NUREG-1307, Rev. 9

Report on Waste Burial Charges

Changes in Decommissioning Waste Disposal Costs at Low-Level Waste Burial Facilities

U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, DC 20555-0001

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Division of Licensing and Project Management
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U.S. Nuclear Regulatory Commission
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Abstract

A requirement placed upon nuclear power reactor licensees by the U.S. Nuclear Regulatory Commission (NRC) is that licensees must annually 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 revised periodically, explains the formula that is acceptable to the NRC for determining the minimum decommissioning fund requirements for nuclear power plants. The sources of information used in the formula are identified, and the values developed for the estimation of radioactive waste burial/disposition costs, by site and by year, are given. Licensees may use the formula, coefficients, and burial/disposition adjustment factors from this report in their cost analyses, or they may use adjustment factors derived from any methodology which results in a total cost estimate of no less than the amount estimated by using the parameters presented in this report.

This report includes an alternative low-level waste (LLW) disposition option other than direct disposal at the two remaining operating LLW burial sites. This option, which is accepted as a valid approach for consideration by licensees, allows contracting with waste vendors to provide for the disposition of certain LLW generated during decommissioning.

This ninth revision of NUREG-1307 contains updated disposal costs for the reference pressurized water reactor (PWR) and the reference boiling water reactor (BWR) and the ratios of disposal costs at the two remaining burial sites in Washington and South Carolina for the year 2000. In addition, disposal costs for the reference reactors and ratios of disposal costs at the Washington and South Carolina sites for the years 1995, 1996, 1997, and 1998 are provided for historical purposes. This report also provides costs for dispositioning a portion of the total LLW volume using waste vendors, including the ratios of these costs relative to the original 1986 disposal cost estimates. Future updates of NUREG-1307 will provide revised estimates for this alternative LLW disposition option in addition to the direct disposal option. Several sample calculations for estimating the burial/disposition cost for both the old and new options are presented, demonstrating the use of the data contained in this report.

Estimated disposal costs at the Washington site decreased by 30% for the reference PWR and 77% for the reference BWR over corresponding estimates for 1998. The large decrease for LLW disposal was primarily due to reduction of the exposure dose rate charges by a factor of eight, a 25% reduction of the disposal charges per cubic foot, and a 32% reduction of the charges per shipment. These reductions were offset by a 25% increase in the charges per container. Estimated disposal costs at the South Carolina site rose slightly more than 10% with a corresponding rate increase of about 10% in all categories. Wastes disposed from non-Atlantic Compact users are an additional 1% costlier than Compact users. The cost of LLW disposition using waste vendors is about 50% less than direct disposal at the South Carolina burial site. At the Washington burial site, however, the waste vendor option is about 30% (BWR) and 80% (PWR) greater than direct disposal. Waste vendor rates were not updated from the values presented in the last revision, NUREG-1307, Revision 8, because no significant changes were anticipated. However, because a portion of the waste cannot be disposed of through a waste vendor and must be disposed directly to a waste burial site, the total cost of LLW disposition, when using waste vendors, is affected by the revised waste burial rates for the non-waste vendor portion of the LLW.

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Foreword

Nuclear power reactor licensees are required, per 10 CFR 50.75, to adjust annually the estimated decommissioning costs of their nuclear facilities in order to ensure adequate funds are available for decommissioning. The regulation references NUREG-1307 as the appropriate source for obtaining the adjustment factor for waste burial/disposition costs; this Revision 9 of NUREG-1307 provides the current waste burial costs at the Washington and South Carolina disposal sites. In addition, this revision provides costs for low-level radioactive waste disposition using waste vendors. Licensees can factor these numbers into the adjustment formula, as specified in 10 CFR 50.75(c)(2), to determine the minimum decommissioning fund requirement for their nuclear facilities.

Although this report is specifically prepared for the use of power reactor licensees, it can also be a valuable source of information for material licensees on current waste burial/disposition costs. After July 1, 1994, access to the Barnwell, South Carolina, facility was limited to Southeast Compact waste generators. Effective July 1, 1995, the scheduled closure date, December 31, 1995, was canceled and access to the Barnwell facility was extended to waste generators from all States except North Carolina. Effective July 1, 2000, the Barnwell disposal facility at Barnwell, South Carolina, became the host disposal facility for the newly-formed Atlantic Compact, comprised of the states of Connecticut, New Jersey, and South Carolina. Low-level waste (LLW) from non-Atlantic Compact states (including previously excluded North Carolina) will be accepted through 2008, but will be limited by a total maximum allowable volume per year, which decreases each year, beginning in 2001. A slightly costlier rate schedule will apply for non-Atlantic Compact waste generators. The costs of waste disposal at the Barnwell disposal facility will be determined annually by the South Carolina Public Service Commission (PSC) to provide the site operator with an allowable operating margin. At the Richland, Washington, facility, the costs of disposal are determined annually based on waste generator volume projections and a maximum operator revenue set by the Washington Utilities and Transportation Commission. If the total operator revenue is exceeded in a given year, a rebate may be sent to the waste generator.

Another option now available to licensees for the disposition of their LLW is to contract with waste vendors to provide these services. Licensees are increasingly recognizing that, generally, waste vendors are more effective at identifying the lowest cost solutions to LLW disposition. This report, also provides waste burial/disposition adjustment factors (changed by the non-waste vendor portion of the LLW) for the waste vendor option, in addition to the standard option of direct disposal at the two available disposal facilities.

Low-level radioactive waste disposal costs are an important element in the cost of decommissioning a nuclear facility. This report provides the latest information that was available at time of publication for licensees to use for annually adjusting the estimated cost of decommissioning their nuclear facilities.

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1 Introduction

From 10 CFR 50.75(b), the U.S. Nuclear Regulatory Commission (NRC) requires nuclear power plant licensees to annually adjust the estimate of the cost (in dollars of the current year) of decommissioning their plants. This is just one step of a multi-step process of providing reasonable assurance to the NRC that adequate funds for decommissioning will be available when needed. This report provides adjustment factors for the waste burial/disposition component of the decommissioning fund requirement, as required by 10 CFR 50.75(c)(2). This report also provides the regional adjustment factors for the labor and energy components of the decommissioning fund requirement. The term "adjustment factor," as used in this report and in 10 CFR 50.75(c)(2), refers to increases and/or decreases in decommissioning costs since the NRC regulations were issued. The decommissioning fund requirements in these regulations are in 1986 dollars. This report is periodically updated to reflect changes in waste burial/disposition costs.

Provided within this report is the development of a formula for estimating decommissioning cost that is acceptable to the NRC. The sources of information used in the formula are identified, and the values developed for the adjustment of radioactive waste burial/disposition costs, by site and by year, are given in this report. Licensees may use the formula, the coefficients, and the burial/disposition adjustment factors from this report in their analyses, or they may use an adjustment rate at least equal to the approach presented herein.

The formula and its coefficients, together with guidance to the appropriate sources of data needed, are summarized in Chapter 2. The development of the formula and its coefficients, with sample calculations, are presented in Chapter 3. Price schedules for burial/disposition for the year 2000 are given in Appendix A for currently operating burial sites and waste vendors. The calculations to determine the burial/disposition cost factors, B_x, for each site and each year of evaluation are summarized in Appendix B.

This ninth revision of NUREG-1307 contains updated low-level waste (LLW) burial/disposition costs for the reference pressurized water reactor (PWR) and the reference boiling water reactor (BWR) and the ratios of LLW burial/disposition costs at the two remaining burial sites in Washington and South Carolina for the year 2000. In addition, disposal costs for the reference reactors and ratios of disposal costs at the Washington and South Carolina sites for the years 1995, 1996, 1997 and 1998 are provided for historical purposes. In addition to direct disposal at the two remaining burial sites, this report also includes the option of LLW disposition by waste vendors, initiated in NUREG-1307, Rev. 8.

2 Summary

The elements of decommissioning cost, per 10 CFR 50.75(c)(2), are assigned to three categories: those that are proportional to labor costs, L_x; those that are proportional to energy costs, E_x; and those that are proportional to burial costs, B_x. The adjustment 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 dollar costs that are attributable to labor (0.65), ener gy (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 adjustment, January of 1986 to January of Year X,

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

B_x = LLW burial/disposition cost adjustment, January of 1986 to January of Year X (i.e., burial/disposition cost in January of Year X / burial cost in January of 1986).

Licensees are to evaluate L_x and E_x for the years subsequent to 1986 based on the national producer price indices, national consumer price indices, and on local conditions for a given site (see Chapter 3).

B_x is evaluated by recalculating the costs of burial/disposition of the radioactive wastes from the reference PWR (Ref. 1) and the reference BWR (Ref. 2) based on the price schedules provided by the available burial sites/waste vendors for the year of interest. The results of these recalculations are presented in Table 2.1, by site and by year. Effective July 1, 2000, different price schedules at the South Carolina burial site apply for states within and outside the newly-created Atlantic Compact, comprised of South Carolina, Connecticut, and New Jersey (see footnotes (c) and (d) at the bottom of the table). Issues of this report prior to 1998 considered direct burial of LLW at an available LLW disposal site as the only LLW disposition option. This report includes the additional LLW disposition option of turning over the majority of the LLW generated during decommissioning to waste vendors for disposition. The B_x values for this option are also provided in Table 2.1 for the year 2000 (see footnote (e) at the bottom of the table). It is left to the licensees to determine whether direct disposal or disposition using waste vendors best represents their particular situation.

Table 2.1 Values of B_x as a Function of LLW Burial Site, Waste Vendor, and Year

	Values of B_x (PWR/BWR)[a]	
Year	Washington	South Carolina
2000	2.223/3.375[b]	17.922/15.987[c]
	--- / ---	18.129/16.244[d]
	4.060/4.379[b,e]	7.878/7.943[c,e]
	--- / ---	8.052/8.189[d,e]
1998	3.165/14.403[b]	15.886/13.948[f]
	4.538/15.203[b,e]	7.173/6.968[e,f]
1997	3.112/6.264[b]	15.852/13.837[f]
1996	2.845/3.294[b]	12.771/10.379[f]
1995	2.015/1.878[b]	12.824/10.420[f]

(a) The values presented in this table are developed in Appendix B, with all values normalized to the 1986 Washington (PWR/BWR) values by dividing the calculated burial costs for each site and year by the Washington site burial costs calculated for the year 1986.
(b) Effective 1/1/93, the Washington site is not accepting waste from outside the Northwest and Rocky Mountain Compacts.
(c) Effective 7/1/2000 for Atlantic Compact only.
(d) Effective 7/1/2000 for non-Atlantic Compact only.
(e) Effective with NUREG-1307, Rev. 8, turning over the majority of LLW to waste vendors for disposition is considered a possibility.
(f) Effective 7/1/95 through 6/30/2000, access is allowed for all states except North Carolina.

3 Development of Cost Adjustment Formula

The evaluations presented in this chapter are based on information presented in NUREG/CR-0130 (Addendum 4) and NUREG/CR-0672 (Addendum 3) (Refs. 1, 2), in which the estimated costs for immediate dismantlement of the reference PWR and the reference BWR are adjusted to January 1986 dollars. Decommissioning costs are divided into three general areas per 10 CFR 50.75(c)(2) that tend to escalate similarly: (1) labor, materials, and services, (2) energy and waste transportation, and (3) radioactive waste burial/disposition. A relatively simple equation can be used to determine the minimum decommissioning fund requirement in year 2000 or previous year dollars. That equation is

Estimated Cost (Year x)
$= [1986\ \$\ Cost]*(A\ L_x + B\ E_x + C\ B_x)$

where

Estimated Cost (Year x)
= estimated decommissioning costs in Year x dollars,

[1986 $ Cost]
= estimated decommissioning costs in 1986 dollars,

A = fraction of the [1986 $ Cost] attributable to labor, materials, and services (0.65)

B = fraction of the [1986 $ Cost] attributable to energy and transportation (0.13)

C = fraction of the [1986 $ Cost] attributable to waste burial (0.22)

L_x = labor, materials, and services cost adjustment, January of 1986 to January of Year x

E_x = energy and waste transportation cost adjustment, January of 1986 to January of Year x

B_x = radioactive waste burial/disposition and surcharge cost adjustment, January of 1986 to nominally January of Year x (i.e., burial/disposition cost in nominally January of Year x / burial cost in January of 1986)

$= (R_x + \sum S_x) / (R_{1986} + \sum S_{1986})$

where:

R_x = radioactive waste burial/disposition costs (excluding surcharges) in Year x dollars

$\sum S_x$ = summation of surcharges in Year x dollars

R_{1986} = radioactive waste burial costs (excluding surcharges) in 1986 dollars

$\sum S_{1986}$ = summation of surcharges in 1986 dollars.

Values for L_x and E_x for years subsequent to 1986 are to be based on the national producer price indices, national consumer price indices, and local conditions for a given site, as outlined in Sections 3.1 and 3.2. Thus, the licensee can evaluate these parameters appropriately for a particular site. The values to be used in determining B_x are taken from actual cost schedules and from price quotes by waste vendors.

Values of B_x for the year 2000, and earlier years, are provided to the licensees via this report for information purposes only, as described in Section 3.3.
The major elements of the three components of the decommissioning cost estimates for both the reference PWR and BWR are provided in Table 3.1. Considering the uncertainties and contingencies contained within these numbers, and considering that the values of the coef ficients for the PWR and the BWR are so similar, the best estimates of their values are their averages:

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

for both the PWR and BWR estimates.

3.1 Labor Adjustment Factors

The adjustment factor for labor, L_x, can be obtained from "Monthly Labor Review," published by the U.S. Department of Labor, Bureau of Labor Statistics (BLS) (Ref. 4). Specifically, the appropriate regional data from the table (currently Table 24) entitled "Employment Cost Index, Private Nonfarm Workers, by Bargaining Status, Region, and Area Size," subtitled "Compensation," should be used. These labor adjustment factors can also be obtained from BLS databases made available on the World Wide Web (see Appendix C for instructions). L_x should be adjusted from a base value in Table 24 corresponding to the amounts in the decommissioning rule amendments that are in January 1986 dollars.

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

	Reference PWR Values		Reference BWR Values	
Cost Category	1986 $ (millions)	Coefficient	1986 $ (millions)	Coefficient
Labor	17.98[a]		35.12[b]	
Equipment	1.64[a]		4.03[b]	
Supplies	3.12[a]		3.71[b]	
Contractor	12.9[a]		21.1[b]	
Insurance	1.9[a]		1.9[b]	
Containers	10.9[d]		8.14[c]	
Added Staff	7.5[a]		4.4[b]	
Added Supplies	1.2[a]		0.2[b]	
Spec. Contractor	0.78[a]		0.71[b]	
Pre-engineering	7.4[a]		7.4[b]	
Post-TMI-backfits	0.9[a]		0.1[b]	
Surveillance	0.31[a]		--	
Fees	0.14[a]		0.14[b]	
Subtotal	66.67	A = 0.64	86.95	A = 0.66
Energy	8.31[a]		8.84[b]	
Transportation	6.08[d]		7.54[c]	
Subtotal	14.39	B = 0.14	16.38	B = 0.12
Burial	22.48[d]	C = 0.22	29.98[c]	C = 0.22
Total	103.54		133.31	

Note: All costs include a 25% contingency factor.
(a) Based on Table 3.1, NUREG/CR-0130, Addendum 4.
(b) Based on Table 3.1, NUREG/CR-0672, Addendum 3.
(c) Based on Table 5.2, NUREG/CR-0672, Addendum 3.
(d) Based on Table 6.2, NUREG/CR-0130, Addendum 4.

To calculate a labor adjustment factor for a particular region, two indices and a scaling factor are needed. These values are shown in Table 3.2 for each region. The base index of L_x from the BLS data for January 1986 is listed in Column 2 of Table 3.2. These values are based on an index value of 100 in June 1981 (Base June 1981 = 100). However, current 1999 BLS index values are based on an index value of 100 in June 1989 (Base June 1989 = 100). These values are shown in column 3. To convert between these two indices, regional scaling factors are needed. These scaling factors are listed in the last column in Table 3.2.

Table 3.2 Regional Factors for Labor Cost Adjustment

Region	1986 Reference (Base June 1981 = 100)	1999 BLS (Base June 1989 = 100)	Scaling factor
Northeast	130.5	144.3	1.555
South	127.7	143.0	1.441
Midwest	125.0	146.3	1.409
West	130.1	144.7	1.449

In general, L_x is calculated for each region by multiplying the 1999 value (column 3) by the scaling factor (column 4) and then dividing by the reference value (column 2). For example, for the Northeast region:

$$L_x = (144.3)_{\text{Base 1989}} \text{ (column 3)} \times (1.555)_{\text{Base 1981/Base 1989}} \text{ (column 4)} \div (130.5)_{\text{Base 1981}} \text{ (column 2)} = 1.719.$$

This value of $L_x = 1.719$ should then be used in the equation to adjust the labor cost (to post-1999 dollars) for decommissioning a nuclear power plant located in the Northeast region of the U.S.

3.2 Energy Adjustment Factors

The adjustment factor for energy, E_x, can be obtained from the "Producer Price Indexes," published by the U.S. Department of Labor, Bureau of Labor Statistics (BLS) (Ref. 5). Specifically, data from the table (currently Table 6) entitled "Producer Price Indexes and Percent Changes for Commodity Groupings and Individual Items" (PPI) should be used.

E_x is made up of two components, namely, industrial electric power, P_x, and light fuel oil, F_x. Hence, E_x should be obtained using the BLS data in the following equations: for the reference PWR, $[0.58P_x + 0.42F_x]$ and for the reference BWR, $[0.54P_x + 0.46F_x]$. These equations are derived from Table 6.3 of Reference 1 and Table 5.3 of Reference 2. P_x should be taken from data for industrial electric power (Commodity code 0543 in Table 6), and F_x should be taken from data for light fuel oils (Commodity code 0573 in Table 6). These energy adjustment factors can also be obtained from BLS databases made available on the World Wide Web (see Appendix C for instructions).

As discussed for L_x in Section 3.1 above, P_x and F_x should be adjusted 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_x and F_x from the BLS data for January 1986 are 114.2 and 82.0, respectively. No regional BLS data for these PPI commodity codes are currently available. All PPI values are based on a value of 100 for the year 1982 (Base 1982 = 100). Thus, the values of P_x and F_x for December 1999 (latest data available) are

$$P_x = 126.5 \text{ (the December 1999 value)} \div 114.2 \text{ (the January 1986 value)} = 1.108$$

$$F_x = 72.9 \text{ (the December 1999 value)} \div 82.0 \text{ (the January 1986 value)} = 0.889.$$

The value of E_x for the reference PWR is therefore

$$E_x = [(0.58 \times 1.108) + (0.42 \times 0.889)] = 1.016.$$

This value of $E_x = 1.016$ should then be used in the equation to adjust the energy cost (to January 2000 dollars) for decommissioning a PWR. Correspondingly, for a BWR, $E_x = 1.007$.

3.3 Waste Burial Adjustment Factors

The adjustment factor for waste burial/disposition, B_x, can be taken directly from data on the appropriate LLW burial location as given in Table 2.1 of this report. For example, $B_x = 17.922$ (in 2000 dollars) for a PWR directly disposing

all decommissioning LLW from a state in the Atlantic Compact at the South Carolina burial site.

3.4 Sample Calculations of Estimated Reactor Decommissioning Costs

Several sample calculations are provided in this section to demonstrate the use of the decommissioning cost equation developed above using the appropriate adjustment terms of L_x for labor, material, and services, E_x for energy and waste transportation, and B_x for radioactive waste burial/disposition. The coefficients A, B, and C (0.65, 0.13, and 0.22, labor, energy, and burial fractions, respectively) used in the examples, are developed in Table 3.1 and the equations in Section 3 above.

