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United States Nuclear Regulatory Commission

Protecting People and the Environment

NUREG-1307, Rev. 13

Report on Waste Burial Charges

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

Office of Nuclear Reactor Regulation

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Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

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 that 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 full-service (Class A, B, and C) LLW disposal 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 thirteenth 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 full-service disposal sites in Washington and South Carolina for the year 2008. In addition, disposal costs for the reference reactors and ratios of disposal costs at the Washington and South Carolina sites for the years 1998, 2000, 2002, 2004, and 2006 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. 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 for 2008 at the Washington disposal site, which only accepts LLW from members of the Northwest and Rocky Mountain Compacts, are about 21% higher for the reference PWR and about 98% higher for the reference BWR over corresponding estimates for 2006. The reason for this disparity in disposal costs between reactor types is that the BWR has a considerably larger inventory of high dose rate material than the PWR. Thus, for the BWR, the dose rate charges in 2008, which nearly tripled from 2006, had a disproportionately large impact. Disposition of LLW using waste vendors provides a savings of about 38% for a PWR and about 10% for a BWR. The BWR realizes minimal savings from using waste vendors because of the assumption that vendors do not appreciably reduce the volume of costly high dose rate material requiring disposal as LLW.

Beginning 1 July 2008, only members of the Atlantic Compact are permitted to dispose of waste at the South Carolina disposal site. Estimated disposal costs for Atlantic Compact users at the South Carolina site for 2008 are about 10% higher than the 2006 estimates, for both the PWR and BWR. Disposition of LLW using waste vendors provides a savings of about 61% for a PWR and 50% for a BWR.

Currently, NUREG-1307, Rev.13 assumes that LLW generated during plant operations is disposed of using operating funds. Plants that have no disposal site available for LLW are now forced to provide interim storage for this waste (although most Class A waste can be disposed of at the Utah disposal site). If additional disposal sites do not become available prior to permanent plant shutdown, this waste will ultimately need to be disposed of during decommissioning. This volume can become significant for plants operating through extended license terms, and the disposal cost would not be accounted for in a decommissioning trust fund that is based on the formula calculation. In addition, for plants that have no disposal site available for LLW (e.g., plants not located within the Atlantic and Northwest Compacts), NUREG-1307, Rev.13 assumes the cost for disposal is the same as that provided for the Atlantic Compact, for lack of a better alternative at this time. However, when new disposal facilities become available, disposal rates will likely be significantly higher. Accordingly, given these considerations, licensees may want to set aside additional decommissioning trust funds in order to avoid significant future shortfalls in funding and potential enforcement actions.

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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 13 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.

On 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. Effective July 1, 2008, low-level waste (LLW) from states that are not members of the Atlantic Compact will not be accepted at the South Carolina disposal site. The costs of waste disposal at the Barnwell disposal facility are determined annually by the South Carolina Public Service Commission 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 available to licensees for the disposition of their LLW is to contract with waste vendors to provide these services and to dispose of Class A LLW at the Clive, Utah disposal facility. Licensees are increasingly recognizing that, generally, waste vendors are more effective at identifying the lowest cost solutions to disposition LLW. 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 full-service 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 the time of publication for licensees to use for annually adjusting the estimated cost of decommissioning their nuclear facilities.

Currently, NUREG-1307, Rev.13 assumes that LLW generated during plant operations is disposed of using operating funds. Plants that have no disposal site available for LLW are now forced to provide interim storage for this waste (although most Class A waste can be disposed of at the Utah disposal site). If additional disposal sites do not become available prior to permanent plant shutdown, this waste will ultimately need to be disposed of during decommissioning. This volume can become significant for plants operating through extended license terms, and the disposal cost would not be accounted for in a decommissioning trust fund that is based on the formula calculation. In addition, for plants that have no disposal site available for LLW (e.g., plants not located within the Atlantic and Northwest Compacts), NUREG-1307, Rev.13 assumes the cost for disposal is the same as that provided for the Atlantic Compact, for lack of a better alternative at this time. However, when new disposal facilities become available, disposal rates will likely be significantly higher. Accordingly, given these considerations, licensees may want to set aside additional decommissioning trust funds in order to avoid significant future shortfalls in funding and potential enforcement actions.

