEEDWATER PUMPS	9140	0	0	0	219900	229120
HIGH PRESSURE FEEDWATER PUMPS	123200	0	0	0	137200	200400
OTHER TG BLDG	0	0	0	0	5507507	5507507
RAD WASTE BLDG	0	0	0	0	2727134	1727134
REACTOR BLDG	0	35200	0	0	300194	341394
TG BLDG	0	23100	0	0	206702	229802
RAD WASTE & CONTROL	0	20000	0	0	170390	190290
CONCENTRATOR BOTTOMS	0	270000	0	102740	636100	1070040
OTHER	0	73200	0	2375	172990	240571
POST TWI-2 ADDITIONS	0	0	0	0	40044	40044
TOTAL BWR	3391375	862600	1699376	3004052	21327137	30005539

TABLE B.7 BURIAL COSTS AT THE SOUTH CAROLINA SITE
REFERENCE PWR (1986 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURTAGE	LINER DISE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	34500	26500	71400	0	106400	881900
VESSEL HEAD & BOTTOM	0	20000	0	0	112000	140000
UPPER CORE SUPPORT ASSM	0	2000	0	0	11200	14000
UPPER SUPPORT COLUMN	0	2000	0	0	11200	14000
UPPER CORE B-2REL	0	1400	37000	0	5000	44000
UPPER CORE GRID PLATE	0	3500	150000	0	14000	167500
OUTSIDE TUBES	0	4200	55100	0	16000	77100
LOWER CORE BARREL	0	27400	182400	0	89000	1036000
THERMAL SHIELDS	0	4200	300000	0	16000	381000
CORE SHROUD	0	2000	610000	0	11200	8114000
LOWER GRID PLATE	0	3500	1000000	0	14000	1017500
LOWER SUPPORT COLUMN	0	700	36500	0	2000	40000
LOWER CORE FORGING	0	7700	105000	0	30000	203500
MISC INTERNALS	0	5000	120000	0	27400	74000
BIO SHIELD CONCRETE	0	0	0	0	0	0
REACTOR CAVITY LINER	0	0	0	0	14335	14335
REACTOR COOLANT PUMPS	36040	0	0	0	117000	154440
PRESSURIZER	9000	0	0	0	100000	110400
R. Hx., EHx., SLUMP PUMP, CAVITY PUMP	0	0	0	0	11200	11200
PRESSURIZER RELIEF TANK	1820	0	0	0	30000	35420
SAFETY INJECTION ACCUM TANKS	14520	0	0	0	112000	126520
STEAM GENERATORS	134040	0	0	0	598130	732984
REACTOR COOLANT PIPING	12705	0	0	0	92400	105105
PAINTING COXTAM. MATLS	0	0	0	0	1470024	1470024
CONTAMINATED MATRL. OTHR BLD	0	0	0	0	13350056	13350056
FILTER CARTRIDGES	0	4200	135000	0	8020	14020
SPENT RESINS	0	14000	60000	0	50000	67000
COMBUSTIBLE WASTES	0	42000	0	0	203500	325500
EVAPORATOR BOTTOMS	0	65000	0	0	203500	329000
SUBTOTAL PWR COSTS	245001	242200	11290000	0	17607152	29472953
BARNWELL COUNTY BUSINESS TAX (2.4%)					707351	707351
TOTAL PWR COSTS					38750304	38750304