Example 1 (LLW Direct Disposal)

Scenario Description
Reactor Type: PWR
Thermal Power Rating: 3400 MW_{th}
Location of Plant: Western Region of the U.S.
LLW Disposition Preference: Direct Disposal
LLW Burial Location: Washington

Base Cost (1986 Dollars) = $105 million [from 10 CFR 50.75(c)(1)]

L_x = (144.7)*(1.449)/(130.1) = 1.612 [from Table 3.2]

E_x = 1.016 [from Section 3.2]

B_x = 2.223 [from Table 2.1]

Decommissioning Cost (2000 Dollars)
= ($105 million)*[(0.65)*(1.612)+(0.13)*(1.016)+(0.22)*(2.223)]
= $175 million

Example 2 (LLW Direct Disposal)

Scenario Description
Reactor Type: PWR
Thermal Power Rating: 3400 MW_{th}
Location of Plant: Northeast Region of the U.S.
LLW Disposition Preference: Direct Disposal
LLW Burial Location: South Carolina

Base Cost (1986 Dollars) = $105 million [from 10 CFR 50.75(c)(1)]

L_x = (144.3)*(1.555)/(130.5) = 1.719 [from Table 3.2]

E_x = 1.016 [from Section 3.2]

B_x = 17.922 [from Table 2.1]

Decommissioning Cost (2000 Dollars)
= ($105 million)*[(0.65)*(1.719)+(0.13)*(1.016)+(0.22)*(17.922)]
= $545 million

Example 3 (LLW Disposition by Waste Vendors)

Scenario Description
Reactor Type: PWR
Thermal Power Rating: 3400 MW_{th}
Location of Plant: Northeast Region of the U.S.
LLW Disposition Preference: Contract with Waste Vendors
LLW Burial Location: South Carolina

Base Cost (1986 Dollars) = $105 million [from 10 CFR 50.75(c)(1)]

L_x = (144.3)*(1.555)/(130.5) = 1.719 [from Table 3.2]

E_x = 1.016 [from Section 3.2]

B_x = 7.878 [from Table 2.1]

Decommissioning Cost (2000 Dollars)
= ($105 million)*[(0.65)*(1.719)+(0.13)*(1.016)+(0.22)*(7.878)]
= $313 million

Example 4 (LLW Disposition by Waste Vendors)

Scenario Description
Reactor Type: BWR
Thermal Power Rating: 3400 MW_{th}
Location of Plant: Midwest Region of the U.S.
LLW Disposition Preference: Contract with Waste Vendors
LLW Burial Location: South Carolina

Base Cost (1986 Dollars) = $135 million [from 10 CFR 50.75(c)(1)]

L_x = (146.3)*(1.409)/(125.0) = 1.649 [from Table 3.2]

E_x = 1.007 [from Section 3.2]

B_x = 8.189 [from Table 2.1]

Decommissioning Cost (2000 Dollars)
= ($135 million)*[(0.65)*(1.649)+(0.13)*(1.007)+(0.22)*(8.189)]
= $406 million

4 References

1. Konzek, G. J., and R. I. Smith, "Technology, Safety and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station - Technical Support for Decommissioning Matters Related to Preparation of the Final Decommissioning Rule," (Report prepared by Pacific Northwest Laboratory, Richland, Washington), NUREG/CR-0130, Addendum 4, U.S. Nuclear Regulatory Commission, July 1988.

2. Konzek, G. J., and R. I. Smith, "Technology, Safety and Costs of Decommissioning a Reference Boiling Water Reactor Power Station - Technical Support for Decommissioning Matters Related to Preparation of the Final Decommissioning Rule," (Report prepared by Pacific Northwest Laboratory, Richland, Washington), NUREG/CR-0672, Addendum 3, U.S. Nuclear Regulatory Commission, July 1988.

3. U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, "Report on Waste Burial Charges - Changes in Decommissioning Waste Disposal Costs at Low-Level Waste Burial Facilities," NUREG-1307, Revision 8, December 1998.

4. U.S. Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review*, Table 24, Updated Periodically.

5. U.S. Department of Labor, Bureau of Labor Statistics, *Producer Price Indexes*, Table 6, Updated Periodically.

Appendix A

LLW Burial/Disposition Prices for the Current Year

Appendix A

LLW Burial/Disposition Prices for the Current Year

This appendix contains the price schedules for burial/disposition of low-level wastes at the Washington and South Carolina sites for the year 2000. Also provided are vendor price quotes for disposition of LLW generated by the decommissioning of nuclear power plants. These schedules are used to calculate the results shown in Appendix B used to develop the waste burial adjustment factor, B_x, for the year 2000.

A.1 Washington LLW Disposal Site

Beginning in 1993, the Northwest Compact imposed on eligible (Northwest or Rocky Mountain Compact) waste generators an annual permit fee based on the volume of waste to be shipped to the Washington site for disposal. In the year, the annual permit fee ranges from $400 to $40,000. Hospitals, universities, research centers, and industries pay the lower fees, and nuclear power plants pay the highest fee of $40,000 per year. The permit fees for nuclear power plants are included in this analysis for the years 1993 and later.

Beginning in 1994, the rate schedule for handling and disposing of heavy objects (greater than 5,000 pounds) at the Washington site was revised to recover additional crane rental costs from the waste generator. In 1996, the heavy object limit was raised to 17,500 pounds. A series of shipments of heavy objects for disposal was assumed that would minimize the crane surcharge and result in only a one-time heavy object charge.

Effective January 1, 1996, the operator of the Washington site implemented a restructured rate schedule based on waste volume, number of shipments, number of containers, and dose rate at the container surface. Each waste generator is also assessed an annual site availability charge based on cumulative volume and dose rate at the surface of all containers disposed. The site availability charge appears near the bottom of Tables B.1 through B.4.

In 1997, and again in 1998, the operator of the Washington site more than tripled rate charges on containers having surface dose rates in excess of 100 R/hr. The overall increase arising from these two increases is about a factor of 11. These large increases affect the overall burial costs for a BWR reactor more than for a PWR reactor since the BWR usually has more highly irradiated components than a PWR.

Exhibit A.1 provides the current rate schedule for the Washington LLW disposal site, effective May 1, 2000. The most significant change compared to waste burial rates used in the last revision of NUREG-1307 is for burial of LLW containers having surface dose rates in excess of 200 mR/hr. In the year, the burial charges for all ranges of container surface dose rates were reduced by a factor of more than eight, which significantly reduces the "Liner Dose Rate Charges" at the Washington LLW disposal site.

A.2 South Carolina LLW Disposal Site

Access to the South Carolina site by waste generators outside the Southeast Compact ended June 30, 1994, with site closure scheduled for December 31, 1995. However, effective July 1, 1995, the scheduled closure was canceled and access to the Barnwell facility was extended to all states except North Carolina.

Effective November 1, 1996, the operator of the South Carolina disposal site implemented a restructured waste disposal rate schedule. The restructured pricing is based on weight, dose rate, and curies with a cost incentive toward higher density packaging. All business after November 1, 1996, will be through customer-specific contracts.

Effective July 1, 1998, the operator of the South Carolina disposal site imposed a site access fee on users which varies according to their level of use. Access fees for large users (e.g., utilities with nuclear plants) average about $205,000 per year. The site access fee appears near the bottom of Table B.8 for the South Carolina disposal site.

Exhibit A.2 provides the current rate schedule for the Atlantic Compact states at the South Carolina LLW disposal site, effective July 1, 2000. Exhibit A.3 provides the current rate schedule for the non-Atlantic Compact states at the South Carolina LLW disposal site, effective July 1, 2000. The annual site access fee of $205,000 per year was replaced with an Atlantic Compact Surcharge of $4.00 per cubic foot. The only difference between the rate schedules is a slightly higher curie surcharge for non-Atlantic Compact states -- $0.36 per millicurie with a maximum millicurie surcharge of $144,000 per shipment, compared to $0.33 per millicurie with a maximum millicurie surcharge of $132,000 per shipment). An additional option is currently available only for Atlantic Compact licensees but must be elected at the beginning of the fiscal year. In some instances, the licensee may choose to pay the $0.66 per millicurie rate for only LLW curies for radionuclides with half-lives greater than five years rather than pay the $0.33 per millicurie rate for the entire LLW curies.

In the transition years between 2001 and 2008, the volume of LLW disposed at the South Carolina LLW disposal site from all sources will be limited to a specific schedule of maximum allowable LLW volume, as shown in Table A.1. After 2008, non-Atlantic Compact waste will not be accepted for disposal.

Table A.1 Schedule of Maximum Allowable LLW Disposal at the South Carolina Disposal Facility [a]

Year	Maximum Allowable LLW Volume from All Sources (ft^3)
2001	160,000
2002	80,000
2003	70,000
2004	60,000
2005	50,000
2006	45,000
2007	40,000
2008	35,000

(a) Reference: Afton Associates, Inc., *LLWnotes*, May/June 2000

A.3 LLW Disposition by Waste Vendors

Rapidly increasing fees for disposal of low-level radioactive waste has spawned the creation of a niche market for firms specializing in the management of LLW. Increasingly, licensees of nuclear power plants are outsourcing LLW management functions to these waste vendors for a negotiated fee (usually $/pound of LLW processed). The degree to which LLW management functions are outsourced is negotiated on a case-by-case basis. Waste vendors can manage all LLW management functions from time of generation to disposal (including packaging, transportation, and volume reduction) or any subset of these functions as desired by the licensee.

The vendor determines the most efficient disposition process for each waste stream, which may include sorting into clean/contaminated streams, recycling where possible, volume reduction via the many techniques currently commercially available, and disposal of the residual LLW at the most cost effective disposal site. The vendor's profit is the difference between the price negotiated with the licensee and the total cost for waste minimization, recycling, volume reduction, packaging, transportation, and disposal. The more effective the vendor is at minimization, recycling, volume reduction, and obtaining volume discounts for packaging, transportation, and disposal, the greater will be the profit.

Currently, there are approximately 10 waste vendors operating in the United States. Clearly, waste management costs at nuclear power plants are being reduced through the use of waste vendors. Also, closer attention to LLW management by power plant licensees has resulted in dramatic reductions of LLW being disposed of at the commercial LLW burial sites. Since publication of NUREG/CR-0130 and NUREG/CR-0672, the average annual LLW volume disposed of by nuclear power plants has decreased by an order of magnitude. This volume reduction has been achieved through a combination of increased efforts to minimize the volume of LLW generated to begin with and increased use of waste vendors to reduce the volume of disposed LLW.

The trend of utilizing waste vendors by licensees of operating nuclear power plants is also now being observed at nuclear power plants being decommissioned. Table A.2 shows the disposition destination for LLW generated be-

tween 1993 and 1997 during the decommissioning of the Yankee Rowe Nuclear Power Plant (NPP). Over 60% of the waste generated during the decommissioning of this plant was contracted to waste vendors for disposition.

Table A.2 Disposition Destination of Yankee Rowe NPP LLW[a]

LLW Destination	LLW Volume (ft^3)	LLW Volume (% of Total)
South Carolina Disposal Site	30,867	21.1
Utah Disposal Site	22,390	15.3
Waste Vendors	92,428	63.3
Liquid LLW Vendors	385	0.3
Total	146,070	100.0

(a) Reference: NRC Public Document Room (PDR) under NUREG-1307, Revision 8

The decommissioning analyses reported in NUREG/CR-0130 and NUREG/CR-0672 did not consider the possible use of waste vendors given that this market niche essentially did not exist at the time. Since the use of waste vendors has clearly become an accepted practice by the nuclear power industry for operations and decommissioning since that time, beginning with Revision 8, NUREG-1307 includes an alternative that provides for contracting with waste vendors to manage the disposition of certain portions of LLW generated during decommissioning. This new alternative does **not** modify or alter in any way the bases for the decommissioning fund requirement specified in 10 CFR 50.75. It merely provides another burial cost adjustment factor (B_x) that reflects LLW disposition by waste vendors.

In support of this analysis performed for NUREG-1307, Rev. 8, several waste vendors were surveyed to develop a representative cost for waste vendor services. Each of the vendors was asked to provide a generic price quote for processing two waste streams: activated/contaminated concrete and contaminated metal. They were asked to provide these quotes as a price per pound of waste, or as a range of price per pound, based on the waste concrete and metal inventories in NUREG/CR-0130 and NUREG/CR-0672. The price quotes were to encompass complete disposition of these waste streams (from generation to disposal) and were to be developed assuming the vendor had a contract with a licensee engaged in a large decommissioning project.

Five vendors provided price quotes in response to the survey. The price quotes are provided in Table A.3. For confidentiality reasons, the vendors providing the data are not identified.

Table A.3 Price Quotes for Waste Vendor Services[a]

Vendor	Activated/Contaminated Concrete ($/lb)	Contaminated Metal ($/lb)
Vendor #1	0.55 - 0.89	0.87 - 1.50
Vendor #2	1.50 - 2.00	2.50 - 3.00
Vendor #3	1.00 - 1.50	1.50 - 1.75
Vendor #4	0.24 - 0.31	1.57 - 1.70
Vendor #5	1.72	1.85

(a) Reference: NRC Public Document Room (PDR) under NUREG-1307, Revision 8

The vendor prices used to calculate the waste burial/ disposition cost factors, B_x, for both PWR and BWR were $1.50/lb for activated/contaminated concrete and $2.00/lb for contaminated metal. These were developed by taking the average of the three mid-range values in Table A.3 and rounding the result up to the next half dollar. In order to minimize the effect of differences in assumptions in what the vendors did or did not include in their price quotes, both the low and high price quotes were eliminated from the average price calculation.

This analysis assumed that disposition of dry active waste (DAW) was contracted by waste vendors at the same price as activated/contaminated concrete. All liquid radioactive waste and activated metal are dispositioned as assumed in NUREG/CR-0130 and NUREG/CR-0672 or, in other words, they go directly to disposal without further processing. The resulting B_x will be conservative for the following reasons:

- the waste vendor prices used are at the upper range of the price quotes provided and
- the waste vendor quotes included packaging and transportation of LLW, which are already included in the

labor and energy cost elements, respectively, of the 10 CFR 50.75 algorithm.

Also, when utilization of waste vendors is more cost effective than direct disposal, the resulting B_x will further be conservative because at least some of the activated metal could be dispositioned more economically through the services of a waste vendor.

Waste vendor rates were not updated from the values presented in the last revision, NUREG-1307, Revision 8, because no significant changes were anticipated. However, because a portion of the waste cannot be disposed of through a waste vendor and must be disposed directly to a waste burial site, the total cost of LLW disposition, when using waste vendors, is affected by the revised waste burial rates for the non-waste vendor portion of the LLW.

Exhibit A.1

US ECOLOGY, INC.
RICHLAND, WASHINGTON FACILITY
RADIOACTIVE WASTE DISPOSAL

DISPOSAL CHARGES
EFFECTIVE MAY 1, 2000
SCHEDULE A, TWELFTH REVISION

Note: Rates in this schedule A are subject to adjustment in accordance with the rate adjustment mechanism adopted in the Commission's sixth supplemental order in Docket No. UR-950619.

A. SITE AVAILABILITY CHARGE

1. Rates

Block	Block Criteria	Annual Charge per Generator
0	No site use at all	$ 100
1	Greater than zero but less than or equal to 10 ft^3 and 50 mR/h	211
2	Greater than 10 ft^3 or 50 mR/h* but less than or equal to 20 ft^3 and 100 mR/h*	404
3	Greater than 20 ft^3 or 100 mR/h* but less than or equal to 40 ft^3 and 200 mR/h*	776
4	Greater than 40 ft^3 or 200 mR/h* but less than or equal to 80 ft^3 and 400 mR/h*	1,491
5	Greater than 80 ft^3 or 400 mR/h* but less than or equal to 160 ft^3 and 800 mR/h*	2,868
6	Greater than 160 ft^3 or 800 mR/h* but less than or equal to 320 ft^3 and 1,600 mR/h*	5,513
7	Greater than 320 ft^3 or 1,600 mR/h* but less than or equal to 640 ft^3 and 3,200 mR/h*	10,597
8	Greater than 640 ft^3 or 3,200 mR/h* but less than or equal to 1,280 ft^3 and 6,400 mR/h*	20,372
9	Greater than 1,280 ft^3 or 6,400 mR/h* but less than or equal to 2,560 ft^3 and 12,800 mR/h*	39,167
10	Greater than 2,560 ft^3 or 12,800 mR/h* but less than or equal to 5,120 ft^3 and 25,600 mR/h*	75,288
11	Greater than 5,120 ft^3 or 25,600 mR/h*	143,234

* For purposes of determining the site availability charge, mR/hour is calculated by summing the mR per hour at container surface of all containers received during the year.

2. Exemptions

a. As to waste which is generated for research, medical or educational purposes, educational research institutions shall be placed in a rate block for the site availability charge which is one (1) lower than what would otherwise apply through application of the block criteria shown above. ***"Educational research institution" means a state or independent, not-for-profit, post-secondary educational institution.***

b. As to waste which arises as residual or secondary waste from brokers' provision of compaction or processing services for others, if application of the block criteria shown above would place a broker in a rate block for the site availability charge which is greater than Block No. 7, such broker shall be placed in the rate block which is the greater of (i) Block No. 7, or (ii) the block which is two (2) lower than what would otherwise apply through application of the block criteria shown above. "Brokers" are those customers holding the "broker" classification of site use permits issued by the Department of Ecology.

3. Payment Arrangements

a. Initial Determination

Initial determination as to the applicable rate block for each customer shall be based on projections provided by customers prior to the beginning of each calendar year. For those customers who do not intend to ship waste to the facility during the calendar year (those assigned to block No. 0) and for those customers who are initially determined to fall into block Nos. 1-2, the entire site availability charge for the year will be due and payable as of January 1. For those customers who are initially determined to fall into block Nos. 3-8, the entire site availability charge will also be due and payable as of January 1, although those customers may make special arrangements with the Company to pay the charge in equal installments at the beginning of each calendar quarter. For those generators who are initially determined to fall in block Nos. 9-11, 1/12 of the site availability charge will be due and payable as of the beginning of each calendar month. These customers may pay in advance if they wish.

b. Reconciliation

The site availability charge is assessed on the basis of actual volume and dose rate of waste delivered during the calendar year. Assessment of additional amounts, or refunds of overpaid amounts, will be made as appropriate to reconcile the initial determination regarding applicable rate block with the actual volume and dose rates during the calendar year.

Exhibit A.1 (Continued)

SCHEDULE A (Continued)

US ECOLOGY, INC.
RICHLAND, WASHINGTON FACILITY
RADIOACTIVE WASTE DISPOSAL RATES

EFFECTIVE MAY 1, 2000

B. DISPOSAL RATES

1. Volume: $22.90 per cubic foot
2. Shipment: $4,228 per manifested shipment
3. Container: $1,449 per container on each manifest.
4. Exposure:

Block No.	Dose Rate at Container Surface	Charge per Container
1	Less than or equal to 200 mR/h	$ 16
2	Greater than 200 mR/h but less than or equal to 1,000 mR/h	1,150
3	Greater than 1,000 mR/h but less than or equal to 10,000 mR/h	4,550
4	Greater than 10,000 mR/h but less than or equal to 100,000 mR/h	6,950
5	Greater than 100,000 mR/h	116,500

EXTRAORDINARY VOLUMES

Waste shipments qualifying as an "extraordinary volume" under RCW 81.108.020(3) are charged a rate equal to 51.5% of the volume disposal rate.

NUCLEAR DECOMMISSIONING WASTE

The volume disposal rate applicable to waste from the decommissioning of nuclear generating units shall be 80% of those set forth above; provided, however, that such waste must satisfy the quantity requirements for "extraordinary volume" under RCW 81.108.020(3).

SCHEDULE B
Surcharges and Other Special Charges
Fourth Revision

ENGINEERED CONCRETE BARRIERS

72" x 8' barrier	$7,422.00 each
84" x 8' barrier	$8,938.00 each

SURCHARGE FOR HEAVY OBJECTS

The Company shall collect its actual labor and equipment costs incurred, plus a margin thereon of 25%, in handling and disposing of objects or packages weighing more than seventeen thousand five hundred (17,500) pounds.

SCHEDULE C
Tax and Fee Rider
Tenth Revision

The rates and charges set forth in Schedules A and B shall be increased by the amount of any fee, surcharge or tax assessed on a volume or gross revenue basis against or collected by US Ecology, as listed below:

Perpetual Care and Maintenance Fees	$1.75 per cubic foot
Business & Occupation Tax	3.3% of rates and charges
Site Surveillance Fee	$6.00 per cubic foot
Surcharge (RCW 43.200.233)	$6.50 per cubic foot
Commission Regulatory Fee	1.0% of rates and charges

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Exhibit A.2

Chem-Nuclear Systems, L.L.C.

EFFECTIVE JULY 1, 2000
BARNWELL LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT DISPOSAL FACILITY
ATLANTIC COMPACT WASTE PRICING

1. BASE DISPOSAL CHARGES (not including surcharges):

A. Standard and Special-Nuclear-Material Waste:

a.)	Weight – Density Range	Rate
i.)	Equal to or greater than 120 lbs./ft³	$ 4.40 per pound
ii.)	Equal to or greater than 75 lbs./ft³ and less than 120 lbs./ft³	$ 4.84 per pound
iii.)	Equal to or greater than 60 lbs./ft³ and less than 75 lbs./ft³	$ 5.94 per pound
iv.)	Equal to or greater than 45 lbs./ft³ and less than 60 lbs./ft³	$ 7.70 per pound
v.)	Less than 45 lbs./ft³	$ 7.70 per pound times the ratio of 45 lbs./ft³ divided by package density
b.1)	Millicurie Charge	$ .33 per millicurie
b.2)	Millicurie charge	$ .66 per millicurie for radionuclides with greater than 5-year half lives

Note: Option b.1 will apply unless generator specifically elects option b.2 for all of its shipments at the beginning of a fiscal year

B. Biological Waste — $ 1.00 per pound in addition to above rates

NOTE 1: MAXIMUM MILLICURIE CHARGE IS $132,000.00 PER SHIPMENT.