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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 in 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 2008 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 thirteenth 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 full-service (Class A, B, and C) LLW disposal sites in Washington and South Carolina for the year 2008. In addition, disposal costs for the reference reactors and ratios of disposal costs at the Washington and South Carolina sites for the years 1998, 2000, 2002, 2004, and 2006 are provided for historical purposes. In addition to direct disposal at the two remaining full-service burial sites, this report includes the option of LLW disposition by waste vendors, initiated in NUREG-1307, Rev. 8 (Ref. 3).

Currently, NUREG-1307, Rev.13 assumes that LLW generated during plant operations is disposed of using operating funds. Plants that have no disposal site available for LLW are now forced to provide interim storage for this waste (although most Class A waste can be disposed of at the Utah disposal site). If additional disposal sites do not become available prior to permanent plant shutdown, this waste will ultimately need to be disposed of during decommissioning. This volume can become significant for plants operating through extended license terms, and the disposal cost would not be accounted for in a decommissioning trust fund that is based on the formula calculation. In addition, for plants that have no disposal site available for LLW (e.g., plants not located within the Atlantic and Northwest Compacts), NUREG-1307, Rev.13 assumes the cost for disposal is the same as that provided for the Atlantic Compact, for lack of a better alternative at this time (see Appendix E for identification of LLW Compacts). However, when new disposal facilities become available, disposal rates will likely be significantly higher. Accordingly, given these considerations, licensees may want to set aside additional decommissioning trust funds in order to avoid significant future shortfalls in funding and potential enforcement actions.

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

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), energy (0.13), and burial (0.22), respectively, and sum to 1.0. The factors L_x, E_x, and B_x are defined by

L_x = labor cost 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 divided by 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 indexes, national consumer price indexes, and 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 applied for states within and outside the newly created Atlantic Compact, comprised of South Carolina, Connecticut, and New Jersey (see footnote (c) in Table 2.1). Effective July 1, 2008, waste from states that are not members of the Atlantic Compact will not be accepted at the South Carolina disposal site. Licensees not located in either the Northwest or Atlantic Compacts should use the B_x values for the Generic LLW Disposal Site. Issues of this report prior to 1998 considered direct disposal 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 years 1998 through 2008 (see footnote (d) in Table 2.1). 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[(a)]

	B_x Values for Washington Site[(b)]				B_x Values for South Carolina Site								B_x Values for Generic LLW Disposal Site[(e)]			
					Atlantic Compact[(c)]				Non-Atlantic Compact[(d)]							
	Direct Disposal		Direct Disposal with Vendors[(f)]		Direct Disposal		Direct Disposal with Vendors[(f)]		Direct Disposal		Direct Disposal with Vendors[(f)]		Direct Disposal		Direct Disposal with Vendors[(f)]	
Year	PWR	BWR	PWR	BWR	PWR	BWR	PWR	BWR	PWR	BWR	PWR	BWR	PWR	BWR	PWR	BWR
2008	8.283	23.185	5.153	20.889	25.231	22.504	9.872	11.198	NA	NA	NA	NA	25.231	22.504	9.872	11.198
2006	6.829	11.702	3.855	9.008	22.933	20.451	8.600	9.345	23.030	20.813	8.683	10.206	NA	NA	NA	NA
2004	5.374	13.157	3.846	11.755	19.500	17.389	7.790	8.347	21.937[(g)]	17.970	7.934	8.863	NA	NA	NA	NA
2002	3.634	14.549	5.748	15.571	17.922	15.988	9.273	8.626	18.732	16.705	9.467	8.860	NA	NA	NA	NA
2000	2.223	3.375	4.060	4.379	17.922	15.987	7.878	7.943	18.129	16.244	8.052	8.189	NA	NA	NA	NA
1998	3.165	14.403	4.538	15.203	15.886	13.948	7.173	6.968	NA	NA	NA	NA	NA	NA	NA	NA

(a) The values shown 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, rates are based on whether a waste generator is or is not a member of the Atlantic Compact.
(d) Effective 7/1/2008, the South Carolina site is not accepting waste from outside the Atlantic Compact.
(e) B, values for the Generic site are assumed to be the same at that provided for the Atlantic Compact, for lack of a better alternative at this time.
(f) Effective with NUREG-1307, Rev. 8 (Ref. 3), turning over the majority of LLW to waste vendors for disposition is considered a possibility.
(g) Calculated using the "flat rate" cost method. See Sections B.2 and B.3.