TABLE B.7 BURIAL COSTS AT THE SOUTH CAROLINA SITE (cont.)
REFERENCE BWR (1986 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	19600	629200	0	9884	558584
FUEL SUPPORT & PIECES	0	9800	315000	0	4555	329755
CONTROL RODS/INCORES	2440	5600	529600	0	14848	552400
CONTROL RODS GUIDES	0	4400	0	7	3946	12346
JET PUMPS	0	26800	450000	0	13660	491860
TOP FUEL GUIDES	0	58400	1353600	0	23772	1427772
CORE SUPPORT PLATE	0	21700	116250	0	18920	148870
CORE SHROUD	0	90000	13230000	0	46400	13374400
REACTOR VESSEL WALL	20020	15400	205700	0	7190	248310
SAC SHIELD	33600	0	0	0	100000	134500
REACT. WATER REC	19551	0	0	0	67000	105631
SAC SHIELD	91900	0	0	0	385000	396500
OTHER PRIMARY CONTAINMENT	0	0	0	0	3496304	3496304
CONTAINM. ATMOSPHERIC	1820	0	0	0	47432	49252
HIGH PRESSURE CORE SPRAY	3630	0	0	0	16000	20430
LOW PRESSURE CORE SPRAY	1210	0	0	0	9940	11150
REACTOR BLDG CLOSED COOLING	2730	0	0	0	31695	34425
REACTOR CORE COOLING	910	0	0	0	12800	13700
RESIDUAL HEAT REMOVAL	8470	0	0	0	61376	69846
POOL LINES & RACKS	36300	0	0	0	376584	412984
CONTAMINATED CONCRETE	14500	0	0	0	429100	443600
OTHER REACTOR BUILDING	0	0	0	0	1403276	1403276
TURBINE	70100	0	0	0	1350000	1460200
NUCLEAR STEAM CONDENSATE	74520	0	0	0	368932	373452
LOW PRESSURE FEEDWATER HEATERS	101040	0	0	0	726720	830360
MAIN STEAM	3630	0	0	0	70552	73882
MOISTURE SEPARATOR REHEATERS	62920	0	0	0	705000	709700
REACTOR FEEDWATER PUMPS	9100	0	0	0	192830	201930
HIGH PRESSURE FEEDWATER PUMPS	19360	0	0	0	119010	138970
OTHER TG BLDG	0	0	0	0	4812192	4812192
RAD WASTE BLDG	0	0	0	0	2376000	2376000
REACTOR BLDG	44000	44000	0	0	299000	344600
TG BLDG	26400	26400	0	0	202440	231040
RAD WASTE & CONTROL	26600	26600	0	0	174720	201320
CONCENTRATOR BOTTOMS	157500	157500	0	0	630000	787500
OTHER	42700	42700	0	0	170000	213500
SUBTOTAL BWR COSTS	618831	557940	1672550	0	18761124	36567205
BARNWELL COUNTY BUSINESS TAX (2.4%)						877573
TOTAL BWR COSTS						37436778

TABLE B.8 BURIAL COSTS AT THE SOUTH CAROLINA SITE
REFERENCE PWR (1988 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	38300	30000	714400	0	134216	924996
VESSEL HEAD & BOTTOM	0	40000	100000	0	141200	281200
UPPER CORE SUPPORT ASSM	0	4000	10000	0	14120	28120
UPPER SUPPORT COLUMN	0	4000	10000	0	14120	28120
UPPER CORE BARREL	0	2000	37500	0	7064	40064
UPPER CORE GRID PLATE	0	5000	150000	0	17000	172000
GUIDE TUBES	0	6000	50100	0	21192	83292
LOWER CORE BARREL	0	32000	1824000	0	113024	1909024
THERMAL SHIELDS	0	6000	30000	0	21192	387192
CORE SHROUD	0	4000	810000	0	14120	6118120
LOWER GRID PLATE	0	5000	1000000	0	17000	1022000
LOWER SUPPORT COLUMN	0	1000	30500	0	3632	41032
LOWER CORE FORGING	0	11000	105000	0	30052	214062
MISC INTERNALS	0	6000	120000	0	20258	150260
BIO SHIELD CONCRETE	0	0	0	0	801587	801587
REACTOR CAVITY LINER	0	0	0	0	10004	10004
REACTOR COOLANT PUMPS	30840	0	0	0	148344	185192
PRESSURIZER	10400	0	0	0	127152	137832
R. Hx, Ehx, SUMP PUMP, CAVITY PUMP	0	0	0	0	14120	14120
PRESSURIZER RELIEF TANK	2020	0	0	0	42304	44404
SAFETY INJECTION ACCUM TANKS	16522	0	0	0	141200	150000
STEAM GENERATORS	134040	0	0	0	754500	809354
REACTOR COOLANT PIPING	13405	0	0	0	116550	120901
REMAINING CONTAM. MATLS	0	0	0	0	1050115	1050115
CONTAMINATED MATL BTHR BLD	0	0	0	0	10051243	10051243
FILTER CARTRIDGES	0	6000	135000	0	11120	152120
SPENT RESINS	0	20000	600000	0	70040	800040
COMBUSTIBLE WASTES	0	60000	150000	0	357015	507015
EVAPORATOR BOTTOMS	0	94000	235000	0	332000	661000
POST TWI-2 ADDITIONS	0	0	0	0	549085	549085
SUBTOTAL PWR COSTS	251301	340000	11003000	0	22000704	35201000
BARNWELL COUNTY BUSINESS TAX (2.4%)						840200
TOTAL PWR COSTS						36107945