NOTE 2: THE MINIMUM CHARGE PER SHIPMENT, EXCLUDING SURCHARGES AND SPECIFIC OTHER CHARGES, IS $1,000.00.

2. EXTENDED-CARE FUND: Included in Rates

3. SITE STABILIZATION AND CLOSURE FUND: Included in Rates

Exhibit A.2 (Continued)

Chem-Nuclear Systems, L.L.C.

4. **SURCHARGES:**

A. Dose Rate Surcharge

Dose Level			Multiplier of Base Weight Rate
0 mR/hr	-	200 mR/hr	1.00
>200 mR/hr	-	1 R/hr	1.08
>1R/hr	-	2R/hr	1.12
>2R/hr	-	3R/hr	1.17
>3R/hr	-	4R/hr	1.22
>4R/hr	-	5R/hr	1.27
>5R/hr	-	10R/hr	1.32
>10R/hr	-	25R/hr	1.37
>25R/hr	-	50R/hr	1.42
>50R/hr			1.48

B. Irradiated hardware charges (applicable only where shipment requires shutdown of other disposal operations)

Per Shipment $ 50,000.00

C. Irradiated Cask-Handling Fee Included in Item 4.B.

D. Special Nuclear Material Surcharge $ 10.00/gram

E. Atlantic Compact Commission Administrative Surcharge $ 4.00/ft.^{3} (subject to change during year)

5. **MISCELLANEOUS:**

A. Large components (e.g., steam generators, reactor pressure vessels and coolant pumps):

Disposal fees for large components (e.g., steam generators, reactor pressure vessels and reactor coolant pumps) will be based on the generally-applicable rates, in heir entirety, except that the weight and volume used to determine density and weight-elated charges is calculated as follows:

1. For packages where the large-component shell qualifies as the disposal vault per the South Carolina Department of Health and Environmental Control (DHEC) regulations, weight and volume calculations are based on all subcomponents and material contained within the inside surface of the large-component shell, including all internals and any stabilization media injected by the shipper, but excluding the shell itself and all incidental external attachments required for shipping and handling; and

2. For packages with a separate shipping container that qualifies as the disposal vault per DHEC regulations, weight and volume calculations are based on the large component, all subcomponents and material contained within the inside surface of the shipping container, including any stabilization media injected by the shipper (including that between the large component and the shipping container), but excluding the shipping container itself and all incidental external attachments required for shipping and handling.

B. Transport vehicles with additional shielding features may be subject to an additional handling fee which will be provided upon request.

C. Decontamination services, if required: $150.00 per man hour, plus supplies at current CNS rate.

D. Customers may be charged for all special services as described in the Barnwell Site Disposal Criteria.

Exhibit A.2 (Continued)

Chem-Nuclear Systems, L.L.C.

E. Terms of payment are NET 30 DAYS upon presentation of invoices. A per-month service charge of one and one-half percent (1½%) shall be levied on accounts not paid within thirty (30) days.

F. Company purchase orders or a written letter of authorization in form and substance acceptable to CNS shall be received before receipt of radioactive waste material at the Barnwell Disposal Site and shall refer to the CNS Radioactive Material License, the Barnwell Site Disposal Criteria and subsequent changes thereto.

G. All shipments shall receive a CNS shipment identification number and conform to the Prior Notification Plan.

H. All radioactive waste shall be packaged in accordance with Department of Transportation and Nuclear Regulatory Commission Regulations contained in Title 49 and Title 10 of the Code of Federal Regulations, Chem-Nuclear Systems, L.L.C.'s South Carolina Radioactive Material Licenses, Chem-Nuclear Systems, L.L.C.'s Barnwell Site Disposal Criteria and any amendments thereto.

Exhibit A.3

Chem-Nuclear Systems, L.L.C.

EFFECTIVE JULY 1, 2000
BARNWELL LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT DISPOSAL FACILITY
NON-ATLANTIC COMPACT WASTE PRICING SCHEDULE

1. **BASE DISPOSAL CHARGES (not including surcharges):**

A. Standard and Special-Nuclear-Material Waste:

a.) Weight – Density Range	Rate
i.) Equal to or greater than 120 lbs./ft³	$ 4.40 per pound
ii.) Equal to or greater than 75 lbs./ft³ and less than 120 lbs./ft³	$ 4.84 per pound
iii.) Equal to or greater than 60 lbs./ft³ and less than 75 lbs./ft³	$ 5.94 per pound
iv.) Equal to or greater than 45 lbs./ft³ and less than 60 lbs./ft³	$ 7.70 per pound
v.) Less than 45 lbs./ft³	$ 7.70 per pound times the ratio of 45 lbs./ft³ divided by package density
b.) Millicurie Charge	$ .36 per millicurie

B. Biological Waste — $ 1.00 per pound in addition to above rates

NOTE 1: MAXIMUM MILLICURIE CHARGE IS $144,000.00 PER SHIPMENT.

NOTE 2: THE MINIMUM CHARGE PER SHIPMENT, EXCLUDING SURCHARGES AND SPECIFIC OTHER CHARGES, IS $1,000.00.

2. **EXTENDED-CARE FUND:** Included in Rates

3. **SITE STABILIZATION AND CLOSURE FUND:** Included in Rates

4. **SURCHARGES:**

A. Dose Rate Surcharge

Dose Level			Multiplier of Base Weight Rate
0 mR/hr	-	200 mR/hr	1.00
>200 mR/hr	-	1 R/hr	1.08
>1R/hr	-	2R/hr	1.12
>2R/hr	-	3R/hr	1.17
>3R/hr	-	4R/hr	1.22
>4R/hr	-	5R/hr	1.27
>5R/hr	-	10R/hr	1.32
>10R/hr	-	25R/hr	1.37
>25R/hr	-	50R/hr	1.42
>50R/hr			1.48

B. Irradiated hardware charges (applicable only where shipment requires shutdown of other disposal operations)

Exhibit A.3 (Continued)

Chem-Nuclear Systems, L.L.C.

	Per Shipment	$ 50,000.00
C.	Irradiated Cask-Handling Fee	Included in Item 4.B.
D.	Special Nuclear Material Surcharge	$ 10.00/gram
E.	Atlantic Compact Commission Administrative Surcharge	$ 4.00/ft.^{3} (subject to change during year)

5. MISCELLANEOUS:

A. Large components (e.g., steam generators, reactor pressure vessels and coolant pumps):

Disposal fees for large components (e.g., steam generators, reactor pressure vessels and reactor coolant pumps) will be based on the generally-applicable rates, in heir entirety, except that the weight and volume used to determine density and weight-elated charges is calculated as follows:

1. For packages where the large-component shell qualifies as the disposal vault per the South Carolina Department of Health and Environmental Control (DHEC) regulations, weight and volume calculations are based on all subcomponents and material contained within the inside surface of the large-component shell, including all internals and any stabilization media injected by the shipper, but excluding the shell itself and all incidental external attachments required for shipping and handling; and

2. For packages with a separate shipping container that qualifies as the disposal vault per DHEC regulations, weight and volume calculations are based on the large component, all subcomponents and material contained within the inside surface of the shipping container, including any stabilization media injected by the shipper (including that between the large component and the shipping container), but excluding the shipping container itself and all incidental external attachments required for shipping and handling.

B. Transport vehicles with additional shielding features may be subject to an additional handling fee which will be provided upon request.

C. Decontamination services, if required: $150.00 per man hour, plus supplies at current CNS rate.

D. Customers may be charged for all special services as described in the Barnwell Site Disposal Criteria.

E. Terms of payment are NET 30 DAYS upon presentation of invoices. A per-month service charge of one and one-half percent (1½%) shall be levied on accounts not paid within thirty (30) days.

F. Company purchase orders or a written letter of authorization in form and substance acceptable to CNS shall be received before receipt of radioactive waste material at the Barnwell Disposal Site and shall refer to the CNS Radioactive Material License, the Barnwell Site Disposal Criteria and subsequent changes thereto.

G. All shipments shall receive a CNS shipment identification number and conform to the Prior Notification Plan.

H. All radioactive waste shall be packaged in accordance with Department of Transportation and Nuclear Regulatory Commission Regulations contained in Title 49 and Title 10 of the Code of Federal Regulations, Chem-Nuclear Systems, L.L.C.'s South Carolina Radioactive Material Licenses, Chem-Nuclear Systems, L.L.C.'s Barnwell Site Disposal Criteria and any amendments thereto.

Appendix B

Calculation of LLW Burial/Disposition Cost Estimation Factors

Appendix B

Calculation of LLW Burial/Disposition Cost Estimation Factors

The calculations necessary to determine the costs for burial/disposition of the radioactive wastes postulated to result from decommissioning the reference PWR and the reference BWR are performed using detailed spreadsheets. The spreadsheets evaluate the burial/disposition costs for each of the items originally costed in the PWR and BWR decommissioning studies and in the updated costs presented in Addendums 4 and 3 (Refs. 1, 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.

The B_x values reported in this document reflect the results for cost changes and waste burial/disposition at different sites normalized to the 1986 burial costs for the Washington low-level waste (LLW) disposal site. All the calculations are based on the same inventory of radioactive wastes as was postulated in the 1986 and 1978-80 analyses. Starting in 1988, the inventories also included post-TMI-2 contributions from the reference PWR and the reference BWR (Refs. 1, 2).

B.1 Washington LLW Disposal Site

The LLW disposal site located in Washington was used to develop the original decommissioning cost estimates for the reference PWR and the reference BWR. These estimates are the basis for the minimum decommissioning fund requirement specified in 10 CFR 50.75(c), which is in 1986 dollars. Thus, as shown in Table 2.1, B_x = 1.0/1.0 (for PWR/BWR) for 1986. For the year 2000, B_x = 2.223/3.375. These B_x values reflect the adjustment in waste burial costs at the Washington LLW disposal site since 1986.

The year 2000 waste burial costs were developed using the rate schedule provided in Exhibit A.1. The spreadsheet calculations, which are too voluminous to present here, are summarized in Table B.1. Tables B.2 through B.5 provide summaries of the waste burial costs at the Washington LLW disposal site for 1998, 1997, 1996, and 1995, respectively. These estimates were originally reported in previous issues of NUREG-1307.

B.2 South Carolina LLW Disposal Site

The year 2000 waste burial costs for the South Carolina LLW disposal site were developed using the rate schedule provided in Exhibit A.2. The spreadsheet calculations, which are too voluminous to present here, are summarized in Table B.6 for Atlantic Compact reactors and Table B.7 for non-Atlantic Compact reactors. For the year 2000, B_x = 17.922/15.987. These B_x values reflect the year 2000 burial cost estimates for the South Carolina LLW disposal site normalized to the 1986 Washington LLW disposal site burial costs.

Tables B.8 through B.11 provide summaries of the waste burial costs at the South Carolina LLW disposal site for 1998, 1997, 1996, and 1995, respectively. These estimates were originally reported in previous issues of NUREG-1307.

B.3 LLW Disposition by Waste Vendors

The year 2000 waste disposition costs for activated/contaminated concrete, contaminated metal, and dry active waste (DAW) by waste vendors were developed using the unit prices discussed in Section A.3. Waste vendor rates were not updated from the values presented in the last revision, NUREG-1307, Revision 8, because no significant changes were anticipated. However, because a portion of the waste cannot be disposed of through a waste vendor and must be disposed directly to a waste burial site, the total cost of LLW disposition, when using waste vendors, is affected by the revised waste burial rates for the non-waste vendor portion of the LLW.

The year 2000 waste burial costs for activated metal and liquid radioactive waste at the Washington and South Carolina LLW disposal sites were developed using the rate schedules provided in Exhibits A.1 and A.2, respectively. The spreadsheet calculations, which are too voluminous to present here, are summarized in Tables B.12 through B.14. For the year 2000, B_x = 4.060/4.379 for the Washington LLW disposal site and B_x = 7.878/7.943 for the South Carolina disposal site from Atlantic Compact reactors and B_x = 8.052/8.189 from non-Atlantic Compact reactors. These B_x values reflect the year 2000 waste vendors disposition cost estimates for both the Washington and South Carolina LLW disposal sites normalized to the 1986 Washington LLW disposal site burial costs.

Tables B.15 and B.16 provide summaries of the waste burial/dispositon costs at the Washington and South Carolina LLW disposal sites for 1998, respectively. No estimates are provided for LLW disposition by waste vendors prior to 1998 since this was the first year that this disposition alternative was included in NUREG-1307.

B.4 Other

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. Those materials whose activity concentrations exceed the limits for Class C LLW are identified by footnote as greater-than-Class C (GTCC) material. Because the analyses in this report postulate placing this material in a LLW disposal facility, the disposal costs for this material may be overestimated by factors ranging from about 1.9 to more than 8.5, depending upon the disposal site, compared with high-density packaging and geologic repository disposal.

Table B.1 Burial Costs at the Washington Site
Reference PWR (2000 dollars)

COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	BENTON COUNTY TAX SURCHARGE	DISPOSAL COST
VESSEL WALL	87,020	160,664	55,062	264,100	0	566,846
VESSEL HEAD & BOTTOM	91,600	169,120	57,960	640	0	319,320
UPPER CORE SUPPORT ASSM	9,160	16,912	5,796	18,200	0	50,068
UPPER SUPPORT COLUMN	9,160	16,912	5,796	18,200	0	50,068
UPPER CORE BARREL	4,580	8,456	2,898	13,900	0	29,834
UPPER CORE GRID PLATE	11,450	21,140	7,245	34,750	0	74,585
GUIDE TUBES	13,740	25,368	8,694	27,300	0	75,102
LOWER CORE BARREL[a]	73,280	135,296	46,368	222,400	0	477,344
THERMAL SHIELDS[a]	13,740	25,368	8,694	41,700	0	89,502
CORE SHROUD[a]	9,160	16,912	5,796	27,800	0	59,668
LOWER GRID PLATE[a]	11,450	21,140	7,245	34,750	0	74,585
LOWER SUPPORT COLUMN	2,290	4,228	1,449	6,950	0	14,917
LOWER CORE FORGING	25,190	46,508	15,939	76,450	0	164,087
MISC INTERNALS	18,320	33,824	11,592	55,600	0	119,336
BIO SHIELD CONCRETE	571,584	207,172	282,555	0	0	1,061,311
REACTOR CAVITY LINER	11,725	4,228	5,796	0	0	21,749
REACTOR COOLANT PUMPS	96,180	50,736	17,388	0	0	164,304
PRESSURIZER	82,440	33,824	11,592	0	0	127,856
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	9,160	4,228	4,347	0	0	17,735
PRESSURIZER RELIEF TANK	27,480	8,456	2,898	0	0	38,834
SAFETY INJECTION ACCUM TANKS	91,600	33,824	11,592	0	0	137,016
STEAM GENERATORS	489,190	135,296	46,368	0	0	670,854
REACTOR COOLANT PIPING	75,570	29,596	10,143	0	0	115,309
REMAINING CONTAM. MATLS	1,204,723	427,028	595,539	0	0	2,227,290
CONTAMINATED MATRL OTHR BLD	10,925,636	3,365,488	5,374,341	0	0	19,665,465
FILTER CARTRIDGES	7,214	25,368	8,694	191,100	0	232,376
SPENT RESINS	45,800	84,560	28,980	139,000	0	298,340
COMBUSTIBLE WASTES	231,863	253,680	86,940	0	0	572,483
EVAPORATOR BOTTOMS	215,260	397,432	136,206	205,082	0	953,980
POST-TMI-2 ADDITIONS	356,393	0	0	0	0	356,393
HEAVY OBJECT SURCHARGE						122,550
SITE AVAILABILITY CHARGES, (3 YRS)						429,702
SUBTOTAL PWR COSTS	14,821,956	5,762,764	6,863,913	1,377,922	0	29,378,807
TAXES & FEES (% OF CHARGES)						1,263,289
TAXES & FEES ($/CU.FT.)						9,223,270
ANNUAL PERMIT FEES (3 YRS)						120,000
TOTAL PWR COSTS						39,985,366

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.1 Burial Costs at the Washington Site Reference BWR (2000 dollars)

COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	BENTON COUNTY TAX SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	8,084	59,192	40,572	3,262,000	0	3,369,848
FUEL SUPPORT & PIECES	4,053	29,596	20,286	97,300	0	151,235
CONTROL RODS/INCORES	12,137	33,824	11,592	932,000	0	989,553
CONTROL RODS GUIDES	3,229	25,368	17,388	83,400	0	129,385
JET PUMPS	11,336	84,560	57,960	4,660,000	0	4,813,856
TOP FUEL GUIDES	19,419	304,416	104,328	8,388,000	0	8,816,163
CORE SUPPORT PLATE	8,908	67,648	44,919	215,450	0	336,925
CORE SHROUD [a]	38,014	591,920	202,860	16,310,000	0	17,142,794
REACTOR VESSEL WALL	6,481	84,560	31,878	152,900	0	275,819
SAC SHIELD	72,776	59,192	20,286	0	0	152,254
REACT. WATER REC	71,173	21,140	8,694	0	0	101,007
SAC SHIELD	250,709	160,664	55,062	0	0	466,435
OTHER PRIMARY CONTAINMENT	2,859,523	718,760	1,343,223	0	0	4,921,506
CONTAINM. ATMOSPHERIC	38,816	4,228	2,898	0	0	45,942
HIGH PRESSURE CORE SPRAY	13,740	8,456	2,898	0	0	25,094
LOW PRESSURE CORE SPRAY	8,084	4,228	1,449	0	0	13,761
REACTOR BLDG CLOSED COOLING	25,877	8,456	8,694	0	0	43,027
REACTOR CORE ISO COOLING	10,511	4,228	4,347	0	0	19,086
RESIDUAL HEAT REMOVAL	50,151	21,140	10,143	0	0	81,434
POOL LINER & RACKS	308,120	76,104	53,613	0	0	437,837
CONTAMINATED CONCRETE	350,988	118,384	156,492	0	0	625,864
OTHER REACTOR BUILDING	1,147,519	194,488	565,110	0	0	1,907,117
TURBINE	1,137,031	346,696	402,822	0	0	1,886,549
NUCLEAR STEAM CONDENSATE	293,555	54,964	63,756	0	0	412,275
LOW PRESSURE FEEDWATER HEATERS	595,995	177,576	63,756	0	0	837,327
MAIN STEAM	57,433	8,456	4,347	0	0	70,236
MOISTURE SEPARATOR REHEATERS	578,225	109,928	37,674	0	0	725,827
REACTOR FEEDWATER PUMPS	156,888	25,368	28,980	0	0	211,236
HIGH PRESSURE FEEDWATER HEATERS	97,852	33,824	11,592	0	0	143,268
OTHER TG BLDG	3,927,808	1,006,264	1,860,516	0	0	6,794,588
RAD WASTE BLDG	1,944,920	304,416	930,258	0	0	3,179,594
REACTOR BLDG	245,259	160,664	2,069,172	0	0	2,475,095
TG BLDG	165,567	105,700	1,396,836	0	0	1,668,103
RAD WASTE & CONTROL	142,896	97,244	1,205,568	0	0	1,445,708
CONCENTRATOR BOTTOMS	515,250	951,300	326,025	486,640	0	2,279,215
OTHER	139,690	257,908	88,389	22,522	0	508,509
POST-TMI-2 ADDITIONS	29,129	0	0	0	0	29,129
HEAVY OBJECT SURCHARGE						172,650
SITE AVAILABILITY CHARGES, (3.5 YRS)						572,936
SUBTOTAL BWR COSTS	15,347,145	6,320,860	11,254,383	34,610,212	0	68,278,186
TAXES & FEES (% OF CHARGES)						2,935,962
TAXES & FEES ($/CU.FT.)						9,550,079
ANNUAL PERMIT FEES (3.5 YRS)						160,000
TOTAL BWR COSTS						80,924,227

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.2 Burial Costs at the Washington Site
Reference PWR (1998 dollars)

COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	BENTON COUNTY TAX SURCHARGE	DISPOSAL COST
VESSEL WALL	116,280	238,640	44,004	2,147,000	0	2,545,924
VESSEL HEAD & BOTTOM	122,400	251,200	46,320	0	0	419,920
UPPER CORE SUPPORT ASSM	12,240	25,120	4,632	151,200	0	193,192
UPPER SUPPORT COLUMN	12,240	25,120	4,632	151,200	0	193,192
UPPER CORE BARREL	6,120	12,560	2,316	113,000	0	133,996
UPPER CORE GRID PLATE	15,300	31,400	5,790	282,500	0	334,990
GUIDE TUBES	18,360	37,680	6,948	226,800	0	289,788
LOWER CORE BARREL[a]	97,920	200,960	37,056	1,808,000	0	2,143,936
THERMAL SHIELDS[a]	18,360	37,680	6,948	339,000	0	401,988
CORE SHROUD[a]	12,240	25,120	4,632	226,000	0	267,992
LOWER GRID PLATE[a]	15,300	31,400	5,790	282,500	0	334,990
LOWER SUPPORT COLUMN	3,060	6,280	1,158	56,500	0	66,998
LOWER CORE FORGING	33,660	69,080	12,738	621,500	0	736,978
MISC INTERNALS	24,480	50,240	9,264	452,000	0	535,984
BIO SHIELD CONCRETE	763,776	307,720	225,810	0	0	1,297,306
REACTOR CAVITY LINER	15,667	6,280	4,632	0	0	26,579
REACTOR COOLANT PUMPS	128,520	75,360	13,896	0	0	217,776
PRESSURIZER	110,160	50,240	9,264	0	0	169,664
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	12,240	6,280	3,474	0	0	21,994
PRESSURIZER RELIEF TANK	36,720	12,560	2,316	0	0	51,596
SAFETY INJECTION ACCUM TANKS	122,400	50,240	9,264	0	0	181,904
STEAM GENERATORS	653,677	200,960	37,056	0	0	891,693
REACTOR COOLANT PIPING	100,980	43,960	8,106	0	0	153,046
REMAINING CONTAM. MATLS	1,609,805	634,280	475,938	0	0	2,720,023
CONTAMINATED MATRL OTHR BLD	14,599,321	4,998,880	4,295,022	0	0	23,893,223
FILTER CARTRIDGES	9,639	37,680	6,948	1,587,600	0	1,641,867
SPENT RESINS	61,200	125,600	23,160	1,130,000	0	1,339,960
COMBUSTIBLE WASTES	309,825	376,800	69,480	0	0	756,105
EVAPORATOR BOTTOMS	287,640	590,320	108,852	1,676,341	0	2,663,153
POST-TMI-2 ADDITIONS	476,228	0	0	0	0	476,228
HEAVY OBJECT CHARGE						121,713
SITE AVAILABILITY CHARGES, (3 YRS)						413,442
SUBTOTAL PWR COSTS	19,805,758	8,559,640	5,485,446	11,251,141	0	45,637,140
TAXES & FEES (% OF CHARGES)						1,962,397
TAXES & FEES ($/CU.FT.)						9,223,270
ANNUAL PERMIT FEES (3 YRS)						120,000
TOTAL PWR COSTS						56,942,806

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.2 Burial Costs at the Washington Site
Reference BWR (1998 dollars)

COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	BENTON COUNTY TAX SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	10,802	87,920	32,424	26,600,000	0	26,731,146
FUEL SUPPORT & PIECES	5,416	43,960	16,212	791,000	0	856,588
CONTROL RODS/INCORES	16,218	50,240	9,264	7,600,000	0	7,675,722
CONTROL RODS GUIDES	4,315	37,680	13,896	678,000	0	733,891
JET PUMPS	15,147	125,600	46,320	38,000,000	0	38,187,067
TOP FUEL GUIDES	25,949	452,160	83,376	68,400,000	0	68,961,485
CORE SUPPORT PLATE	11,903	100,480	35,898	1,751,500	0	1,899,781
CORE SHROUD[a]	50,796	879,200	162,120	133,000,000	0	134,092,116
REACTOR VESSEL WALL	8,660	125,600	25,476	1,243,000	0	1,402,736
SAC SHIELD	97,247	87,920	16,212	0	0	201,379
REACT. WATER REC	95,105	31,400	6,948	0	0	133,453
SAC SHIELD	335,009	238,640	44,004	0	0	617,653
OTHER PRIMARY CONTAINMENT	3,821,022	1,067,600	1,073,466	0	0	5,962,088
CONTAINM. ATMOSPHERIC	51,867	6,280	2,316	0	0	60,463
HIGH PRESSURE CORE SPRAY	18,360	12,560	2,316	0	0	33,236
LOW PRESSURE CORE SPRAY	10,802	6,280	1,158	0	0	18,240
REACTOR BLDG CLOSED COOLING	34,578	12,560	6,948	0	0	54,086
REACTOR CORE ISO COOLING	14,045	6,280	3,474	0	0	23,799
RESIDUAL HEAT REMOVAL	67,014	31,400	8,106	0	0	106,520
POOL LINER & RACKS	411,723	113,040	42,846	0	0	567,609
CONTAMINATED CONCRETE	469,006	175,840	125,064	0	0	769,910
OTHER REACTOR BUILDING	1,533,366	288,880	451,620	0	0	2,273,866
TURBINE	1,519,351	514,960	321,924	0	0	2,356,235
NUCLEAR STEAM CONDENSATE	392,261	81,640	50,952	0	0	524,853
LOW PRESSURE FEEDWATER HEATERS	796,396	263,760	50,952	0	0	1,111,108
MAIN STEAM	76,745	12,560	3,474	0	0	92,779
MOISTURE SEPARATOR REHEATERS	772,650	163,280	30,108	0	0	966,038
REACTOR FEEDWATER PUMPS	209,641	37,680	23,160	0	0	270,481
HIGH PRESSURE FEEDWATER HEATERS	130,754	50,240	9,264	0	0	190,258
OTHER TG BLDG	5,248,512	1,494,640	1,486,872	0	0	8,230,024
RAD WASTE BLDG	2,598,889	452,160	743,436	0	0	3,794,485
REACTOR BLDG	327,726	238,640	1,653,624	0	0	2,219,990
TG BLDG	221,238	157,000	1,116,312	0	0	1,494,550
RAD WASTE & CONTROL	190,944	144,440	963,456	0	0	1,298,840
CONCENTRATOR BOTTOMS	688,500	1,413,000	260,550	3,978,045	0	6,340,095
OTHER	186,660	383,080	70,638	187,036	0	827,414
POST-TMI-2 ADDITIONS	38,923	0	0	0	0	38,923
HEAVY OBJECT CHARGE						193,388
SITE AVAILABILITY CHARGES, (3.5 YRS)						551,256
SUBTOTAL BWR COSTS	20,507,539	9,388,600	8,994,186	282,228,581	0	321,863,549
TAXES & FEES (% OF CHARGES)						13,840,133
TAXES & FEES ($/CU.FT.)						9,550,079
ANNUAL PERMIT FEES (3.5 YRS)						140,000
TOTAL BWR COSTS						345,393,761

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.3 Burial Costs at the Washington Site
Reference PWR (1997 dollars)

COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	BENTON COUNTY TAX SURCHARGE	DISPOSAL COST
VESSEL WALL	145,920	106,324	22,610	703,000	21,585	999,439
VESSEL HEAD & BOTTOM	153,600	111,920	23,800	0	6,161	295,481
UPPER CORE SUPPORT ASSM	15,360	11,192	2,380	48,760	1,720	79,412
UPPER SUPPORT COLUMN	15,360	11,192	2,380	48,760	1,720	79,412
UPPER CORE BARREL	7,680	5,596	1,190	37,000	1,136	52,602
UPPER CORE GRID PLATE	19,200	13,990	2,975	92,500	2,840	131,505
GUIDE TUBES	23,040	16,788	3,570	73,140	2,580	119,118
LOWER CORE BARREL[a]	122,880	89,536	19,040	592,000	18,177	841,633
THERMAL SHIELDS[a]	23,040	16,788	3,570	111,000	3,408	157,806
CORE SHROUD[a]	15,360	11,192	2,380	74,000	2,272	105,204
LOWER GRID PLATE[a]	19,200	13,990	2,975	92,500	2,840	131,505
LOWER SUPPORT COLUMN	3,840	2,798	595	18,500	568	26,301
LOWER CORE FORGING	42,240	30,778	6,545	203,500	6,248	289,311
MISC INTERNALS	30,720	22,384	4,760	148,000	4,544	210,408
BIO SHIELD CONCRETE	958,464	545,610	116,025	0	26,335	1,646,434
REACTOR CAVITY LINER	19,661	11,192	2,380	0	540	33,773
REACTOR COOLANT PUMPS	161,280	33,576	7,140	0	4,398	206,394
PRESSURIZER	138,240	22,384	4,760	0	3,612	168,996
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	15,360	8,394	1,785	0	490	26,029
PRESSURIZER RELIEF TANK	46,080	5,596	1,190	0	1,158	54,024
SAFETY INJECTION ACCUM TANKS	153,600	22,384	4,760	0	3,952	184,696
STEAM GENERATORS	820,301	89,536	19,040	0	20,366	949,243
REACTOR COOLANT PIPING	126,720	19,586	4,165	0	3,288	153,759
REMAINING CONTAM. MATLS	2,020,147	1,149,978	244,545	0	55,377	3,470,047
CONTAMINATED MATRL OTHR BLD	18,320,717	10,377,782	2,206,855	0	495,141	31,400,495
FILTER CARTRIDGES	12,096	16,788	3,570	511,980	12,274	556,708
SPENT RESINS	76,800	55,960	11,900	370,000	11,360	526,020
COMBUSTIBLE WASTES	388,800	167,880	35,700	0	12,747	605,127
EVAPORATOR BOTTOMS	360,960	263,012	55,930	547,031	23,586	1,250,519
POST-TMI-2 ADDITIONS	597,619	0	0	0	13,229	610,848
HEAVY OBJECT CHARGE						120,875
SITE AVAILABILITY CHARGES, (3 YRS)						265,092
SUBTOTAL PWR COSTS	24,854,285	13,254,126	2,818,515	3,671,671	763,654	45,748,218
TAXES & FEES (% OF CHARGES)						2,001,813
TAXES & FEES ($/CU.FT.)						8,122,950
ANNUAL PERMIT FEES (3 YRS)						112,500
TOTAL PWR COSTS						55,985,481

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.3 Burial Costs at the Washington Site Reference BWR (1997 dollars)

COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	BENTON COUNTY TAX SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	13,555	39,172	16,660	8,713,600	195,949	8,978,936
FUEL SUPPORT & PIECES	6,797	19,586	8,330	259,000	6,513	300,226
CONTROL RODS/INCORES	20,352	22,384	4,760	2,489,600	56,579	2,593,675
CONTROL RODS GUIDES	5,414	16,788	7,140	222,000	5,573	256,916
JET PUMPS	19,008	55,960	23,800	12,448,000	279,919	12,826,687
TOP FUEL GUIDES	32,563	201,456	42,840	22,406,400	505,874	23,189,133
CORE SUPPORT PLATE	14,938	44,768	18,445	573,500	14,447	666,098
CORE SHROUD[a]	63,744	391,720	83,300	43,568,000	983,654	45,090,418
REACTOR VESSEL WALL	10,867	55,960	13,090	407,000	10,753	497,670
SAC SHIELD	122,035	39,172	8,330	0	3,668	173,205
REACT. WATER REC	119,347	13,990	2,975	0	2,987	139,299
SAC SHIELD	420,403	106,324	22,610	0	11,929	561,266
OTHER PRIMARY CONTAINMENT	4,795,008	2,716,858	577,745	0	173,158	8,262,769
CONTAINM. ATMOSPHERIC	65,088	5,596	1,190	0	1,579	73,453
HIGH PRESSURE CORE SPRAY	23,040	5,596	1,190	0	648	30,474
LOW PRESSURE CORE SPRAY	13,555	2,798	595	0	369	17,317
REACTOR BLDG CLOSED COOLING	43,392	8,394	1,785	0	1,168	54,739
REACTOR CORE ISO COOLING	17,626	2,798	595	0	459	21,478
RESIDUAL HEAT REMOVAL	84,096	13,990	4,165	0	2,230	104,481
POOL LINER & RACKS	516,672	50,364	10,710	0	12,679	590,425
CONTAMINATED CONCRETE	588,557	78,344	16,660	0	14,961	698,521
OTHER REACTOR BUILDING	1,924,224	1,424,182	302,855	0	77,725	3,728,986
TURBINE	1,906,637	162,284	34,510	0	46,207	2,149,638
NUCLEAR STEAM CONDENSATE	492,250	33,576	7,140	0	11,724	544,690
LOW PRESSURE FEEDWATER HEATERS	999,398	117,516	24,990	0	25,021	1,166,925
MAIN STEAM	96,307	8,394	1,785	0	2,339	108,825
MOISTURE SEPARATOR REHEATERS	969,600	72,748	15,470	0	23,257	1,081,075
REACTOR FEEDWATER PUMPS	263,078	27,980	5,950	0	6,514	303,522
HIGH PRESSURE FEEDWATER HEATERS	164,083	22,384	4,760	0	4,184	195,411
OTHER TG BLDG	6,586,368	4,331,304	921,060	0	252,635	12,091,367
RAD WASTE BLDG	3,261,350	201,456	381,990	0	83,944	3,928,740
REACTOR BLDG	411,264	89,536	38,080	0	11,693	550,573
TG BLDG	277,632	58,758	24,990	0	7,845	369,225
RAD WASTE & CONTROL	239,616	53,162	22,610	0	6,841	322,229
CONCENTRATOR BOTTOMS	864,000	629,550	133,875	1,298,083	63,743	2,989,251
OTHER	234,240	170,678	36,295	60,440	10,725	512,378
POST-TMI-2 ADDITIONS	48,845	0	0	0	1,081	49,926
HEAVY OBJECT CHARGE						190,500
SITE AVAILABILITY CHARGES, (3.5 YRS)						353,456
SUBTOTAL BWR COSTS	25,734,950	11,295,526	2,823,275	92,445,623	2,920,573	135,763,903
TAXES & FEES (% OF CHARGES)						5,911,528
TAXES & FEES ($/CU.FT.)						8,410,772
ANNUAL PERMIT FEES (3.5 YRS)						131,250
TOTAL BWR COSTS						150,217,453

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.4 Burial Costs at the Washington Site Reference PWR (1996 dollars)

COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	BENTON COUNTY TAX SURCHARGE	DISPOSAL COST
VESSEL WALL	207,860	32,034	5,989	196,270	11,795	453,948
VESSEL HEAD & BOTTOM	218,800	33,720	6,304	0	5,576	264,400
UPPER CORE SUPPORT ASSM	21,880	3,372	630	13,828	1,014	40,724
UPPER SUPPORT COLUMN	21,880	3,372	630	13,828	1,014	40,724
UPPER CORE BARREL	10,940	1,686	315	10,330	621	23,892
UPPER CORE GRID PLATE	27,350	4,215	788	25,825	1,552	59,730
GUIDE TUBES	32,820	5,058	946	20,742	1,520	61,086
LOWER CORE BARREL[a]	175,040	26,976	5,043	165,280	9,933	382,272
THERMAL SHIELDS[a]	32,820	5,058	946	30,990	1,862	71,676
CORE SHROUD[a]	21,880	3,372	630	20,660	1,242	47,784
LOWER GRID PLATE[a]	27,350	4,215	788	25,825	1,552	59,730
LOWER SUPPORT COLUMN	5,470	843	158	5,165	310	11,946
LOWER CORE FORGING	60,170	9,273	1,734	56,815	3,414	131,406
MISC INTERNALS	43,760	6,744	1,261	41,320	2,483	95,568
BIO SHIELD CONCRETE	1,365,312	164,385	30,732	0	30,998	1,591,427
REACTOR CAVITY LINER	28,006	3,372	630	0	636	32,645
REACTOR COOLANT PUMPS	229,740	10,116	1,891	0	5,213	246,960
PRESSURIZER	196,920	6,744	1,261	0	4,419	209,344
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	21,880	2,529	473	0	518	25,400
PRESSURIZER RELIEF TANK	65,640	1,686	315	0	1,459	69,100
SAFETY INJECTION ACCUM TANKS	218,800	6,744	1,261	0	4,891	231,696
STEAM GENERATORS	1,168,501	26,976	5,043	0	25,892	1,226,413
REACTOR COOLANT PIPING	180,510	5,901	1,103	0	4,044	191,558
REMAINING CONTAM. MATLS	2,877,658	346,473	64,774	0	65,293	3,354,197
CONTAMINATED MATRL OTHR BLD	26,097,479	3,126,687	584,538	0	589,919	30,398,624
FILTER CARTRIDGES	17,231	5,058	946	145,194	5,288	173,716
SPENT RESINS	109,400	16,860	3,152	103,300	6,208	238,920
COMBUSTIBLE WASTES	553,838	50,580	9,456	0	13,232	627,105
EVAPORATOR BOTTOMS	514,180	79,242	14,814	152,744	16,866	777,846
POST-TMI-2 ADDITIONS	851,296	0	0	0	0	851,296
HEAVY OBJECT CHARGE						120,875
SITE AVAILABILITY CHARGES, (3 YRS)						125,214
SUBTOTAL PWR COSTS	35,404,411	3,993,291	746,551	1,028,116	818,763	42,237,221
TAXES & FEES (% OF CHARGES)						1,843,121
TAXES & FEES ($/CU.FT.)						6,990,268
ANNUAL PERMIT FEES (3 YRS)						112,500
TOTAL PWR COSTS						51,183,110

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.4 Burial Costs at the Washington Site Reference BWR (1996 dollars)

COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	BENTON COUNTY TAX SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	19,309	11,802	4,413	2,425,752	81,068	2,542,344
FUEL SUPPORT & PIECES	9,682	5,901	2,206	72,310	2,776	92,876
CONTROL RODS/INCORES	28,991	6,744	1,261	693,072	23,741	753,808
CONTROL RODS GUIDES	7,713	5,058	1,891	61,980	2,367	79,009
JET PUMPS	27,077	16,860	6,304	3,465,360	115,800	3,631,401
TOP FUEL GUIDES	46,386	60,696	11,347	6,237,648	209,037	6,565,114
CORE SUPPORT PLATE	21,278	13,488	4,886	160,115	6,153	205,920
CORE SHROUD[a]	90,802	118,020	22,064	12,128,760	406,475	12,766,121
REACTOR VESSEL WALL	15,480	16,860	3,467	113,630	4,531	153,968
SAC SHIELD	173,837	11,802	2,206	0	4,050	191,895
REACT. WATER REC	170,008	4,215	788	0	3,774	178,785
SAC SHIELD	598,856	32,034	5,989	0	13,732	650,610
OTHER PRIMARY CONTAINMENT	6,830,389	818,553	153,030	0	168,126	7,970,098
CONTAINM. ATMOSPHERIC	92,717	1,686	315	0	2,043	96,761
HIGH PRESSURE CORE SPRAY	32,820	1,686	315	0	751	35,572
LOW PRESSURE CORE SPRAY	19,309	843	158	0	438	20,748
REACTOR BLDG CLOSED COOLING	61,811	2,529	473	0	1,398	66,210
REACTOR CORE ISO COOLING	25,107	843	158	0	563	26,671
RESIDUAL HEAT REMOVAL	119,793	4,215	1,103	0	2,698	127,809
POOL LINER & RACKS	735,989	15,174	2,837	0	16,262	770,261
CONTAMINATED CONCRETE	838,387	23,604	4,413	0	18,685	885,089
OTHER REACTOR BUILDING	2,741,017	429,087	80,218	0	70,022	3,320,345
TURBINE	2,715,964	48,894	9,141	0	59,831	2,833,830
NUCLEAR STEAM CONDENSATE	701,199	10,116	1,891	0	15,383	728,590
LOW PRESSURE FEEDWATER HEATERS	1,423,622	35,406	6,619	0	31,609	1,497,257
MAIN STEAM	137,188	2,529	473	0	3,024	143,213
MOISTURE SEPARATOR REHEATERS	1,381,175	21,918	4,098	0	30,351	1,437,542
REACTOR FEEDWATER PUMPS	374,750	8,430	1,576	0	8,298	393,054
HIGH PRESSURE FEEDWATER HEATERS	233,733	6,744	1,261	0	5,213	246,951
OTHER TG BLDG	9,382,144	1,304,964	243,965	0	235,521	11,166,594
RAD WASTE BLDG	4,645,726	60,696	101,179	0	103,697	4,911,298
REACTOR BLDG	585,837	26,976	10,086	0	13,431	636,331
TG BLDG	395,481	17,703	6,619	0	9,052	428,855
RAD WASTE & CONTROL	341,328	16,017	5,989	0	7,834	371,168
CONCENTRATOR BOTTOMS	1,230,750	189,675	35,460	362,456	43,389	1,861,730
OTHER	333,670	51,423	9,614	16,882	9,054	420,643
POST-TMI-2 ADDITIONS	69,578	0	0	0	69,578	69,578
HEAVY OBJECT CHARGE						190,500
SITE AVAILABILITY CHARGE (3.5 YRS)						166,952
SUBTOTAL BWR COSTS	36,658,901	3,403,191	747,812	25,737,965	1,730,180	68,635,500
TAXES & FEES (% OF CHARGES)						2,977,287
TAXES & FEES ($/CU.FT.)						7,237,955
ANNUAL PERMIT FEES (3.5 YRS)						131,250
TOTAL BWR COSTS						78,981,992