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 2008 or previous-year dollars. That equation is

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

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 latest month of Year X for which data is available

E_x = energy and waste transportation cost adjustment, January of 1986 to latest month of Year X for which data is available

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

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

where:

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

ΣS_x = summation of surcharges in Year X dollars

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

ΣS_{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 indexes, national consumer price indexes, 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 2008, 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 coefficients for the PWR and the BWR are so similar, the best estimates of their values are their averages:

$$A_{ave} = 0.65 \qquad B_{ave} = 0.13 \qquad C_{ave} = 0.22$$

for both the PWR and BWR estimates.

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

Cost Category	Reference PWR Values 1986 $ (millions)	Coefficient	Reference BWR Values 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.

3.1 Labor Adjustment Factors

Current employment cost indexes for labor (column 3, Table 3.2, below) can be obtained from the "Employment Cost Indexes," published by the U.S. Department of Labor, Bureau of Labor Statistics (BLS) (Ref. 4). Specifically, the appropriate regional data from Table 6 entitled "Employment Cost Index for total compensation, for private industry workers, by bargaining status, census region and division, and metropolitan area status" should be used. These indexes may also be obtained from BLS databases made available on the Internet (see Appendix C for instructions).

To calculate the current labor adjustment factor (L_x) for a particular region, two numbers are needed: a base labor adjustment factor and the current Employment Cost Index (ECI). The base labor adjustment factors are shown in column 2 of Table 3.2, and the current employment cost indexes are shown in column 3. The base labor adjustment factor is the value of L_x at the time the ECI was most recently re-indexed. (This latest re-indexing occurred in December 2005, at which time the index was reset to 100.) It can be seen then that current values of L_x (column 4) are obtained from the simple proportion:

$$L_x/ECI = \text{Base } L_x/100$$

For example, for the Northeast region,

$$L_x/108.1 = 2.16/100$$
or
$$L_x = 2.16*108.1/100 = 2.33$$

Table 3.2 Regional Factors for Labor Cost Adjustment

Region	Base L_x (Dec 2005)	Qtr 2 2008 ECI (Dec 2005 = 100)	L_x (Qtr 2 2008)
Northeast	2.16	108.1	2.33
South	1.98	108.5	2.15
Midwest	2.08	107.0	2.23
West	2.06	108.4	2.23

3.2 Energy Adjustment Factors

The adjustment factor for energy, E_x, is a weighted average of two components, namely, industrial electric power, P_x, and light fuel oil, F_x. For the reference PWR, E_x is given by:

$$E_x\,(PWR) = 0.58P_x + 0.42F_x$$

and for the reference BWR it is:

$$E_x\,(BWR) = 0.54P_x + 0.46F_x$$

These equations are derived from Table 6.3 of Reference 1 and Table 5.3 of Reference 2. The current values of P_x and F_x are calculated from the Producer Price Indexes (PPI), available in the "PPI Detailed Report," published by the U.S. Department of Labor, Bureau of Labor Statistics (BLS) (Ref. 5). These indexes can also be obtained from BLS databases made available on the Internet (see Appendix C for instructions). The indexes used to calculate P_x should be taken from data for industrial electric power (PPI Commodity code 0543), and the indexes used to calculate F_x should be taken from data for light fuel oils (PPI Commodity code 0573). No regional BLS data for these PPI commodity codes is currently available.