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TABLE B.8 BURIAL COSTS AT THE SOUTH CAROLINA SITE (cont.)
REFERENCE BWR (1988 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	20000	529200	0	12400	609000
FUEL SUPPORT & PIECES	0	14000	315000	0	8252	352252
CONTROL RODS/IMCORES	3240	0000	529000	0	18720	559500
CONTROL RODS GUIDES	0	12000	30000	0	900	49000
JET PUMPS	0	40000	450000	0	12180	507480
TOP FUEL GUIDES	0	72000	1353000	0	2,007	1455587
CORE SUPPORT PLATE	0	31000	118250	0	,3775	181025
CORE SHROUD	0	140000	13230000	0	58031	13428031
REACTOR VESSEL WALL	22220	22000	225700	0	0077	250907
SAC SHIELD	35200	0	0	0	127011	182291
REACT. WATER REC	19551	0	0	0	100845	129395
SAC SHIELD	95700	0	0	0	105754	482514
OTHER PRIMARY CONTAINMENT	0	0	0	0	1,0330	4410330
CONTAINM. ATMOSPHERIC	2020	0	0	0	50032	61052
HIGH PRESSURE CORE SPRAY	3030	0	0	0	21192	25022
LOW PRESSURE CORE SPRAY	1310	0	0	0	12539	13049
REACTOR BLDG CLOSED COOLING	3030	0	0	0	39982	43012
REACTOR CORE COOLING	1010	0	0	0	18247	17257
RESIDUAL HEAT REMOVAL	9170	0	0	0	77421	86591
POOL LINES & RACKS	37000	0	0	0	475100	512900
CONTAMINATED CONCRETE	16100	0	0	0	541270	557430
OTHER REACTOR BUILDING	0	0	0	0	1770132	1770132
TURBINE	75000	0	0	0	1753461	1829441
NUCLEAR STEAM CONDENSATE	15720	0	0	0	452787	480487
LOW PRESSURE FEEDWATER HEATERS	105040	0	0	0	919230	1025070
MAIN STEAM	3030	0	0	0	80010	92540
MOISTURE SEPARATOR REHEATERS	85520	0	0	0	891650	957170
REACTOR FEEDWATER PUMPS	18100	0	0	0	243249	253349
HIGH PRESSURE FEEDWATER PUMPS	20100	0	0	0	150087	171047
OTHER TG BLDG	0	0	0	0	8070230	8070230
RAD WASTE BLDG	0	0	0	0	2999790	2999790
REACTOR BLDG	0	64000	100000	0	290000	520000
TG BLDG	0	42000	105000	0	202440	340440
RAD WASTE & CONTROL	0	30000	95000	0	174720	307720
CONCENTRATOR BOTTOMS	0	225000	502500	0	530000	1417500
OTHER	0	01000	152500	0	170000	304300
POST TWI-2 ADDITIONS	0	0	0	0	44927	44927
SUBTOTAL BWR COSTS	547831	797000	17834350	0	23311701	42400782
BARNWELL COUNTY BUSINESS TAX (2.4%)						1019770
TOTAL BWR COSTS						43510550

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TABLE B.9 BURIAL COSTS AT THE SOUTH CAROLINA SITE
REFERENCE PWR (1991 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	55670	59200	1033600	0	155914	1304404
VESSEL HEAD & BOTTOM	0	82400	144600	0	164120	371120
UPPER CORE SUPPORT ASSM	0	6240	14460	0	16412	37112
UPPER SUPPORT COLUMN	0	6240	14460	0	16412	37112
UPPER CORE BARREL	0	3120	54400	0	8200	65720
UPPER CORE GRID PLATE	0	7800	217000	0	20515	245315
GUIDE TUBES	0	9360	81000	0	24610	114970
LOWER CORE BARREL	0	40920	2409600	0	131290	2500010
THERMAL SHIELDS	0	9360	451000	0	24610	486770
CORE SHROUD	0	6240	8296000	0	16412	8310662
LOWER GRID PLATE	0	7800	1360000	0	20515	1380315
LOWER SUPPORT COLUMN	0	1560	55000	0	4103	60603
LOWER CORE FORGING	0	17160	236700	0	45133	300093
MISC INTERNALS	0	12400	173600	0	32824	210004
B/D SHIELD CONCRETE	0	0	0	0	1024100	1024100
REACTOR CAVITY LINER	0	0	0	0	21007	21007
REACTOR COOLANT PUMPS	93600	0	0	0	172326	265920
PRESSURIZER	15000	0	0	0	147700	102700
R. Hx, EHx, SLUMP PUMP, CAVITY PUMP	0	0	0	0	16412	16412
PRESSURIZER RELIEF TANK	2930	0	0	0	49236	52100
SAFETY INJECTION ACCUM TANKS	22100	0	0	0	164120	100200
STEAM GENERATORS	330000	0	0	0	876403	1212403
REACTOR COOLANT PIPING	19390	0	0	0	135390	154700
REMAINING CONTAM. MATLS	0	0	0	0	215000	215000
CONTAMINATED MATRL OTHR BLD	0	0	0	0	19575495	19575495
FILTER CARTRIDGES	0	9360	105000	0	12924	217204
SPENT RESINS	0	31200	800000	0	82000	901200
COMBUSTIBLE WASTES	0	93600	210000	0	415420	725920
EVAPORATOR BOTTOMS	0	146640	339810	0	385002	872132
POST TWI-2 ADDITIONS	0	0	0	0	630550	630550
SUBTOTAL PWR COSTS	544830	539760	16163930	0	26556544	43005064
BARNWELL COUNTY BUSINESS TAX (2.4%)						1051322
TOTAL PWR COSTS						44056386