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.5 Burial Costs at the Washington Site
Reference PWR (1995 dollars)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	0	49,780	108,285	139,570	141,702	439,337
VESSEL HEAD & BOTTOM	0	40,000	0	0	149,160	189,160
UPPER CORE SUPPORT ASSM	0	4,000	0	6,611	14,916	25,527
UPPER SUPPORT COLUMN	0	4,000	0	6,611	14,916	25,527
UPPER CORE BARREL	0	2,620	5,699	8,299	7,458	24,077
UPPER CORE GRID PLATE	0	6,550	19,947	20,749	18,645	65,891
GUIDE TUBES	0	6,000	0	6,224	22,374	34,598
LOWER CORE BARREL[a]	0	41,920	344,594	132,790	119,328	638,632
THERMAL SHIELDS[a]	0	7,860	73,525	24,898	22,374	128,658
CORE SHROUD[a]	0	5,240	1,519,808	16,599	14,916	1,556,562
LOWER GRID PLATE[a]	0	6,550	245,312	20,749	18,645	291,256
LOWER SUPPORT COLUMN	0	1,310	5,813	4,150	3,729	15,002
LOWER CORE FORGING	0	14,410	25,076	45,647	41,019	126,151
MISC INTERNALS	0	10,480	18,237	33,198	29,832	91,746
BIO SHIELD CONCRETE	0	0	0	0	930,758	930,758
REACTOR CAVITY LINER	0	0	0	0	19,092	19,092
REACTOR COOLANT PUMPS	0	0	0	0	156,618	156,618
PRESSURIZER	0	0	0	0	134,244	134,244
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	14,916	14,916
PRESSURIZER RELIEF TANK	0	0	0	0	44,748	44,748
SAFETY INJECTION ACCUM TANKS	0	0	0	0	149,160	149,160
STEAM GENERATORS	0	0	72,947	0	796,589	869,536
REACTOR COOLANT PIPING	0	0	0	0	123,057	123,057
REMAINING CONTAM. MATLS	0	0	0	0	1,961,752	1,961,752
CONTAMINATED MATRL OTHR BLD	0	0	0	0	17,791,134	17,791,134
FILTER CARTRIDGES	0	6,000	20,517	25,851	11,746	64,114
SPENT RESINS	0	26,200	79,788	63,922	74,580	244,490
COMBUSTIBLE WASTES	0	60,000	0	0	377,561	437,561
EVAPORATOR BOTTOMS	0	94,000	87,767	77,377	350,526	609,670
POST-TMI-2 ADDITIONS	0	0	0	0	580,344	580,344
HEAVY OBJECT CHARGE	102,800	0	0	0	0	102,800
SUBTOTAL PWR COSTS	102,800	386,920	2,627,315	633,244	24,135,841	27,886,119
TAXES & FEES (% OF CHARGES)						1,259,058
TAXES & FEES ($/CU.FT.)						6,990,268
ANNUAL PERMIT FEES (3 YRS)						112,500
TOTAL PWR COSTS						36,247,945

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.5 Burial Costs at the Washington Site Reference BWR (1995 dollars)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	36,680	47,873	356,499	13,163	454,215
FUEL SUPPORT & PIECES	0	18,340	0	51,421	6,600	76,361
CONTROL RODS/INCORES	0	10,480	104,974	967,726	19,764	1,102,944
CONTROL RODS GUIDES	0	12,000	0	25,987	5,258	43,245
JET PUMPS	0	52,400	68,390	871,652	18,459	1,010,901
TOP FUEL GUIDES	0	94,320	205,171	1,568,974	31,622	1,900,087
CORE SUPPORT PLATE	0	31,000	0	67,134	14,506	112,639
CORE SHROUD[a]	0	183,400	3,162,726	2,283,134	61,901	5,691,161
REACTOR VESSEL WALL	0	22,000	25,076	47,643	10,553	105,272
SAC SHIELD	0	0	0	0	118,508	118,508
REACT. WATER REC	0	0	0	0	115,897	115,897
SAC SHIELD	0	0	0	0	408,251	408,251
OTHER PRIMARY CONTAINMENT	0	0	0	0	4,656,402	4,656,402
CONTAINM. ATMOSPHERIC	0	0	0	0	63,207	63,207
HIGH PRESSURE CORE SPRAY	0	0	0	0	22,374	22,374
LOW PRESSURE CORE SPRAY	0	0	0	0	13,163	13,163
REACTOR BLDG CLOSED COOLING	0	0	0	0	42,138	42,138
REACTOR CORE ISO COOLING	0	0	0	0	17,116	17,116
RESIDUAL HEAT REMOVAL	0	0	0	0	81,665	81,665
POOL LINER & RACKS	0	0	0	0	501,737	501,737
CONTAMINATED CONCRETE	0	0	0	0	571,544	571,544
OTHER REACTOR BUILDING	0	0	0	0	1,868,602	1,868,602
TURBINE	0	0	0	0	1,851,523	1,851,523
NUCLEAR STEAM CONDENSATE	0	0	0	0	478,021	478,021
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	970,510	970,510
MAIN STEAM	0	0	0	0	93,523	93,523
MOISTURE SEPARATOR REHEATERS	0	0	0	0	941,573	941,573
REACTOR FEEDWATER PUMPS	0	0	0	0	255,474	255,474
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	159,340	159,340
OTHER TG BLDG	0	0	0	0	6,395,981	6,395,981
RAD WASTE BLDG	0	0	0	0	3,167,077	3,167,077
REACTOR BLDG	0	64,000	0	0	281,593	345,593
TG BLDG	0	42,000	0	0	190,110	232,110
RAD WASTE & CONTROL	0	38,000	0	0	164,094	202,094
CONCENTRATOR BOTTOMS	0	225,000	207,449	183,338	839,025	1,454,812
OTHER	0	61,000	0	5,197	227,469	293,666
POST-TMI-2 ADDITIONS	0	0	0	0	47,433	47,433
HEAVY OBJECT CHARGE	177,200	0	0	0	0	177,200
SUBTOTAL BWR COSTS	177,200	890,620	3,821,659	6,428,704	24,725,174	36,043,357
TAXES & FEES (% OF CHARGES)						1,627,358
TAXES & FEES ($/CU.FT.)						7,237,955
ANNUAL PERMIT FEES (3.5 YRS)						131,250
TOTAL BWR COSTS						45,039,919

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.6 Burial Costs at the South Carolina Site Reference PWR in Atlantic Compact (2000 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
VESSEL WALL	2,617,120	1,900,000	5,016,000	0	1,256,218	10,789,338
VESSEL HEAD & BOTTOM	1,667,358	2,000,000	6,600	0	0	3,673,958
UPPER CORE SUPPORT ASSM	157,410	200,000	3,300	0	50,371	411,081
UPPER SUPPORT COLUMN	145,530	200,000	33,000	0	46,570	425,100
UPPER CORE BARREL	69,300	100,000	264,000	0	33,264	466,564
UPPER CORE GRID PLATE	173,250	250,000	660,000	0	83,160	1,166,410
GUIDE TUBES	256,410	300,000	33,000	0	69,231	658,641
LOWER CORE BARREL[a]	1,108,800	1,600,000	4,224,000	0	532,224	7,465,024
THERMAL SHIELDS[a]	207,900	300,000	792,000	0	99,792	1,399,692
CORE SHROUD[a]	160,974	200,000	8,052,000	0	77,268	8,490,242
LOWER GRID PLATE[a]	173,250	250,000	1,320,000	0	83,160	1,826,410
LOWER SUPPORT COLUMN	43,956	50,000	132,000	0	21,099	247,055
LOWER CORE FORGING	477,576	550,000	825,000	0	229,236	2,081,812
MISC INTERNALS	387,200	400,000	660,000	0	185,856	1,633,056
BIO SHIELD CONCRETE	9,438,000	0	396,000	0	0	9,834,000
REACTOR CAVITY LINER	190,080	0	3,300	0	0	193,380
REACTOR COOLANT PUMPS	3,308,800	0	25,628	0	0	3,334,428
PRESSURIZER	1,501,500	0	1,673	0	0	1,503,173
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	138,600	0	3,891	0	0	142,491
PRESSURIZER RELIEF TANK	415,800	0	1,333	0	0	417,133
SAFETY INJECTION ACCUM TANKS	1,481,040	0	26,875	0	0	1,507,915
STEAM GENERATORS	12,108,800	0	1,452,000	0	0	13,560,800
REACTOR COOLANT PIPING	1,318,668	0	98,340	0	0	1,417,008
REMAINING CONTAM. MATLS	23,311,530	0	73,851	0	0	23,385,381
CONTAMINATED MATRL OTHR BLD	179,336,381	0	60,803	0	0	179,397,184
FILTER CARTRIDGES	237,600	300,000	1,650,000	0	28,512	2,216,112
SPENT RESINS	871,200	1,000,000	2,640,000	0	418,176	4,929,376
COMBUSTIBLE WASTES	4,158,000	3,000,000	99,000	0	0	7,257,000
EVAPORATOR BOTTOMS	4,094,640	4,700,000	12,408,000	0	559,310	21,761,950
POST-TMI-2 ADDITIONS	8,217,949	0	0	0	0	8,217,949
SITE ACCESS FEES, (3 YRS)						0
SUBTOTAL PWR COSTS	257,774,622	17,300,000	40,961,593	0	3,773,446	319,809,662
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						2,588,988
TOTAL PWR COSTS (INSIDE COMPACT)						322,398,650

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.6 Burial Costs at the South Carolina Site Reference BWR in Atlantic Compact (2000 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	160,838	1,400,000	1,848,000	0	77,202	3,486,040
FUEL SUPPORT & PIECES	70,852	700,000	231,000	0	34,009	1,035,861
CONTROL RODS/INCORES	310,947	400,000	1,056,000	0	101,254	1,768,201
CONTROL RODS GUIDES	59,290	600,000	33,000	0	21,937	714,227
JET PUMPS	171,518	2,000,000	2,640,000	0	82,328	4,893,846
TOP FUEL GUIDES	293,832	3,600,000	9,504,000	0	141,039	13,538,871
CORE SUPPORT PLATE	196,988	1,550,000	214,500	0	72,886	2,034,374
CORE SHROUD[a]	575,190	7,000,000	18,480,000	0	276,091	26,331,281
REACTOR VESSEL WALL	125,144	1,100,000	712,800	0	46,303	1,984,247
SAC SHIELD	2,632,969	0	55,440	0	0	2,688,409
REACT. WATER REC	1,139,268	0	14,503	0	0	1,153,771
SAC SHIELD	6,818,592	0	51,086	0	0	6,869,678
OTHER PRIMARY CONTAINMENT	47,821,620	0	582,668	0	0	48,404,288
CONTAINM. ATMOSPHERIC	587,318	0	7,909	0	0	595,227
HIGH PRESSURE CORE SPRAY	295,240	0	2,800	0	0	298,040
LOW PRESSURE CORE SPRAY	130,680	0	1,647	0	0	132,327
REACTOR BLDG CLOSED COOLING	460,768	0	5,273	0	0	466,041
REACTOR CORE ISO COOLING	159,044	0	2,142	0	0	161,185
RESIDUAL HEAT REMOVAL	890,570	0	10,219	0	0	900,789
POOL LINER & RACKS	5,873,098	0	62,784	0	0	5,935,882
CONTAMINATED CONCRETE	6,477,808	0	71,519	0	0	6,549,326
OTHER REACTOR BUILDING	17,363,115	0	233,823	0	0	17,596,938
TURBINE	21,729,209	0	231,686	0	0	21,960,895
NUCLEAR STEAM CONDENSATE	4,441,784	0	59,816	0	0	4,501,600
LOW PRESSURE FEEDWATER HEATERS	9,644,184	0	121,443	0	0	9,765,627
MAIN STEAM	869,022	0	11,703	0	0	880,725
MOISTURE SEPARATOR REHEATERS	8,749,125	0	117,822	0	0	8,866,947
REACTOR FEEDWATER PUMPS	2,373,872	0	31,968	0	0	2,405,840
HIGH PRESSURE FEEDWATER HEATERS	1,564,830	0	19,939	0	0	1,584,769
OTHER TG BLDG	59,431,680	0	800,347	0	0	60,232,027
RAD WASTE BLDG	29,428,592	0	396,305	0	0	29,824,897
REACTOR BLDG	7,523,380	3,200,000	62,700	0	0	10,786,080
TG BLDG	4,949,592	2,100,000	41,250	0	0	7,090,842
RAD WASTE & CONTROL	4,553,625	1,900,000	37,950	0	0	6,491,575
CONCENTRATOR BOTTOMS	16,827,644	11,250,000	29,700,000	0	2,279,585	60,057,229
OTHER	4,562,161	3,050,000	316,470	0	113,680	8,042,311
POST-TMI-2 ADDITIONS	671,672	0	0	0	0	671,672
SITE ACCESS FEES, (3.5 YRS)						0
SUBTOTAL BWR COSTS	269,835,058	39,850,000	67,770,510	0	3,246,316	380,701,883
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						2,680,724
TOTAL BWR COSTS (INSIDE COMPACT)						383,382,607

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.7 Burial Costs at the South Carolina Site Reference PWR in Non-Atlantic Compact (2000 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
VESSEL WALL	2,617,120	1,900,000	5,472,000	0	1,256,218	11,245,338
VESSEL HEAD & BOTTOM	1,667,358	2,000,000	7,200	0	0	3,674,558
UPPER CORE SUPPORT ASSM	157,410	200,000	3,600	0	50,371	411,381
UPPER SUPPORT COLUMN	145,530	200,000	36,000	0	46,570	428,100
UPPER CORE BARREL	69,300	100,000	288,000	0	33,264	490,564
UPPER CORE GRID PLATE	173,250	250,000	720,000	0	83,160	1,226,410
GUIDE TUBES	256,410	300,000	36,000	0	69,231	661,641
LOWER CORE BARREL[a]	1,108,800	1,600,000	4,608,000	0	532,224	7,849,024
THERMAL SHIELDS[a]	207,900	300,000	864,000	0	99,792	1,471,692
CORE SHROUD[a]	160,974	200,000	8,784,000	0	77,268	9,222,242
LOWER GRID PLATE[a]	173,250	250,000	1,440,000	0	83,160	1,946,410
LOWER SUPPORT COLUMN	43,956	50,000	144,000	0	21,099	259,055
LOWER CORE FORGING	477,576	550,000	900,000	0	229,236	2,156,812
MISC INTERNALS	387,200	400,000	720,000	0	185,856	1,693,056
BIO SHIELD CONCRETE	9,438,000	0	432,000	0	0	9,870,000
REACTOR CAVITY LINER	190,080	0	3,600	0	0	193,680
REACTOR COOLANT PUMPS	3,308,800	0	27,958	0	0	3,336,758
PRESSURIZER	1,501,500	0	1,825	0	0	1,503,325
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	138,600	0	4,244	0	0	142,844
PRESSURIZER RELIEF TANK	415,800	0	1,454	0	0	417,254
SAFETY INJECTION ACCUM TANKS	1,481,040	0	29,318	0	0	1,510,358
STEAM GENERATORS	12,108,800	0	1,584,000	0	0	13,692,800
REACTOR COOLANT PIPING	1,318,668	0	107,280	0	0	1,425,948
REMAINING CONTAM. MATLS	23,311,530	0	80,564	0	0	23,392,094
CONTAMINATED MATRL OTHR BLD	179,336,381	0	66,330	0	0	179,402,711
FILTER CARTRIDGES	237,600	300,000	1,800,000	0	28,512	2,366,112
SPENT RESINS	871,200	1,000,000	2,880,000	0	418,176	5,169,376
COMBUSTIBLE WASTES	4,158,000	3,000,000	108,000	0	0	7,266,000
EVAPORATOR BOTTOMS	4,094,640	4,700,000	13,536,000	0	559,310	22,889,950
POST-TMI-2 ADDITIONS	8,217,949	0	0	0	0	8,217,949
SITE ACCESS FEES, (3 YRS)						0
SUBTOTAL PWR COSTS	257,774,622	17,300,000	44,685,374	0	3,773,446	323,533,443
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (OUTSIDE COMPACT)						2,588,988
TOTAL PWR COSTS (OUTSIDE COMPACT)						326,122,431

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.7 Burial Costs at the South Carolina Site Reference BWR in Non-Atlantic Compact (2000 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	160,838	1,400,000	2,016,000	0	77,202	3,654,040
FUEL SUPPORT & PIECES	70,852	700,000	252,000	0	34,009	1,056,861
CONTROL RODS/INCORES	210,947	400,000	1,152,000	0	101,254	1,864,201
CONTROL RODS GUIDES	59,290	600,000	36,000	0	21,937	717,227
JET PUMPS	171,518	2,000,000	2,880,000	0	82,328	5,133,846
TOP FUEL GUIDES	293,832	3,600,000	10,368,000	0	141,039	14,402,871
CORE SUPPORT PLATE	196,988	1,550,000	234,000	0	72,886	2,053,874
CORE SHROUD[a]	575,190	7,000,000	20,160,000	0	276,091	28,011,281
REACTOR VESSEL WALL	125,144	1,100,000	777,600	0	46,303	2,049,047
SAC SHIELD	2,632,969	0	60,480	0	0	2,693,449
REACT. WATER REC	1,139,268	0	15,821	0	0	1,155,089
SAC SHIELD	6,818,592	0	55,730	0	0	6,874,322
OTHER PRIMARY CONTAINMENT	47,821,620	0	635,638	0	0	48,457,258
CONTAINM. ATMOSPHERIC	587,318	0	8,628	0	0	595,946
HIGH PRESSURE CORE SPRAY	295,240	0	3,054	0	0	298,294
LOW PRESSURE CORE SPRAY	130,680	0	1,797	0	0	132,477
REACTOR BLDG CLOSED COOLING	460,768	0	5,752	0	0	466,520
REACTOR CORE ISO COOLING	159,044	0	2,336	0	0	161,380
RESIDUAL HEAT REMOVAL	890,570	0	11,148	0	0	901,718
POOL LINER & RACKS	5,873,098	0	68,491	0	0	5,941,589
CONTAMINATED CONCRETE	6,477,808	0	78,021	0	0	6,555,828
OTHER REACTOR BUILDING	17,363,115	0	255,080	0	0	17,618,195
TURBINE	21,729,209	0	252,749	0	0	21,981,958
NUCLEAR STEAM CONDENSATE	4,441,784	0	65,254	0	0	4,507,037
LOW PRESSURE FEEDWATER HEATERS	9,644,184	0	132,483	0	0	9,776,667
MAIN STEAM	869,022	0	12,767	0	0	881,789
MOISTURE SEPARATOR REHEATERS	8,749,125	0	128,533	0	0	8,877,658
REACTOR FEEDWATER PUMPS	2,373,872	0	34,874	0	0	2,408,746
HIGH PRESSURE FEEDWATER HEATERS	1,564,830	0	21,751	0	0	1,586,581
OTHER TG BLDG	59,431,680	0	873,105	0	0	60,304,785
RAD WASTE BLDG	29,428,592	0	432,333	0	0	29,860,924
REACTOR BLDG	7,523,380	3,200,000	68,400	0	0	10,791,780
TG BLDG	4,949,592	2,100,000	45,000	0	0	7,094,592
RAD WASTE & CONTROL	4,553,625	1,900,000	41,400	0	0	6,495,025
CONCENTRATOR BOTTOMS	16,827,644	11,250,000	32,400,000	0	2,279,585	62,757,229
OTHER	4,562,161	3,050,000	345,240	0	113,680	8,071,081
POST-TMI-2 ADDITIONS	671,672	0	0	0	0	671,672
SITE ACCESS FEES, (3.5 YRS)						0
SUBTOTAL BWR COSTS	269,835,058	39,850,000	73,931,465	0	3,246,316	386,862,839
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (OUTSIDE COMPACT)						2,680,724
TOTAL BWR COSTS (OUTSIDE COMPACT)						389,543,563