P_x and F_x are the values of current producer price indexes (PPI codes 0543 and 0573, respectively) divided by the corresponding indexes for January 1986. 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 April 2008 (latest data available) are

P_x = 185.2 (April 2008 value of code 0543) ÷ 114.2 (January 1986 value of code 0543) = 1.622

F_x = 352.5 (April 2008 value of code 0573) ÷ 82.0 (January 1986 value of code 0573) =4.299

The value of E_x for the reference PWR is therefore

$$E_x\,(PWR) = [(0.58 \times 1.622) + (0.42 \times 4.299)] = 2.746.$$

This value of E_x = 2.746 should then be used in the equation to adjust the energy cost (to April 2008 dollars) for decommissioning a PWR.

For the reference BWR,

$$E_x\,(BWR) = [(0.54 \times 1.622) + (0.46 \times 4.299)] = 2.853.$$

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 = 25.231 (in 2008 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

Four 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. Waste generators that have no disposal site available for LLW should use the B_x values for the Generic LLW Disposal Site. Sample decommissioning costs for other years are provided in Appendix D.

Example 1 (LLW Direct Disposal)

Scenario Description
Reactor Type: PWR
Thermal Power Rating: 3400 MW_{th}
Location of Plant: Northwest Compact
LLW Disposition Preference: Direct Disposal
LLW Burial Location: Washington

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

L_x = 2.23 [from Table 3.2]

E_x = 2.746 [from Section 3.2]

B_x = 8.283 [from Table 2.1]

Decommissioning Cost (2008 dollars)
= ($105 million)*[(0.65)*(2.23)+(0.13)*(2.746)+(0.22)*(8.283)]
= $381 million

Example 2 (LLW Direct Disposal)

Scenario Description
Reactor Type: PWR
Thermal Power Rating: 3400 MW_{th}
Location of Plant: Atlantic Compact
LLW Disposition Preference: Direct Disposal
LLW Burial Location: South Carolina (Atlantic Compact)

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

L_x = 2.33 [from Table 3.2]

E_x = 2.746 [from Section 3.2]

B_x = 25.231[from Table 2.1]

Decommissioning Cost (2008 dollars)
= ($105 million)*[(0.65)*(2.33)+(0.13)*(2.746)+(0.22)*(25.231)]
= $779 million

Example 3 (LLW Disposition by Waste Vendors)

Scenario Description
Reactor Type: PWR
Thermal Power Rating: 3400 MW_{th}
Location of Plant: Atlantic Compact
LLW Disposition Preference: Contract with Waste Vendors
LLW Burial Location: South Carolina (Atlantic Compact)

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

L_x = 2.33 [from Table 3.2]

E_x = 2.746 [from Section 3.2]

B_x = 9.872 [from Table 2.1]

Decommissioning Cost (2008 dollars)
= ($105 million)*[(0.65)*(2.33)+(0.13)*(2.746)+(0.22)*(9.872)]
= $425 million

Example 4 (LLW Disposition by Waste Vendors)

Scenario Description
Reactor Type: BWR
Thermal Power Rating: 3400 MW_{th}
Location of Plant: Midwest Compact
LLW Disposition Preference: Contract with Waste Vendors
LLW Burial Location: Unknown (Generic LLW Disposal Site)

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

L_x = 2.23 [from Table 3.2]

E_x = 2.853 [from Section 3.2]

B_x = 11.198 [from Table 2.1]

Decommissioning Cost (2008 dollars)
= ($135 million)*[(0.65)*(2.23)+(0.13)*(2.853)+(0.22)*(11.198)]
= $578 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, Rev. 8, December 1998.

4. U.S. Department of Labor, Bureau of Labor Statistics, *Employment Cost Indexes*, Updated Annually (approximately) via various Bulletins.

5. U.S. Department of Labor, Bureau of Labor Statistics, *PPI Detailed Report*, Updated Monthly.

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 2008. 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 burial/disposition costs discussed in Appendix B.

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. For 2008, the permit fees range from $424 to $42,400. Hospitals, universities, research centers, and industries pay the lower fees; nuclear power plants pay the highest fee of $42,400. 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 a one-time only 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.16.