TABLE B.9 BURIAL COSTS AT THE SOUTH CAROLINA SITE (cont.)
REFERENCE BWR (1991 DOLLARS)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	43600	770000	0	14484	828104
FUEL SUPPORT & PIECES	0	21849	455000	0	7252	484182
CONTROL RODS/INCORES	4600	12400	766400	0	21746	885386
CONTROL RODS GUIDES	0	18720	43300	0	5785	67885
JET PUMPS	0	82400	850000	0	29310	732710
TOP FUEL GUIDES	0	112320	1958400	0	34834	2185554
CORE SUPPORT PLATE	0	48360	168020	0	16002	232382
CORE SHROUD	0	218400	19840000	0	68110	19326510
REACTOR VESSEL WALL	32230	34320	297000	0	18545	374095
SAC SHIELD	60900	0	0	0	147544	198584
REACT. WATER REC	45500	0	0	0	127603	173103
SAC SHIELD	138320	0	0	0	449279	587599
OTHER PRIMARY CONTAINMENT	0	0	0	0	5123334	6123334
CONTAINM. ATMOSPHERIC	2930	0	0	0	89505	72435
HIGH PRESSURE CORE SPRAY	5540	0	0	0	24618	38158
LOW PRESSURE CORE SPRAY	1885	0	0	0	14500	16451
REACTOR BLDG CLOSED COOLING	4395	0	0	0	46446	50841
REACTOR CORE COOLING	1465	0	0	0	18874	28339
RESIDUAL HEAT REMOVAL	13195	0	0	0	89938	103133
POOL LINES & RACKS	54000	0	0	0	551977	808577
CONTAMINATED CONCRETE	23440	0	0	0	526785	652225
OTHER REACTOR BUILDING	0	0	0	0	2856301	2856301
TURBINE	109330	0	0	0	2836934	2146264
NUCLEAR STEAM CONDENSATE	22620	0	0	0	525904	548584
LOW PRESSURE FEEDWATER HEATERS	152000	0	0	0	1067847	1228727
MAIN STEAM	5655	0	0	0	182944	108599
MOISTURE SEPARATOR REHEATERS	94040	0	0	0	1035002	1138442
REACTOR FEEDWATER PUMPS	14050	0	0	0	282574	297224
HIGH PRESSURE FEEDWATER PUMPS	29120	0	0	0	175200	204400
OTHER TG BLDG	0	0	0	0	7851500	7851500
RAD WASTE BLDG	0	0	0	0	3484760	3484760
REACTOR BLDG	0	99040	231360	0	299800	631000
TG BLDG	0	85520	151830	0	202440	419790
RAD WASTE & CONTROL	0	59200	137370	0	174720	371370
WET RAD WASTES	0	0	0	0	0	0
CONCENTRATOR BOTTOMS	0	351000	613375	0	830000	1794375
OTHER	0	95160	220515	0	170000	486475
POST TMI-2 ADDITIONS	0	0	0	0	52190	52190
SUBTOTAL BWR COSTS	808035	1243320	25782650	0	26841568	54595565

BARNWELL COUNTY BUSINESS TAX (2.4%)
TOTAL BWR COSTS

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(See instructions on the reverse)

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10. SUPPLEMENTARY NOTES

Supersedes NUREG-1307, dated October 1989

11. ABSTRACT (200 words or less)

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 plants, 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 from this report in their escalation analyses, or they may use an escalation rate at least equal to the escalation approach presented herein.

Revision 2 of this report corrects several errors in the calculations and disposal costs for the reference PWR and the reference BWR.

12. KEY WORDS/DESCRIPTORS (List words or phrases that will assist researchers in locating the report.)

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REPORT ON WASTE BURNING HANDLES

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