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.8 Burial Costs at the South Carolina Site Reference PWR (1998 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
VESSEL WALL	2,379,200	1,140,000	4,560,000	0	1,142,016	9,221,216
VESSEL HEAD & BOTTOM	1,515,780	1,200,000	6,000	0	0	2,721,780
UPPER CORE SUPPORT ASSM	143,100	120,000	3,000	0	45,792	311,892
UPPER SUPPORT COLUMN	132,300	120,000	30,000	0	42,336	324,636
UPPER CORE BARREL	63,000	60,000	240,000	0	30,240	393,240
UPPER CORE GRID PLATE	157,500	150,000	600,000	0	75,600	983,100
GUIDE TUBES	233,100	180,000	30,000	0	62,937	506,037
LOWER CORE BARREL[a]	1,008,000	960,000	3,840,000	0	483,840	6,291,840
THERMAL SHIELDS[a]	189,000	180,000	720,000	0	90,720	1,179,720
CORE SHROUD[a]	108,400	120,000	7,320,000	0	52,032	7,600,432
LOWER GRID PLATE[a]	38,280	150,000	1,200,000	0	18,374	1,406,654
LOWER SUPPORT COLUMN	39,960	30,000	120,000	0	19,181	209,141
LOWER CORE FORGING	434,160	330,000	750,000	0	208,397	1,722,557
MISC INTERNALS	352,000	240,000	600,000	0	168,960	1,360,960
BIO SHIELD CONCRETE	8,580,000	0	360,000	0	0	8,940,000
REACTOR CAVITY LINER	172,800	0	3,000	0	0	175,800
REACTOR COOLANT PUMPS	3,008,000	0	23,298	0	0	3,031,298
PRESSURIZER	1,365,000	0	1,521	0	0	1,366,521
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	126,000	0	3,537	0	0	129,537
PRESSURIZER RELIEF TANK	378,000	0	1,212	0	0	379,212
SAFETY INJECTION ACCUM TANKS	1,346,400	0	24,432	0	0	1,370,832
STEAM GENERATORS	11,008,000	0	1,320,000	0	0	12,328,000
REACTOR COOLANT PIPING	1,198,789	0	89,400	0	0	1,288,189
REMAINING CONTAM. MATLS	21,192,300	0	67,137	0	0	21,259,437
CONTAMINATED MATRL OTHR BLD	163,033,074	0	55,275	0	0	163,088,349
FILTER CARTRIDGES	216,000	180,000	1,500,000	0	25,920	1,921,920
SPENT RESINS	792,000	600,000	2,400,000	0	380,160	4,172,160
COMBUSTIBLE WASTES	3,780,000	1,800,000	90,000	0	0	5,670,000
EVAPORATOR BOTTOMS	3,722,400	2,820,000	11,280,000	0	508,464	18,330,864
POST-TMI-2 ADDITIONS	7,470,863	0	0	0	0	7,470,863
SITE ACCESS FEES, (3 YRS)						615,000
SUBTOTAL PWR COSTS	234,183,406	10,380,000	37,237,812	0	3,354,969	285,771,187
TAXES AND SURCHARGES						0
TOTAL PWR COSTS						285,771,187

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.8 Burial Costs at the South Carolina Site Reference BWR (1998 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	146,216	840,000	1,680,000	0	70,184	2,736,400
FUEL SUPPORT & PIECES	64,411	420,000	210,000	0	30,917	725,329
CONTROL RODS/INCORES	191,770	240,000	960,000	0	92,049	1,483,819
CONTROL RODS GUIDES	53,900	360,000	30,000	0	19,943	463,843
JET PUMPS	155,925	1,200,000	2,400,000	0	74,844	3,830,769
TOP FUEL GUIDES	267,120	2,160,000	8,640,000	0	128,218	11,195,338
CORE SUPPORT PLATE	179,080	930,000	195,000	0	66,260	1,370,340
CORE SHROUD[a]	522,900	4,200,000	16,800,000	0	250,992	21,773,892
REACTOR VESSEL WALL	113,767	660,000	648,000	0	42,094	1,463,861
SAC SHIELD	2,393,608	0	50,400	0	0	2,444,008
REACT. WATER REC	1,035,698	0	13,184	0	0	1,048,883
SAC SHIELD	6,198,720	0	46,441	0	0	6,245,161
OTHER PRIMARY CONTAINMENT	43,474,200	0	529,699	0	0	44,003,899
CONTAINM. ATMOSPHERIC	533,925	0	7,190	0	0	541,115
HIGH PRESSURE CORE SPRAY	268,400	0	2,545	0	0	270,945
LOW PRESSURE CORE SPRAY	118,800	0	1,497	0	0	120,297
REACTOR BLDG CLOSED COOLING	418,880	0	4,793	0	0	423,673
REACTOR CORE ISO COOLING	144,585	0	1,947	0	0	146,532
RESIDUAL HEAT REMOVAL	809,609	0	9,290	0	0	818,899
POOL LINER & RACKS	5,339,180	0	57,076	0	0	5,396,256
CONTAMINATED CONCRETE	5,888,916	0	65,017	0	0	5,953,933
OTHER REACTOR BUILDING	15,784,650	0	212,567	0	0	15,997,217
TURBINE	19,753,826	0	210,624	0	0	19,964,450
NUCLEAR STEAM CONDENSATE	4,037,985	0	54,378	0	0	4,092,363
LOW PRESSURE FEEDWATER HEATERS	8,767,440	0	110,402	0	0	8,877,842
MAIN STEAM	790,020	0	10,639	0	0	800,659
MOISTURE SEPARATOR REHEATERS	7,953,750	0	107,111	0	0	8,060,861
REACTOR FEEDWATER PUMPS	2,158,065	0	29,062	0	0	2,187,127
HIGH PRESSURE FEEDWATER HEATERS	1,422,573	0	18,126	0	0	1,440,699
OTHER TG BLDG	54,028,800	0	727,588	0	0	54,756,388
RAD WASTE BLDG	26,753,265	0	360,277	0	0	27,113,542
REACTOR BLDG	6,839,437	1,920,000	57,000	0	0	8,816,437
TG BLDG	4,499,629	1,260,000	37,500	0	0	5,797,129
RAD WASTE & CONTROL	4,139,659	1,140,000	34,500	0	0	5,314,159
CONCENTRATOR BOTTOMS	15,297,858	6,750,000	27,000,000	0	2,072,350	51,120,208
OTHER	4,147,419	1,830,000	287,700	0	103,346	6,368,465
POST-TMI-2 ADDITIONS	610,611	0	0	0	0	610,611
SITE ACCESS FEES, (3.5 YRS)						717,500
SUBTOTAL BWR COSTS	245,304,598	23,910,000	61,609,554	0	2,951,196	334,492,848
TAXES AND SURCHARGES						0
TOTAL BWR COSTS						334,492,848

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.9 Burial Costs at the South Carolina Site Reference PWR (1997 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
VESSEL WALL	2,379,200	1,140,000	4,560,000	0	1,142,016	9,221,216
VESSEL HEAD & BOTTOM	1,515,780	1,200,000	6,000	0	0	2,721,780
UPPER CORE SUPPORT ASSM	143,100	120,000	3,000	0	45,792	311,892
UPPER SUPPORT COLUMN	132,300	120,000	30,000	0	42,336	324,636
UPPER CORE BARREL	63,000	60,000	240,000	0	30,240	393,240
UPPER CORE GRID PLATE	157,500	150,000	600,000	0	75,600	983,100
GUIDE TUBES	233,100	180,000	30,000	0	62,937	506,037
LOWER CORE BARREL[a]	1,008,000	960,000	3,840,000	0	483,840	6,291,840
THERMAL SHIELDS[a]	189,000	180,000	720,000	0	90,720	1,179,720
CORE SHROUD[a]	108,400	120,000	7,320,000	0	52,032	7,600,432
LOWER GRID PLATE[a]	38,280	150,000	1,200,000	0	18,374	1,406,654
LOWER SUPPORT COLUMN	39,960	30,000	120,000	0	19,181	209,141
LOWER CORE FORGING	434,160	330,000	750,000	0	208,397	1,722,557
MISC INTERNALS	352,000	240,000	600,000	0	168,960	1,360,960
BIO SHIELD CONCRETE	8,580,000	0	360,000	0	0	8,940,000
REACTOR CAVITY LINER	172,800	0	3,000	0	0	175,800
REACTOR COOLANT PUMPS	3,008,000	0	23,298	0	0	3,031,298
PRESSURIZER	1,365,000	0	1,521	0	0	1,366,521
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	126,000	0	3,537	0	0	129,537
PRESSURIZER RELIEF TANK	378,000	0	1,212	0	0	379,212
SAFETY INJECTION ACCUM TANKS	1,346,400	0	24,432	0	0	1,370,832
STEAM GENERATORS	11,008,000	0	1,320,000	0	0	12,328,000
REACTOR COOLANT PIPING	1,198,789	0	89,400	0	0	1,288,189
REMAINING CONTAM. MATLS	21,192,300	0	67,137	0	0	21,259,437
CONTAMINATED MATRL OTHR BLD	163,033,074	0	55,275	0	0	163,088,349
FILTER CARTRIDGES	216,000	180,000	1,500,000	0	25,920	1,921,920
SPENT RESINS	792,000	600,000	2,400,000	0	380,160	4,172,160
COMBUSTIBLE WASTES	3,780,000	1,800,000	90,000	0	0	5,670,000
EVAPORATOR BOTTOMS	3,722,400	2,820,000	11,280,000	0	508,464	18,330,864
POST-TMI-2 ADDITIONS	7,470,863	0	0	0	0	7,470,863
SUBTOTAL PWR COSTS	234,183,406	10,380,000	37,237,812	0	3,354,969	285,156,187
TAXES AND SURCHARGES						0
TOTAL PWR COSTS						285,156,187

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.9 Burial Costs at the South Carolina Site Reference BWR (1997 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	146,216	840,000	1,680,000	0	70,184	2,736,400
FUEL SUPPORT & PIECES	64,411	420,000	210,000	0	30,917	725,329
CONTROL RODS/INCORES	191,770	240,000	960,000	0	92,049	1,483,819
CONTROL RODS GUIDES	53,900	360,000	30,000	0	19,943	463,843
JET PUMPS	155,925	1,200,000	2,400,000	0	74,844	3,830,769
TOP FUEL GUIDES	267,120	2,160,000	8,640,000	0	128,218	11,195,338
CORE SUPPORT PLATE	179,080	930,000	195,000	0	66,260	1,370,340
CORE SHROUD[a]	522,900	4,200,000	16,800,000	0	250,992	21,773,892
REACTOR VESSEL WALL	113,767	660,000	648,000	0	42,094	1,463,861
SAC SHIELD	2,393,608	0	50,400	0	0	2,444,008
REACT. WATER REC	1,035,698	0	3,300	0	0	1,038,998
SAC SHIELD	6,198,720	0	25,080	0	0	6,223,800
OTHER PRIMARY CONTAINMENT	43,474,200	0	112,200	0	0	43,586,400
CONTAINM. ATMOSPHERIC	533,925	0	1,320	0	0	535,245
HIGH PRESSURE CORE SPRAY	268,400	0	1,320	0	0	269,720
LOW PRESSURE CORE SPRAY	118,800	0	660	0	0	119,460
REACTOR BLDG CLOSED COOLING	418,880	0	1,980	0	0	420,860
REACTOR CORE ISO COOLING	144,585	0	660	0	0	145,245
RESIDUAL HEAT REMOVAL	809,609	0	4,620	0	0	814,229
POOL LINER & RACKS	5,339,180	0	9,900	0	0	5,349,080
CONTAMINATED CONCRETE	5,888,916	0	10,560	0	0	5,899,476
OTHER REACTOR BUILDING	15,784,650	0	37,620	0	0	15,822,270
TURBINE	19,753,826	0	38,280	0	0	19,792,106
NUCLEAR STEAM CONDENSATE	4,037,985	0	7,920	0	0	4,045,905
LOW PRESSURE FEEDWATER HEATERS	8,767,440	0	27,720	0	0	8,795,160
MAIN STEAM	790,020	0	1,980	0	0	792,000
MOISTURE SEPARATOR REHEATERS	7,953,750	0	17,160	0	0	7,970,910
REACTOR FEEDWATER PUMPS	2,158,065	0	6,600	0	0	2,164,665
HIGH PRESSURE FEEDWATER HEATERS	1,422,573	0	5,280	0	0	1,427,853
OTHER TG BLDG	54,028,800	0	170,280	0	0	54,199,080
RAD WASTE BLDG	26,753,265	0	47,520	0	0	26,800,785
REACTOR BLDG	6,839,437	1,920,000	96,000	0	0	8,855,437
TG BLDG	4,499,629	1,260,000	63,000	0	0	5,822,629
RAD WASTE & CONTROL	4,139,659	1,140,000	57,000	0	0	5,336,659
CONCENTRATOR BOTTOMS	15,297,858	6,750,000	27,000,000	0	2,072,350	51,120,208
OTHER	4,147,419	1,830,000	287,700	0	103,346	6,368,465
POST-TMI-2 ADDITIONS	610,611	0	0	0	0	610,611
SUBTOTAL BWR COSTS	246,578,591	23,910,000	59,649,060	0	3,422,573	331,814,854
TAXES AND SURCHARGES						0
TOTAL BWR COSTS						331,814,254

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.10 Burial Costs at the South Carolina Site Reference PWR (1996 dollars)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	83,220	87,400	1,545,460	0	314,526	2,030,606
VESSEL HEAD & BOTTOM	0	92,000	214,000	0	331,080	637,080
UPPER CORE SUPPORT ASSM	0	9,200	21,400	0	33,108	63,708
UPPER SUPPORT COLUMN	0	9,200	32,400	0	33,108	74,708
UPPER CORE BARREL	0	4,600	81,340	0	16,554	102,494
UPPER CORE GRID PLATE	0	11,500	373,750	0	41,385	426,635
GUIDE TUBES	0	13,800	48,600	0	49,662	112,062
LOWER CORE BARREL[a]	0	73,600	3,865,600	0	264,864	4,204,064
THERMAL SHIELDS[a]	0	13,800	724,800	0	49,662	788,262
CORE SHROUD[a]	0	9,200	7,368,800	0	33,108	7,411,108
LOWER GRID PLATE[a]	0	11,500	1,208,000	0	41,385	1,260,885
LOWER SUPPORT COLUMN	0	2,300	93,470	0	8,277	104,047
LOWER CORE FORGING	0	25,300	356,840	0	91,047	473,187
MISC INTERNALS	0	18,400	259,520	0	66,216	344,136
BIO SHIELD CONCRETE	0	0	0	0	2,065,939	2,065,939
REACTOR CAVITY LINER	0	0	0	0	42,378	42,378
REACTOR COOLANT PUMPS	139,200	0	0	0	347,634	486,834
PRESSURIZER	22,560	0	0	0	297,972	320,532
R.Hx,EHx,SUMP PUMP,CAVITY,PUMP	0	0	0	0	33,108	33,108
PRESSURIZER RELIEF TANK	4,380	0	0	0	99,324	103,704
SAFETY INJECTION ACCUM TANKS	33,200	0	0	0	331,080	364,280
STEAM GENERATORS	480,000	0	0	0	1,768,133	2,248,133
REACTOR COOLANT PIPING	29,050	0	0	0	273,141	302,191
REMAINING CONTAM. MATLS	0	0	0	0	4,354,364	4,354,364
CONTAMINATED MATRL OTHR BLD	0	0	0	0	39,489,733	39,489,733
FILTER CARTRIDGES	0	13,800	291,600	0	26,073	331,473
SPENT RESINS	0	46,000	1,495,000	0	165,540	1,706,540
COMBUSTIBLE WASTES	0	138,000	321,000	0	838,046	1,297,046
EVAPORATOR BOTTOMS	0	216,200	2,356,940	0	778,038	3,351,178
POST-TMI-2 ADDITIONS	0	0	0	0	1,288,150	1,288,150
SUBTOTAL PWR COSTS	791,610	795,800	20,658,520	0	53,572,634	75,818,564
BARNWELL COUNTY BUSINESS TAX						1,819,646
SOUTH CAROLINA LLRW DISPOSAL TAX (INSIDE SE COMPACT)						152,103,045
SOUTH CAROLINA LLRW DISPOSAL TAX (OUTSIDE SE COMPACT)						152,103,045
TOTAL PWR COSTS (INSIDE SE COMPACT)						229,741,255
TOTAL PWR COSTS (OUTSIDE SE COMPACT)						229,741,255

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.10 Burial Costs at the South Carolina Site Reference BWR (1996 dollars)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	64,400	680,400	0	29,218	774,018
FUEL SUPPORT & PIECES	0	32,200	680,400	0	14,650	727,250
CONTROL RODS/INCORES	12,480	18,400	966,400	0	43,868	1,041,148
CONTROL RODS GUIDES	0	27,600	72,240	0	11,671	111,511
JET PUMPS	0	92,000	972,000	0	40,971	1,104,971
TOP FUEL GUIDES	0	165,600	2,928,240	0	70,189	3,164,029
CORE SUPPORT PLATE	0	71,300	251,100	0	32,198	354,598
CORE SHROUD[a]	0	322,000	16,912,000	0	137,398	17,371,398
REACTOR VESSEL WALL	48,180	50,600	444,400	0	23,424	566,604
SAC SHIELD	75,600	0	0	0	263,043	338,643
REACT. WATER REC	58,000	0	0	0	257,249	315,249
SAC SHIELD	205,200	0	0	0	906,166	1,111,366
OTHER PRIMARY CONTAINMENT	0	0	0	0	10,335,490	10,335,490
CONTAINM. ATMOSPHERIC	4,380	0	0	0	140,295	144,675
HIGH PRESSURE CORE SPRAY	8,300	0	0	0	49,662	57,962
LOW PRESSURE CORE SPRAY	2,820	0	0	0	29,218	32,038
REACTOR BLDG CLOSED COOLING	6,570	0	0	0	93,530	100,100
REACTOR CORE ISO COOLING	2,190	0	0	0	37,991	40,181
RESIDUAL HEAT REMOVAL	19,740	0	0	0	181,266	201,006
POOL LINER & RACKS	81,000	0	0	0	1,113,670	1,194,670
CONTAMINATED CONCRETE	35,040	0	0	0	1,268,616	1,303,656
OTHER REACTOR BUILDING	0	0	0	0	4,147,605	4,147,605
TURBINE	163,560	0	0	0	4,109,696	4,273,256
NUCLEAR STEAM CONDENSATE	33,840	0	0	0	1,061,029	1,094,869
LOW PRESSURE FEEDWATER HEATERS	226,800	0	0	0	2,154,172	2,380,972
MAIN STEAM	8,460	0	0	0	207,587	216,047
MOISTURE SEPARATOR REHEATERS	140,400	0	0	0	2,089,943	2,230,343
REACTOR FEEDWATER PUMPS	21,900	0	0	0	567,057	588,957
HIGH PRESSURE FEEDWATER HEATERS	43,200	0	0	0	353,676	396,876
OTHER TG BLDG	0	0	0	0	14,196,710	14,196,710
RAD WASTE BLDG	0	0	0	0	7,029,739	7,029,739
REACTOR BLDG	0	147,200	342,400	0	886,467	1,376,067
TG BLDG	0	96,600	224,700	0	598,427	919,727
RAD WASTE & CONTROL	0	87,400	203,300	0	516,485	807,185
CONCENTRATOR BOTTOMS	0	517,500	5,598,060	0	1,862,325	7,977,885
OTHER	0	140,300	485,020	0	504,897	1,130,217
POST-TMI-2 ADDITIONS	0	0	0	0	105,283	105,283
TOTAL BWR COSTS	1,197,660	1,833,100	30,760,660	0	55,470,881	89,262,301
BARNWELL COUNTY BUSINESS TAX						2,142,295
SOUTH CAROLINA LLRW DISPOSAL TAX (INSIDE SE COMPACT)						157,492,535
SOUTH CAROLINA LLRW DISPOSAL TAX (OUTSIDE SE COMPACT)						157,492,535
TOTAL BWR COSTS (INSIDE SE COMPACT)						248,897,132
TOTAL BWR COSTS (OUTSIDE SE COMPACT)						248,897,132