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

In 2000, charges for all ranges of container surface dose rates were reduced by a factor of eight. This significantly reduced burial costs at the Washington LLW disposal site. However, effective May 1, 2002, these surface dose rate charges had increased by more than a factor of eight (to about what they were in 1998). In addition, volume, shipment, and container charges had increased by 6.5%, 42.2%, and 42.2%, respectively. Thus, burial charges for 2002 were significantly higher than the charges for 2000 but are roughly comparable to what they were in 1998.

Compared with the 2006 rate schedule used in Rev. 12 of this report, the 2008 schedule reflects increases in volume (14%), shipment (22%), and container (17%) charges. In addition, dose rate charges per container increased by a factor of 2.8. As a result of these changes, the cost to disposition a PWR increased moderately, 21%. However, the cost to disposition a BWR, with its larger volume of high dose rate material, almost doubled. The rate schedule for the Washington LLW disposal site, effective May 1, 2008, is presented in Exhibit A.1.

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. In June 2000, prohibition on waste from North Carolina was lifted.

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, is through customer-specific contracts.

From July 1, 1998, through June 30, 1999, the operator of the South Carolina disposal site imposed a site access fee on users which varied according to their level of use. Access fees for large users (e.g., utilities with nuclear plants) averaged about $205,000 for the year.

In the transition years between 2001 and 2008, the maximum allowable volume of LLW disposed at the South Carolina LLW disposal site from all sources will be governed by a schedule contained in the Atlantic Interstate Low-Level Radioactive Waste Compact Implementation Act, which was enacted into law July 1, 2000. This schedule is shown in Table A.1.

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

Fiscal 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: Code of Laws of South Carolina, 1976, Section 1, Title 48, Chapter 46.

Effective July 1, 2008, out-of-compact waste was prohibited from disposal at the South Carolina disposal site. Weight charges, curie surcharges, and irradiated hardware charges all increased approximately 10% from the 2006 Atlantic Compact rates while dose rate and Atlantic Compact surcharges remained constant. As a result of these changes, the cost to disposition both a PWR and BWR increased approximately 10%. The rate schedule for the South Carolina LLW disposal site, effective July 1, 2008, is presented in Exhibit A.2.

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 out sourced 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.

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 between 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 (m^3) [ft^3]	LLW Volume (% of Total)
South Carolina Disposal Site	874 [30,867]	21.1
Utah Disposal Site	634 [22,390]	15.3
Waste Vendors	2,617 [92,428]	63.3
Liquid LLW Vendors	11 [385]	0.3
Total	4,136 [146,070]	100.0

(a) Reference: NRC Public Document Room (PDR) under NUREG-1307, Rev. 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 Rev. 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 (Ref. 3), 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.

In support of NUREG-1307, Rev 13, a similar survey was conducted. For this thirteenth revision, price quotes from three vendors were received, as shown in Table A.3. To ensure confidentiality, the vendors providing the data are not identified.

Table A.3 Price Quotes for Waste Vendor Services

Vendor	Activated/Contaminated Concrete ($/kg) [$/lb]	Contaminated Metal ($/kg) [$/lb]
Vendor #1	1.56 – 2.97 [0.71 – 1.35]	1.65 – 8.47 [0.75 – 3.85]
Vendor #2	0.24 – 5.54 [0.11 – 2.52]	0.92 – 4.62 [0.42 – 2.10]
Vendor #3[(a)]	1.65 [0.75]	1.54 [0.70]

(a) Values shown for Vendor #3 are weighted averages. Vendor #3 assumes that 90% can be bulk-surveyed for free release; the remaining 10% would require disposition at a licensed low-level radioactive disposal site.

In order to arrive at a reasonable average vendor cost for the disposal of concrete and metal, it is necessary to take into account the proportions of contaminated and uncontaminated concrete and metal volumes that are assumed to be disposed of. In the PWR and BWR studies (NUREG/CR-0130 and NUREG/CR-0672), it was postulated that less than half of the concrete to be disposed of would be Class A or above, whereas virtually all metal waste was postulated to be Class A or above. Therefore, to ensure a conservative estimate of average waste vendor costs, concrete costs are calculated by taking the average of the midpoints of the high and low vendor quotes. Metal costs are determined by taking the average of the high values. The costs are then rounded to the nearest half dollar. Thus, for concrete the vendor price is $2.50/kg [$1.00/lb]; for contaminated metal the price is $6.50/kg [$3.00/lb].[1]

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, these wastes go directly to disposal without further processing. The resulting B_x will be conservative because 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.

[1] Vendor #3 provided only average price quotes. Since a range of values is needed for calculations, quotes from Vendor #3 were not used.

Exhibit A.1

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

SCHEDULE OF CHARGES
EFFECTIVE MAY 1, 2008
SCHEDULE A, EIGHTH REVISION

Note: Rates in this Schedule A are subject to adjustment in accordance with the rate adjustment mechanism adopted in the Washington Utilities and Transportation Commission's Sixth Supplemental Order in Docket No. UR·950619 as extended by Commission Order in Docket Nos. UR·010623 and UR-010706 and TL-070848.

A. SITE AVAILABILITY CHARGE
1. Rates

Block Block Criteria	Annual Charge per Generator
0 No site use at all	$221
1.Greater than zero but less than or equal to 10 ft3 and 50 mRlh	424
2 Greater than 10 ft3 or 50 mRlh* but less than or equal to 20 ft3and 100 mRlh*	814
3 Greater than 20 ft3 or 100 mRlh* but less than or equal to 40 ft3 and 200 mRlh*	1,562
4 Greater than 40 ft3 or 200 mRlh* but less than or equal to 80 ft3 and 400 mRlh*	3,000
5 Greater than 80 ft3or 400 mRlh* but less than or equal to 160 ft3 and 800 mRlh*	5,760
6 Greater than 160 ft3 or 800 mRlh* but less than or equal to 320 ft3 and 1.600 mRlh*	11,050
7 Greater than 320 fe or 1.600 mRlh* but less than or equal to 640 ft3 and 3,200 mRlh*	21,216
8 Greater than 640 ft3 or 3.200 mRlh* but less than or equal to 1.280 ft3 and 6,400 mRlh*	40,730
9 Greater than 1.280 ft3 or 6,400 mRlh* but less than or equal to 2,560 fe and 12,800 mRlh*	78,200
10 Greater than 2.560 ft3 or 12,800 mRlh* but less than or equal to 5,120 ft3 and 25.600 mRlh*	124,800
11 Greater than 5.120 fe or 25,600 mRlh* 124.800	

* For purposes of determining the site availability charge. mRihour 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 by educational research institutions for research, medical or educational purposes. such 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 (Ihose 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.

(OVER)

Exhibit A.1

SCHEDULE A (Continued)

B. DISPOSAL RATES
1. Volume: $98.70 per cubic foot

2. Shipment: $14,740 per manifested shipment

3. Container: $7,080 per container on each manifest.

4. Exposure:

Block No.	Dose Rate at Container Surface	Charge per Container
1	Less than or equal to 200 mRih	$177
2	Greater than 200 mRih but less than or equal to 1,000 mRlh	12,580
3	Greater than 1,000 mRih but less than or equal to 10,000 mRlh	50,400
4	Greater than 10,000 mRih but less than or equal to 100,000 mRlh	75,500
5	Greater than 100,000 mRih	1,268,000

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
Fifth Revision

ENGINEERED CONCRETE BARRIERS
72" x 8' barrier $10,746.00 each
84" x 8' barrier $13.045.00 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
Original Tariff

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 Washington, Inc. 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 $9.00 per cubic foot
Surcharge (RCW 43.200.233) $6.50 per cubic foot
Commission Regulatory Fee 1.0% of rates and charges

Exhibit A.2

Pursuant to 48-46-40(A)(2), S.C.C.