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.11 Burial Costs at the South Carolina Site Reference PWR (1995 dollars)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
VESSEL WALL	83,220	87,400	1,545,460	0	319,960	2,036,040
VESSEL HEAD & BOTTOM	0	92,000	214,000	0	336,800	642,800
UPPER CORE SUPPORT ASSM	0	9,200	21,400	0	33,680	64,280
UPPER SUPPORT COLUMN	0	9,200	32,400	0	33,680	75,280
UPPER CORE BARREL	0	4,600	81,340	0	16,840	102,780
UPPER CORE GRID PLATE	0	11,500	373,750	0	42,100	427,350
GUIDE TUBES	0	13,800	48,600	0	50,520	112,920
LOWER CORE BARREL[a]	0	73,600	3,865,600	0	269,440	4,208,640
THERMAL SHIELDS[a]	0	13,800	724,800	0	50,520	789,120
CORE SHROUD[a]	0	9,200	7,368,800	0	33,680	7,411,680
LOWER GRID PLATE[a]	0	11,500	1,208,000	0	42,100	1,261,600
LOWER SUPPORT COLUMN	0	2,300	93,470	0	8,420	104,190
LOWER CORE FORGING	0	25,300	356,840	0	92,620	474,760
MISC INTERNALS	0	18,400	259,520	0	67,360	345,280
BIO SHIELD CONCRETE	0	0	0	0	2,101,632	2,101,632
REACTOR CAVITY LINER	0	0	0	0	43,110	43,110
REACTOR COOLANT PUMPS	139,200	0	0	0	353,640	492,840
PRESSURIZER	22,560	0	0	0	303,120	325,680
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	33,680	33,680
PRESSURIZER RELIEF TANK	4,380	0	0	0	101,040	105,420
SAFETY INJECTION ACCUM TANKS	33,200	0	0	0	336,800	370,000
STEAM GENERATORS	480,000	0	0	0	1,798,680	2,278,680
REACTOR COOLANT PIPING	29,050	0	0	0	277,860	306,910
REMAINING CONTAM. MATLS	0	0	0	0	4,429,594	4,429,594
CONTAMINATED MATRL OTHR BLD	0	0	0	0	40,171,988	40,171,988
FILTER CARTRIDGES	0	13,800	291,600	0	26,523	331,923
SPENT RESINS	0	46,000	1,495,000	0	168,400	1,709,400
COMBUSTIBLE WASTES	0	138,000	321,000	0	852,525	1,311,525
EVAPORATOR BOTTOMS	0	216,200	2,356,940	0	791,480	3,364,620
POST-TMI-2 ADDITIONS	0	0	0	0	1,310,405	1,310,405
SUBTOTAL PWR COSTS	791,610	795,800	20,658,520	0	54,498,197	76,744,127
BARNWELL COUNTY BUSINESS TAX						1,841,859
SOUTH CAROLINA LLRW DISPOSAL TAX (INSIDE SE COMPACT)						152,103,045
SOUTH CAROLINA LLRW DISPOSAL TAX (OUTSIDE SE COMPACT)						152,103,045
TOTAL PWR COSTS (INSIDE SE COMPACT)						230,689,031
TOTAL PWR COSTS (OUTSIDE SE COMPACT)						230,689,031

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.11 Burial Costs at the South Carolina Site Reference BWR (1995 dollars)

COMPONENT	CRANE SURCHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	BURIAL CHARGE	DISPOSAL COST
STEAM SEPARATOR	0	64,400	680,400	0	29,723	774,523
FUEL SUPPORT & PIECES	0	32,200	680,400	0	14,903	727,503
CONTROL RODS/INCORES	12,480	18,400	966,400	0	44,626	1,041,906
CONTROL RODS GUIDES	0	27,600	72,240	0	11,872	111,712
JET PUMPS	0	92,000	972,000	0	41,679	1,105,679
TOP FUEL GUIDES	0	165,600	2,928,240	0	71,402	3,165,242
CORE SUPPORT PLATE	0	71,300	251,100	0	32,754	355,154
CORE SHROUD[a]	0	322,000	16,912,000	0	139,772	17,373,772
REACTOR VESSEL WALL	48,180	50,600	444,400	0	23,829	567,009
SAC SHIELD	75,600	0	0	0	267,588	343,188
REACT. WATER REC	58,000	0	0	0	261,694	319,694
SAC SHIELD	205,200	0	0	0	921,822	1,127,022
OTHER PRIMARY CONTAINMENT	0	0	0	0	10,514,054	10,514,054
CONTAINM. ATMOSPHERIC	4,380	0	0	0	142,719	147,099
HIGH PRESSURE CORE SPRAY	8,300	0	0	0	50,520	58,820
LOW PRESSURE CORE SPRAY	2,820	0	0	0	29,723	32,543
REACTOR BLDG CLOSED COOLING	6,570	0	0	0	95,146	101,716
REACTOR CORE ISO COOLING	2,190	0	0	0	38,648	40,838
RESIDUAL HEAT REMOVAL	19,740	0	0	0	184,398	204,138
POOL LINER & RACKS	81,000	0	0	0	1,132,911	1,213,911
CONTAMINATED CONCRETE	35,040	0	0	0	1,290,533	1,325,573
OTHER REACTOR BUILDING	0	0	0	0	4,219,262	4,219,262
TURBINE	163,560	0	0	0	4,180,698	4,344,258
NUCLEAR STEAM CONDENSATE	33,840	0	0	0	1,079,360	1,113,200
LOW PRESSURE FEEDWATER HEATERS	226,800	0	0	0	2,191,389	2,418,189
MAIN STEAM	8,460	0	0	0	211,174	219,634
MOISTURE SEPARATOR REHEATERS	140,400	0	0	0	2,126,050	2,266,450
REACTOR FEEDWATER PUMPS	21,900	0	0	0	576,854	598,754
HIGH PRESSURE FEEDWATER HEATERS	43,200	0	0	0	359,787	402,987
OTHER TG BLDG	0	0	0	0	14,441,984	14,441,984
RAD WASTE BLDG	0	0	0	0	7,151,190	7,151,190
REACTOR BLDG	0	147,200	342,400	0	901,782	1,391,382
TG BLDG	0	96,600	224,700	0	608,766	930,066
RAD WASTE & CONTROL	0	87,400	203,300	0	525,408	816,108
CONCENTRATOR BOTTOMS	0	517,500	5,598,060	0	1,894,500	8,010,060
OTHER	0	140,300	485,020	0	513,620	1,138,940
POST-TMI-2 ADDITIONS	0	0	0	0	107,102	107,102
SUBTOTAL BWR COSTS	1,197,660	1,833,100	30,760,660	0	56,429,240	90,220,660
BARNWELL COUNTY BUSINESS TAX						2,165,296
SOUTH CAROLINA LLRW DISPOSAL TAX (INSIDE SE COMPACT)						157,492,535
SOUTH CAROLINA LLRW DISPOSAL TAX (OUTSIDE SE COMPACT)						157,492,535
TOTAL BWR COSTS (INSIDE SE COMPACT)						249,878,491
TOTAL BWR COSTS (OUTSIDE SE COMPACT)						249,878,491

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.12 Disposition Costs using Waste Vendors with Burial Costs at the Washington Site Reference PWR (2000 dollars)

COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	87,020	160,664	55,062	264,100	0	566,846
VESSEL HEAD & BOTTOM	91,600	169,120	57,960	640	0	319,320
UPPER CORE SUPPORT ASSM	9,160	16,912	5,796	18,200	0	50,068
UPPER SUPPORT COLUMN	9,160	16,912	5,796	18,200	0	50,068
UPPER CORE BARREL	4,580	8,456	2,898	13,900	0	29,834
UPPER CORE GRID PLATE	11,450	21,140	7,245	34,750	0	74,585
GUIDE TUBES	13,740	25,368	8,694	27,300	0	75,102
LOWER CORE BARREL[a]	73,280	135,296	46,368	222,400	0	477,344
THERMAL SHIELDS[a]	13,740	25,368	8,694	41,700	0	89,502
CORE SHROUD[a]	9,160	16,912	5,796	27,800	0	59,668
LOWER GRID PLATE[a]	11,450	21,140	7,245	34,750	0	74,585
LOWER SUPPORT COLUMN	2,290	4,228	1,449	6,950	0	14,917
LOWER CORE FORGING	25,190	46,508	15,939	76,450	0	164,087
MISC INTERNALS	18,320	33,824	11,592	55,600	0	119,336
BIO SHIELD CONCRETE	0	0	0	0	3,235,923	3,235,923
REACTOR CAVITY LINER	11,725	4,228	5,796	0	0	21,749
REACTOR COOLANT PUMPS	0	0	0	0	1,247,905	1,247,905
PRESSURIZER	0	0	0	0	323,592	323,592
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	19,581	19,581
PRESSURIZER RELIEF TANK	0	0	0	0	45,137	45,137
SAFETY INJECTION ACCUM TANKS	0	0	0	0	507,791	507,791
STEAM GENERATORS	0	0	0	0	4,566,800	4,566,800
REACTOR COOLANT PIPING	0	0	0	0	368,394	368,394
REMAINING CONTAM. MATLS	0	0	0	0	6,512,503	6,512,503
CONTAMINATED MATRL OTHR BLD	0	0	0	0	50,100,903	50,100,903
FILTER CARTRIDGES	0	0	0	0	89,610	89,610
SPENT RESINS	0	0	0	0	298,701	298,701
COMBUSTIBLE WASTES	0	0	0	0	896,102	896,102
EVAPORATOR BOTTOMS	215,260	397,432	136,206	205,082	0	953,980
POST-TMI-2 ADDITIONS	356,393	0	0	0	0	356,393
HEAVY OBJECT SURCHARGE						0
SITE AVAILABILITY CHARGES, (3 YRS)						429,702
SUBTOTAL PWR COSTS	963,518	1,103,508	382,536	1,047,822	68,212,943	72,140,029
TAXES & FEES (% OF CHARGES)						168,865
TAXES & FEES ($/CU.FT.)						599,569
ANNUAL PERMIT FEES (3 YRS)						120,000
TOTAL PWR COSTS						73,028,462

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.12 Disposition Costs using Waste Vendors with Burial Costs at the Washington Site Reference BWR (2000 dollars)

COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	8,084	59,192	40,572	3,262,000	0	3,369,848
FUEL SUPPORT & PIECES	4,053	29,596	20,286	97,300	0	151,235
CONTROL RODS/INCORES	12,137	33,824	11,592	932,000	0	989,553
CONTROL RODS GUIDES	3,229	25,368	17,388	83,400	0	129,385
JET PUMPS	11,336	84,560	57,960	4,660,000	0	4,813,856
TOP FUEL GUIDES	19,419	304,416	104,328	8,388,000	0	8,816,163
CORE SUPPORT PLATE	8,908	67,648	44,919	215,450	0	336,925
CORE SHROUD[a]	38,014	591,920	202,860	16,310,000	0	17,142,794
REACTOR VESSEL WALL	6,481	84,560	31,878	152,900	0	275,819
SAC SHIELD	0	0	0	0	1,156,150	1,156,150
REACT. WATER REC	0	0	0	0	370,562	370,562
SAC SHIELD	0	0	0	0	2,994,078	2,994,078
OTHER PRIMARY CONTAINMENT	0	0	0	0	11,999,265	11,999,265
CONTAINM. ATMOSPHERIC	0	0	0	0	48,302	48,302
HIGH PRESSURE CORE SPRAY	0	0	0	0	117,856	117,856
LOW PRESSURE CORE SPRAY	0	0	0	0	42,505	42,505
REACTOR BLDG CLOSED COOLING	0	0	0	0	115,615	115,615
REACTOR CORE ISO COOLING	0	0	0	0	37,532	37,532
RESIDUAL HEAT REMOVAL	0	0	0	0	355,503	355,503
POOL LINER & RACKS	0	0	0	0	1,473,661	1,473,661
CONTAMINATED CONCRETE	0	0	0	0	2,106,991	2,106,991
OTHER REACTOR BUILDING	0	0	0	0	2,625,947	2,625,947
TURBINE	0	0	0	0	7,067,707	7,067,707
NUCLEAR STEAM CONDENSATE	0	0	0	0	934,140	934,140
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,136,896	3,136,896
MAIN STEAM	0	0	0	0	137,178	137,178
MOISTURE SEPARATOR REHEATERS	0	0	0	0	1,773,791	1,773,791
REACTOR FEEDWATER PUMPS	0	0	0	0	466,581	466,581
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	624,659	624,659
OTHER TG BLDG	0	0	0	0	13,558,135	13,558,135
RAD WASTE BLDG	0	0	0	0	4,630,960	4,630,960
REACTOR BLDG	0	0	0	0	3,303,554	3,303,554
TG BLDG	0	0	0	0	2,173,391	2,173,391
RAD WASTE & CONTROL	0	0	0	0	1,999,520	1,999,520
CONCENTRATOR BOTTOMS	515,250	951,300	326,025	486,640	0	2,279,215
OTHER	139,690	257,908	88,389	22,522	0	508,509
POST-TMI-2 ADDITIONS	29,129	0	0	0	0	29,129
HEAVY OBJECT SURCHARGE						0
SITE AVAILABILITY CHARGES, (3.5 YRS)						572,936
SUBTOTAL BWR COSTS	795,729	2,490,292	946,197	34,610,212	63,250,478	102,665,844
TAXES & FEES (% OF CHARGES)						1,694,861
TAXES & FEES ($/CU.FT.)						495,159
ANNUAL PERMIT FEES (3.5 YRS)						160,000
TOTAL BWR COSTS						105,015,864

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.13 Disposition Costs using Waste Vendors with Burial Costs at the South Carolina Site Reference PWR in Atlantic Compact (2000 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	2,617,120	1,900,000	5,016,000	1,256,218	0	10,789,338
VESSEL HEAD & BOTTOM	1,667,358	2,000,000	6,600	0	0	3,673,958
UPPER CORE SUPPORT ASSM	157,410	200,000	3,300	50,371	0	411,081
UPPER SUPPORT COLUMN	145,530	200,000	33,000	46,570	0	425,100
UPPER CORE BARREL	69,300	100,000	264,000	33,264	0	466,564
UPPER CORE GRID PLATE	173,250	250,000	660,000	83,160	0	1,166,410
GUIDE TUBES	256,410	300,000	33,000	69,231	0	658,641
LOWER CORE BARREL[a]	1,108,800	1,600,000	4,224,000	532,224	0	7,465,024
THERMAL SHIELDS[a]	207,900	300,000	792,000	99,792	0	1,399,692
CORE SHROUD[a]	160,974	200,000	8,052,000	77,268	0	8,490,242
LOWER GRID PLATE[a]	173,250	250,000	1,320,000	83,160	0	1,826,410
LOWER SUPPORT COLUMN	43,956	50,000	132,000	21,099	0	247,055
LOWER CORE FORGING	477,576	550,000	825,000	229,236	0	2,081,812
MISC INTERNALS	387,200	400,000	660,000	185,856	0	1,633,056
BIO SHIELD CONCRETE	0	0	0	0	3,235,923	3,235,923
REACTOR CAVITY LINER	190,080	0	3,300	0	0	193,380
REACTOR COOLANT PUMPS	0	0	0	0	1,247,905	1,247,905
PRESSURIZER	0	0	0	0	323,592	323,592
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	19,581	19,581
PRESSURIZER RELIEF TANK	0	0	0	0	45,137	45,137
SAFETY INJECTION ACCUM TANKS	0	0	0	0	507,791	507,791
STEAM GENERATORS	0	0	0	0	4,566,800	4,566,800
REACTOR COOLANT PIPING	0	0	0	0	368,394	368,394
REMAINING CONTAM. MATLS	0	0	0	0	6,512,503	6,512,503
CONTAMINATED MATRL OTHR BLD	0	0	0	0	50,100,903	50,100,903
FILTER CARTRIDGES	0	0	0	0	89,610	89,610
SPENT RESINS	0	0	0	0	298,701	298,701
COMBUSTIBLE WASTES	0	0	0	0	896,102	896,102
EVAPORATOR BOTTOMS	4,094,640	4,700,000	12,408,000	559,310	0	21,761,950
POST-TMI-2 ADDITIONS	8,217,949	0	0	0	0	8,217,949
SITE ACCESS FEES, (3 YRS)						0
SUBTOTAL PWR COSTS	20,148,703	13,000,000	34,432,200	3,326,758	68,212,943	139,120,604
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						2,588,988
TOTAL PWR COSTS (INSIDE COMPACT)						141,709,592

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.13 Disposition Costs using Waste Vendors with Burial Costs at the South Carolina Site Reference BWR in Atlantic Compact (2000 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	160,838	1,400,000	1,848,000	77,202	0	3,486,040
FUEL SUPPORT & PIECES	70,852	700,000	231,000	34,009	0	1,035,861
CONTROL RODS/INCORES	210,947	400,000	1,056,000	101,254	0	1,768,201
CONTROL RODS GUIDES	59,290	600,000	33,000	21,937	0	714,227
JET PUMPS	171,518	2,000,000	2,640,000	82,328	0	4,893,846
TOP FUEL GUIDES	293,832	3,600,000	9,504,000	141,039	0	13,538,871
CORE SUPPORT PLATE	196,988	1,550,000	214,500	72,886	0	2,034,374
CORE SHROUD[a]	575,190	7,000,000	18,480,000	276,091	0	26,331,281
REACTOR VESSEL WALL	125,144	1,100,000	712,800	46,303	0	1,984,247
SAC SHIELD	0	0	0	0	1,156,150	1,156,150
REACT. WATER REC	0	0	0	0	370,562	370,562
SAC SHIELD	0	0	0	0	2,994,078	2,994,078
OTHER PRIMARY CONTAINMENT	0	0	0	0	11,999,265	11,999,265
CONTAINM. ATMOSPHERIC	0	0	0	0	48,302	48,302
HIGH PRESSURE CORE SPRAY	0	0	0	0	117,856	117,856
LOW PRESSURE CORE SPRAY	0	0	0	0	42,505	42,505
REACTOR BLDG CLOSED COOLING	0	0	0	0	115,615	115,615
REACTOR CORE ISO COOLING	0	0	0	0	37,532	37,532
RESIDUAL HEAT REMOVAL	0	0	0	0	355,503	355,503
POOL LINER & RACKS	0	0	0	0	1,473,661	1,473,661
CONTAMINATED CONCRETE	0	0	0	0	2,106,991	2,106,991
OTHER REACTOR BUILDING	0	0	0	0	2,625,947	2,625,947
TURBINE	0	0	0	0	7,067,707	7,067,707
NUCLEAR STEAM CONDENSATE	0	0	0	0	934,140	934,140
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,136,896	3,136,896
MAIN STEAM	0	0	0	0	137,178	137,178
MOISTURE SEPARATOR REHEATERS	0	0	0	0	1,773,791	1,773,791
REACTOR FEEDWATER PUMPS	0	0	0	0	466,581	466,581
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	624,659	624,659
OTHER TG BLDG	0	0	0	0	13,558,135	13,558,135
RAD WASTE BLDG	0	0	0	0	4,630,960	4,630,960
REACTOR BLDG	0	0	0	0	3,303,554	3,303,554
TG BLDG	0	0	0	0	2,173,391	2,173,391
RAD WASTE & CONTROL	0	0	0	0	1,999,520	1,999,520
CONCENTRATOR BOTTOMS	16,827,644	11,250,000	29,700,000	2,279,585	0	60,057,229
OTHER	4,562,161	3,050,000	316,470	113,680	0	8,042,311
POST-TMI-2 ADDITIONS	671,672	0	0	0	0	671,672
SITE ACCESS FEES, (3.5 YRS)						0
SUBTOTAL BWR COSTS	23,926,075	32,650,000	64,735,770	3,246,316	63,250,478	187,808,639
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						2,680,724
TOTAL BWR COSTS (INSIDE COMPACT)						190,489,363

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.14 Disposition Costs using Waste Vendors with Burial Costs at the South Carolina Site Reference PWR in Non-Atlantic Compact (2000 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	2,617,120	1,900,000	5,472,000	1,256,218	0	11,245,338
VESSEL HEAD & BOTTOM	1,667,358	2,000,000	7,200	0	0	3,674,558
UPPER CORE SUPPORT ASSM	157,410	200,000	3,600	50,371	0	411,381
UPPER SUPPORT COLUMN	145,530	200,000	36,000	46,570	0	428,100
UPPER CORE BARREL	69,300	100,000	288,000	33,264	0	490,564
UPPER CORE GRID PLATE	173,250	250,000	720,000	83,160	0	1,226,410
GUIDE TUBES	256,410	300,000	36,000	69,231	0	661,641
LOWER CORE BARREL[a]	1,108,800	1,600,000	4,608,000	532,224	0	7,849,024
THERMAL SHIELDS[a]	207,900	300,000	864,000	99,792	0	1,471,692
CORE SHROUD[a]	160,974	200,000	8,784,000	77,268	0	9,222,242
LOWER GRID PLATE[a]	173,250	250,000	1,440,000	83,160	0	1,946,410
LOWER SUPPORT COLUMN	43,956	50,000	144,000	21,099	0	259,055
LOWER CORE FORGING	477,576	550,000	900,000	229,236	0	2,156,812
MISC INTERNALS	387,200	400,000	720,000	185,856	0	1,693,056
BIO SHIELD CONCRETE	0	0	0	0	3,235,923	3,235,923
REACTOR CAVITY LINER	190,080	0	3,600	0	0	193,680
REACTOR COOLANT PUMPS	0	0	0	0	1,247,905	1,247,905
PRESSURIZER	0	0	0	0	323,592	323,592
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	19,581	19,581
PRESSURIZER RELIEF TANK	0	0	0	0	45,137	45,137
SAFETY INJECTION ACCUM TANKS	0	0	0	0	507,791	507,791
STEAM GENERATORS	0	0	0	0	4,566,800	4,566,800
REACTOR COOLANT PIPING	0	0	0	0	368,394	368,394
REMAINING CONTAM. MATLS	0	0	0	0	6,512,503	6,512,503
CONTAMINATED MATRL OTHR BLD	0	0	0	0	50,100,903	50,100,903
FILTER CARTRIDGES	0	0	0	0	89,610	89,610
SPENT RESINS	0	0	0	0	298,701	298,701
COMBUSTIBLE WASTES	0	0	0	0	896,102	896,102
EVAPORATOR BOTTOMS	4,094,640	4,700,000	13,536,000	559,310	0	22,889,950
POST-TMI-2 ADDITIONS	8,217,949	0	0	0	0	8,217,949
SITE ACCESS FEES, (3 YRS)						0
SUBTOTAL PWR COSTS	20,148,703	13,000,000	37,562,400	3,326,758	68,212,943	142,250,804
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (OUTSIDE COMPACT)						2,588,988
TOTAL PWR COSTS (OUTSIDE COMPACT)						144,839,792