Uniform Schedule of Maximum Disposal Rates for Atlantic Compact Regional Waste

EFFECTIVE JULY 1, 2008

The Uniform Schedule of Maximum Disposal Rates for Atlantic Compact Regional Waste is a permanent ceiling on disposal rates applicable to Atlantic Compact waste that is adjusted each year in accordance with the Producer Price Index. South Carolina may charge Atlantic Compact generators less than the Uniform Maximum schedule, but cannot charge regional generators more than this rate.

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

1. WEIGHT CHARGES (not including surcharges)

A. Base weight charge

Density Range	Weight Rate
i.) Equal to or greater than 120 lbs./ft3	$ 6.191 per pound
ii.) Equal to or greater than 75 lbs./ft3 and less than 120 lbs./ft3	$ 6.811 per pound
iii.) Equal to or greater than 60 lbs./ft3 and less than 75 lbs./ft3	$ 8.359 per pound
iv.) Equal to or greater than 45 lbs./ft3 and less than 60 lbs./ft3	$ 10.836 per pound
v.) Less than 45 lbs./ft3	$ 10.836 per pound

multiplied by: (45 ÷ pounds per cubic footof the package)

B. Dose multiplier on base weight charge

Container Dose Level	Multiplier on Weight Rate, above
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

C. Biological Waste: Add $1.407 per pound to rate calculated above

2. SURCHARGES

A. Millicurie surcharge $.464 per millicurie*

*In lieu of above, generator may opt for an alternative millicurie charge of .$.928 per millicurie applicable only to millicuries with greater than 5-year half-life. Such election must be provided in writing to the disposal site operator prior to July 1, 2007.

MAXIMUM MILLICURIE CHARGE IS $185,600 PER SHIPMENT (400,000 MCI).

B. Irradiated Hardware Charges (See Note B under Miscellaneous) $70,364 per shipment

C. Special Nuclear Material Surcharge $14.071 per gram

D. Atlantic Compact Commission administrative surcharge $6 per cubic foot
(Subject to change during year)

Exhibit A.2

NOTES

A. Surcharges for the Barnwell Extended Care Fund and the Decommissioning Trust Fund are included in the rates.

B. Irradiated hardware: As a general rule, billing as irradiated hardware pertains to shipments of exceptionally high activity that require clearing of the site and special off-loading into a slit trench. These generally include CNS3-55, TN-RAM, and other horizontally offloaded cask shipments. In addition to items of irradiated hardware, shipments considered irradiated hardware, for purposes of disposal, have included certain sealed sources and materials with exceptionally high levels of radioactivity.

C. Large components (e.g., steam generators, reactor pressure vessels, coolant pumps)
Disposal fees for large components (e.g., steam generators, reactor pressure vessels, reactor coolant pumps, or items that will not fit into standard sized disposal vaults) are based on the generally applicable rates, in their entirety, except that the weight and volume used to determine density and weight related charges is calculated as follows:

1. For packages where the large component shell qualifies as the disposal vault per DHEC regulations, weight and volume calculations are based on all sub-components 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 sub-components 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.

D. Co-mingled shipments from brokers and processors: For containers that include waste from different generators (DHEC permittees), the weight and density of the waste from each generator will be assessed separately for purposes of the weight charge in I.A . The dose of the container as a whole will be used to assess the dose multiplier in I.B. The millicurie charge 2.A. above, applies individually to each portion of waste in the shipment from each generator. The disposal site operator will provide guidelines for application of this method.

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

F. In certain circumstances, the disposal site operator may assess additional charges for necessary services that are not part of and are additional to disposal rates established by the State of South Carolina. These include decontamination services and special services as described in the Barnwell Site Disposal Criteria.

G. The disposal site operator has established the following policies and procedures which are provided herein for informational purposes:

i. 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.

Exhibit A.2

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

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

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 spreadsheet models. 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-Three Mile Island (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, B_x = 1.0/1.0 (for PWR/BWR) for 1986. For the year 2008, B_x = 8.283/23.185. These B_x values reflect the adjustment in waste burial costs at the Washington LLW disposal site since 1986. B_x values are summarized in Table 2.1.