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.14 Disposition Costs using Waste Vendors with Burial Costs at the South Carolina Site Reference BWR in Non-Atlantic Compact (2000 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	160,838	1,400,000	2,016,000	77,202	0	3,654,040
FUEL SUPPORT & PIECES	70,852	700,000	252,000	34,009	0	1,056,861
CONTROL RODS/INCORES	210,947	400,000	1,152,000	101,254	0	1,864,201
CONTROL RODS GUIDES	59,290	600,000	36,000	21,937	0	717,227
JET PUMPS	171,518	2,000,000	2,880,000	82,328	0	5,133,846
TOP FUEL GUIDES	293,832	3,600,000	10,368,000	141,039	0	14,402,871
CORE SUPPORT PLATE	196,988	1,550,000	234,000	72,886	0	2,053,874
CORE SHROUD[a]	575,190	7,000,000	20,160,000	276,091	0	28,011,281
REACTOR VESSEL WALL	125,144	1,100,000	777,600	46,303	0	2,049,047
SAC SHIELD	0	0	0	0	1,156,150	1,156,150
REACT. WATER REC	0	0	0	0	370,562	370,562
SAC SHIELD	0	0	0	0	2,994,078	2,994,078
OTHER PRIMARY CONTAINMENT	0	0	0	0	11,999,265	11,999,265
CONTAINM. ATMOSPHERIC	0	0	0	0	48,302	48,302
HIGH PRESSURE CORE SPRAY	0	0	0	0	117,856	117,856
LOW PRESSURE CORE SPRAY	0	0	0	0	42,505	42,505
REACTOR BLDG CLOSED COOLING	0	0	0	0	115,615	115,615
REACTOR CORE ISO COOLING	0	0	0	0	37,532	37,532
RESIDUAL HEAT REMOVAL	0	0	0	0	355,503	355,503
POOL LINER & RACKS	0	0	0	0	1,473,661	1,473,661
CONTAMINATED CONCRETE	0	0	0	0	2,106,991	2,106,991
OTHER REACTOR BUILDING	0	0	0	0	2,625,947	2,625,947
TURBINE	0	0	0	0	7,067,707	7,067,707
NUCLEAR STEAM CONDENSATE	0	0	0	0	934,140	934,140
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,136,896	3,136,896
MAIN STEAM	0	0	0	0	137,178	137,178
MOISTURE SEPARATOR REHEATERS	0	0	0	0	1,773,791	1,773,791
REACTOR FEEDWATER PUMPS	0	0	0	0	466,581	466,581
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	624,659	624,659
OTHER TG BLDG	0	0	0	0	13,558,135	13,558,135
RAD WASTE BLDG	0	0	0	0	4,630,960	4,630,960
REACTOR BLDG	0	0	0	0	3,303,554	3,303,554
TG BLDG	0	0	0	0	2,173,391	2,173,391
RAD WASTE & CONTROL	0	0	0	0	1,999,520	1,999,520
CONCENTRATOR BOTTOMS	16,827,644	11,250,000	32,400,000	2,279,585	0	62,757,229
OTHER	4,562,161	3,050,000	345,240	113,680	0	8,071,081
POST-TMI-2 ADDITIONS	671,672	0	0	0	0	671,672
SITE ACCESS FEES, (3.5 YRS)						0
SUBTOTAL BWR COSTS	23,926,075	32,650,000	70,620,840	3,246,316	63,250,478	193,693,709
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (OUTSIDE COMPACT)						2,680,724
TOTAL BWR COSTS (OUTSIDE COMPACT)						196,374,433

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.15 Disposition Costs using Waste Vendors with Burial Costs at the Washington Site Reference PWR (1998 dollars)

COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	116,280	238,640	44,004	2,147,000	0	2,545,924
VESSEL HEAD & BOTTOM	122,400	251,200	46,320	0	0	419,920
UPPER CORE SUPPORT ASSM	12,240	25,120	4,632	151,200	0	193,192
UPPER SUPPORT COLUMN	12,240	25,120	4,632	151,200	0	193,192
UPPER CORE BARREL	6,120	12,560	2,316	113,000	0	133,996
UPPER CORE GRID PLATE	15,300	31,400	5,790	282,500	0	334,990
GUIDE TUBES	18,360	37,680	6,948	226,800	0	289,788
LOWER CORE BARREL[a]	97,920	200,960	37,056	1,808,000	0	2,143,936
THERMAL SHIELDS[a]	18,360	37,680	6,948	339,000	0	401,988
CORE SHROUD[a]	12,240	25,120	4,632	26,000	0	267,992
LOWER GRID PLATE[a]	15,300	31,400	5,790	282,500	0	334,990
LOWER SUPPORT COLUMN	3,060	6,280	1,158	56,500	0	66,998
LOWER CORE FORGING	33,660	69,080	12,738	621,500	0	736,978
MISC INTERNALS	24,480	50,240	9,264	452,000	0	535,984
BIO SHIELD CONCRETE	0	0	0	0	3,235,923	3,235,923
REACTOR CAVITY LINER	15,667	6,280	4,632	0	0	26,579
REACTOR COOLANT PUMPS	0	0	0	0	1,247,905	1,247,905
PRESSURIZER	0	0	0	0	323,592	323,592
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	19,581	19,581
PRESSURIZER RELIEF TANK	0	0	0	0	45,137	45,137
SAFETY INJECTION ACCUM TANKS	0	0	0	0	507,791	507,791
STEAM GENERATORS	0	0	0	0	4,566,800	4,566,800
REACTOR COOLANT PIPING	0	0	0	0	368,394	368,394
REMAINING CONTAM. MATLS	0	0	0	0	6,512,503	6,512,503
CONTAMINATED MATRL OTHR BLD	0	0	0	0	50,100,903	50,100,903
FILTER CARTRIDGES	0	0	0	0	89,610	89,610
SPENT RESINS	0	0	0	0	298,701	298,701
COMBUSTIBLE WASTES	0	0	0	0	896,102	896,102
EVAPORATOR BOTTOMS	287,640	590,320	108,852	1,676,341	0	2,663,153
POST-TMI-2 ADDITIONS	476,228	0	0	0	0	476,228
HEAVY OBJECT CHARGE						0
SITE AVAILABILITY CHARGES, (3 YRS)						413,442
SUBTOTAL PWR COSTS	1,287,495	1,639,080	305,712	8,533,541	68,212,943	80,392,213
TAXES & FEES (% OF CHARGES)						523,709
TAXES & FEES ($/CU.FT.)						599,569
ANNUAL PERMIT FEES (3 YRS)						120,000
TOTAL PWR COSTS						81,635,491

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.15 Disposition Costs using Waste Vendors with Burial Costs at the Washington Site Reference BWR (1998 dollars)

COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	10,802	87,920	32,424	26,600,000	0	26,731,146
FUEL SUPPORT & PIECES	5,416	43,960	16,212	791,000	0	856,588
CONTROL RODS/INCORES	16,218	50,240	9,264	7,600,000	0	7,675,722
CONTROL RODS GUIDES	4,315	37,680	13,896	678,000	0	733,891
JET PUMPS	15,147	125,600	46,320	38,000,000	0	38,187,067
TOP FUEL GUIDES	25,949	452,160	83,376	68,400,000	0	68,961,485
CORE SUPPORT PLATE	11,903	100,480	35,898	1,751,500	0	1,899,781
CORE SHROUD[a]	50,796	879,200	162,120	133,000,000	0	134,092,116
REACTOR VESSEL WALL	8,660	125,600	25,476	1,243,000	0	1,402,736
SAC SHIELD	0	0	0	0	1,156,150	1,156,150
REACT. WATER REC	0	0	0	0	370,562	370,562
SAC SHIELD	0	0	0	0	2,994,078	2,994,078
OTHER PRIMARY CONTAINMENT	0	0	0	0	11,999,265	11,999,265
CONTAINM. ATMOSPHERIC	0	0	0	0	48,302	48,302
HIGH PRESSURE CORE SPRAY	0	0	0	0	117,856	117,856
LOW PRESSURE CORE SPRAY	0	0	0	0	42,505	42,505
REACTOR BLDG CLOSED COOLING	0	0	0	0	115,615	115,615
REACTOR CORE ISO COOLING	0	0	0	0	37,532	37,532
RESIDUAL HEAT REMOVAL	0	0	0	0	355,503	355,503
POOL LINER & RACKS	0	0	0	0	1,473,661	1,473,661
CONTAMINATED CONCRETE	0	0	0	0	2,106,991	2,106,991
OTHER REACTOR BUILDING	0	0	0	0	2,625,947	2,625,947
TURBINE	0	0	0	0	7,067,707	7,067,707
NUCLEAR STEAM CONDENSATE	0	0	0	0	934,140	934,140
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,136,896	3,136,896
MAIN STEAM	0	0	0	0	137,178	137,178
MOISTURE SEPARATOR REHEATERS	0	0	0	0	1,773,791	1,773,791
REACTOR FEEDWATER PUMPS	0	0	0	0	466,581	466,581
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	624,659	624,659
OTHER TG BLDG	0	0	0	0	13,558,135	13,558,135
RAD WASTE BLDG	0	0	0	0	4,630,960	4,630,960
REACTOR BLDG	0	0	0	0	3,303,554	3,303,554
TG BLDG	0	0	0	0	2,173,391	2,173,391
RAD WASTE & CONTROL	0	0	0	0	1,999,520	1,999,520
CONCENTRATOR BOTTOMS	688,500	1,413,000	260,550	3,978,045	0	6,340,095
OTHER	186,660	383,080	70,638	187,036	0	827,414
POST-TMI-2 ADDITIONS	38,923	0	0	0	0	38,923
HEAVY OBJECT CHARGE						0
SITE AVAILABILITY CHARGES, (3.5 YRS)						551,256
SUBTOTAL BWR COSTS	1,063,289	3,698,920	756,174	282,228,581	63,250,478	351,548,698
TAXES & FEES (% OF CHARGES)						12,396,823
TAXES & FEES ($/CU.FT.)						495,159
ANNUAL PERMIT FEES (3.5 YRS)						140,000
TOTAL BWR COSTS						364,580,680

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.16 Disposition Costs using Waste Vendors with Burial Costs at the South Carolina Site Reference PWR (1998 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	2,379,200	1,140,000	4,560,000	1,142,016	0	9,221,216
VESSEL HEAD & BOTTOM	1,515,780	1,200,000	6,000	0	0	2,721,780
UPPER CORE SUPPORT ASSM	143,100	120,000	3,000	45,792	0	311,892
UPPER SUPPORT COLUMN	132,300	120,000	30,000	42,336	0	324,636
UPPER CORE BARREL	63,000	60,000	240,000	30,240	0	393,240
UPPER CORE GRID PLATE	157,500	150,000	600,000	75,600	0	983,100
GUIDE TUBES	233,100	180,000	30,000	62,937	0	506,037
LOWER CORE BARREL[a]	1,008,000	960,000	3,840,000	483,840	0	6,291,840
THERMAL SHIELDS[a]	189,000	180,000	720,000	90,720	0	1,179,720
CORE SHROUD[a]	108,400	120,000	7,320,000	52,032	0	7,600,432
LOWER GRID PLATE[a]	38,280	150,000	1,200,000	18,374	0	1,406,654
LOWER SUPPORT COLUMN	39,960	30,000	120,000	19,181	0	209,141
LOWER CORE FORGING	434,160	330,000	750,000	208,397	0	1,722,557
MISC INTERNALS	352,000	240,000	600,000	168,960	0	1,360,960
BIO SHIELD CONCRETE	0	0	0	0	3,235,923	3,235,923
REACTOR CAVITY LINER	172,800	0	3,000	0	0	175,800
REACTOR COOLANT PUMPS	0	0	0	0	1,247,905	1,247,905
PRESSURIZER	0	0	0	0	323,592	323,592
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	19,581	19,581
PRESSURIZER RELIEF TANK	0	0	0	0	45,137	45,137
SAFETY INJECTION ACCUM TANKS	0	0	0	0	507,791	507,791
STEAM GENERATORS	0	0	0	0	4,566,800	4,566,800
REACTOR COOLANT PIPING	0	0	0	0	368,394	368,394
REMAINING CONTAM. MATLS	0	0	0	0	6,512,503	6,512,503
CONTAMINATED MATRL OTHR BLD	0	0	0	0	50,100,903	50,100,903
FILTER CARTRIDGES	0	0	0	0	89,610	89,610
SPENT RESINS	0	0	0	0	298,701	298,701
COMBUSTIBLE WASTES	0	0	0	0	896,102	896,102
EVAPORATOR BOTTOMS	3,722,400	2,820,000	11,280,000	508,464	0	18,330,864
POST-TMI-2 ADDITIONS	7,470,863	0	0	0	0	7,470,863
SITE ACCESS FEES, (3 YRS)						615,000
SUBTOTAL PWR COSTS	18,159,843	7,800,000	31,302,000	2,948,889	68,212,943	129,038,675
TAXES AND SURCHARGES						0
TOTAL PWR COSTS						129,038,675

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs.

Table B.16 Disposition Costs using Waste Vendors with Burial Costs at the South Carolina Site Reference BWR (1998 dollars)

COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	146,216	840,000	1,680,000	70,184	0	2,736,400
FUEL SUPPORT & PIECES	64,411	420,000	210,000	30,917	0	725,329
CONTROL RODS/INCORES	191,770	240,000	960,000	92,049	0	1,483,819
CONTROL RODS GUIDES	53,900	360,000	30,000	19,943	0	463,843
JET PUMPS	155,925	1,200,000	2,400,000	74,844	0	3,830,769
TOP FUEL GUIDES	267,120	2,160,000	8,640,000	128,218	0	11,195,338
CORE SUPPORT PLATE	179,080	930,000	195,000	66,260	0	1,370,340
CORE SHROUD[a]	522,900	4,200,000	16,800,000	250,992	0	21,773,892
REACTOR VESSEL WALL	113,767	660,000	648,000	42,094	0	1,463,861
SAC SHIELD	0	0	0	0	1,156,150	1,156,150
REACT. WATER REC	0	0	0	0	370,562	370,562
SAC SHIELD	0	0	0	0	2,994,078	2,994,078
OTHER PRIMARY CONTAINMENT	0	0	0	0	11,999,265	11,999,265
CONTAINM. ATMOSPHERIC	0	0	0	0	48,302	48,302
HIGH PRESSURE CORE SPRAY	0	0	0	0	117,856	117,856
LOW PRESSURE CORE SPRAY	0	0	0	0	42,505	42,505
REACTOR BLDG CLOSED COOLING	0	0	0	0	115,615	115,615
REACTOR CORE ISO COOLING	0	0	0	0	37,532	37,532
RESIDUAL HEAT REMOVAL	0	0	0	0	355,503	355,503
POOL LINER & RACKS	0	0	0	0	1,473,661	1,473,661
CONTAMINATED CONCRETE	0	0	0	0	2,106,991	2,106,991
OTHER REACTOR BUILDING	0	0	0	0	2,625,947	2,625,947
TURBINE	0	0	0	0	7,067,707	7,067,707
NUCLEAR STEAM CONDENSATE	0	0	0	0	934,140	934,140
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,136,896	3,136,896
MAIN STEAM	0	0	0	0	137,178	137,178
MOISTURE SEPARATOR REHEATERS	0	0	0	0	1,773,791	1,773,791
REACTOR FEEDWATER PUMPS	0	0	0	0	466,581	466,581
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	624,659	624,659
OTHER TG BLDG	0	0	0	0	13,558,135	13,558,135
RAD WASTE BLDG	0	0	0	0	4,630,960	4,630,960
REACTOR BLDG	0	0	0	0	3,303,554	3,303,554
TG BLDG	0	0	0	0	2,173,391	2,173,391
RAD WASTE & CONTROL	0	0	0	0	1,999,520	1,999,520
CONCENTRATOR BOTTOMS	15,297,858	6,750,000	27,000,000	2,072,350	0	51,120,208
OTHER	4,147,419	1,830,000	287,700	103,346	0	6,368,465
POST-TMI-2 ADDITIONS	610,611	0	0	0	0	610,611
SITE ACCESS FEES, (3.5 YRS)						717,500
SUBTOTAL BWR COSTS	21,750,978	19,590,000	58,850,700	2,951,196	63,250,478	167,110,852
TAXES AND SURCHARGES						0
TOTAL BWR COSTS						167,110,852

(a) GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging and geologic repository disposal could reduce disposal costs

References

1. Konzek, G. J., and R. I. Smith, "Technology, Safety and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station - Technical Support for Decommissioning Matters Related to Preparation of the Final Decommissioning Rule," (Report prepared by Pacific Northwest Laboratory, Richland, Washington), NUREG/CR-0130, Addendum 4, U.S. Nuclear Regulatory Commission, July 1988.

2. Konzek, G. J., and R. I. Smith, "Technology, Safety and Costs of Decommissioning a Reference Boiling Water Reactor Power Station - Technical Support for Decommissioning Matters Related to Preparation of the Final Decommissioning Rule," (Report prepared by Pacific Northwest Laboratory, Richland, Washington), NUREG/CR-0672, Addendum 3, U.S. Nuclear Regulatory Commission, July 1988.

Appendix C

Bureau of Labor Statistics on the World Wide Web

Appendix C

Bureau of Labor Statistics on the World Wide Web

The U.S. Department of Labor, Bureau of Labor Statistics, maintains and periodically updates many parameters relating to the economy of the United States. For use in the adjustment formula in Section 3, the labor adjustment factor for December 1999 was obtained from the "Monthly Labor Review" publication and the energy adjustment factors for the last quarter of calendar year 1999 were obtained from the "Producer Price Indexes" publication. These dates were chosen to agree with the effective dates of the waste burial rate schedules. As an alternative to using these values, more current adjustment factors can be obtained by accessing the Bureau of Labor Statistics databases on the World Wide Web. Instructions on how to access and obtain the specific adjustment factors used in this report follow below.

Bureau of Labor Statistics World Wide Web Home Page

How to Obtain Reports of Energy and Labor Adjustment Factors

Enter the Web URL: **http://stats.bls.gov**

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DATA

Select:

SERIES REPORT

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Enter series id(s) below:

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wpu0543	(Industrial electric power)
wpu0573	(Light fuel oils)
	Labor adjustment factors
ecu13102i	(Total compensation, private industry, Northeast region)
ecu13202i	(Total compensation, private industry, South region)
ecu13302i	(Total compensation, private industry, Midwest region)
ecu13402i	(Total compensation, private industry, West region)

Year(s) to report for:

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(2-89)
NRCM 1102,
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11. ABSTRACT *(200 words or less)*

A requirement placed upon nuclear power reactor licensees by the U.S. Nuclear Regulatory Commission (NRC) is that licensees must annually 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 revised periodically, explains the formula that is acceptable to the NRC for determining the minimum decommissioning fund requirements for nuclear power plants. The sources of information used in the formula are identified, and the values developed for the estimation of radioactive waste burial/disposition costs, by site and by year, are given. Licensees may use the formula, coefficients, and burial/disposition adjustment factors from this report in their cost analyses, or they may use adjustment factors derived from any methodology which results in a total cost estimate of no less than the amount estimated by using the parameter presented in this report.

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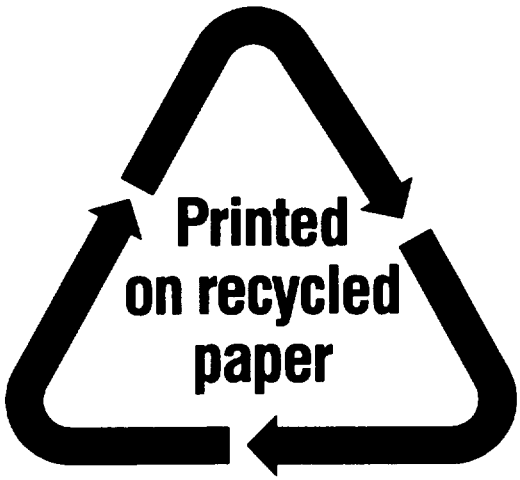

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