Waste burial costs for the year 2008 were developed using the rate schedule provided in Exhibit A.1. The spreadsheet calculations, which are too voluminous to present here, are summarized in Tables B.1 and B.2. Tables B.3 through B.12 provide summaries of the waste burial costs at the Washington LLW disposal site for 2006, 2004, 2002, 2000, and 1998, respectively. These estimates were originally reported in previous issues of NUREG-1307.

B.2 South Carolina LLW Disposal Site

Waste burial costs for the year 2008 for the South Carolina LLW disposal site were developed using the rate schedules provided in Exhibit A.2. The spreadsheet calculations, which are too voluminous to present here, are summarized in Tables B.13 and B.14 for Atlantic Compact reactors. For the year 2008, B_x = 25.231/22.504 for the South Carolina disposal site from Atlantic Compact reactors. These B_x values reflect the year 2008 burial cost estimates for the South Carolina LLW disposal site normalized to the 1986 Washington LLW disposal site burial costs. B_x values are summarized in Table 2.1. Tables B.15 through B.32 provide summaries of the waste burial costs at the South Carolina LLW disposal site for 2006, 2004, 2002, 2000, and 1998, respectively. These estimates were originally reported in previous revisions of NUREG-1307. The flat rate cost option footnoted in Tables B.21 and B.22 is not available in 2008. This option, for non-Atlantic Compact reactors, was available in 2004 only, and is discussed in Rev. 11 of NUREG-1307.

B.3 LLW Disposition by Waste Vendors

Waste disposition costs for the year 2008 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 burial costs for the year 2008 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.

The spreadsheet calculations, which are too voluminous to present here, are summarized in Tables B.33 through B.36. For the year 2008, B_x = 5.153/20.889 for the Washington LLW disposal site and B_x = 9.872/11.198 for the South Carolina disposal site from Atlantic Compact reactors. These B_x values reflect the year 2008 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. B_x values are summarized in Table 2.1. The flat rate cost option footnoted in Tables B.47 and B.48 is not available in 2008. This option, for non-Atlantic Compact reactors, was available in 2004 only, and is discussed in Rev. 11 of NUREG-1307.

Tables B.37 through B.64 provide summaries of the waste burial/disposition costs at the Washington and South Carolina LLW disposal sites for 2006, 2004, 2002, 2000, and 1998. 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 significantly overestimated compared with high-density packaging and geologic repository disposal. It may also be feasible to store GTCC waste in independent spent fuel storage installations (ISFSIs) or other interim storage facilities, as permitted by 10 CFR 72.

Table B.1 PWR Burial Costs at the Washington Site (2008 dollars)

REFERENCE PWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	CONTAINER DOSE RATE CHARGE	DISPOSAL COST
VESSEL WALL	375,060	560,120	269,040	2,869,000	4,073,220
VESSEL HEAD & BOTTOM	394,800	589,600	283,200	7,080	1,274,680
UPPER CORE SUPPORT ASSM	39,480	58,960	28,320	201,600	328,360
UPPER SUPPORT COLUMN	39,480	58,960	28,320	201,600	328,360
UPPER CORE BARREL	19,740	29,480	14,160	151,000	214,380
UPPER CORE GRID PLATE	49,350	73,700	35,400	377,500	535,950
GUIDE TUBES	59,220	88,440	42,480	302,400	492,540
LOWER CORE BARREL [a]	315,840	471,680	226,560	2,416,000	3,430,080
THERMAL SHIELDS [a]	59,220	88,440	42,480	453,000	643,140
CORE SHROUD [a]	39,480	58,960	28,320	302,000	428,760
LOWER GRID PLATE [a]	49,350	73,700	35,400	377,500	535,950
LOWER SUPPORT COLUMN	9,870	14,740	7,080	75,500	107,190
LOWER CORE FORGING	108,570	162,140	77,880	830,500	1,179,090
MISC INTERNALS	78,960	117,920	56,640	604,000	857,520
BIO SHIELD CONCRETE	2,463,552	722,260	1,380,600	34,515	4,600,927
REACTOR CAVITY LINER	50,534	14,740	28,320	708	94,302
REACTOR COOLANT PUMPS	414,540	176,880	84,960	2,124	678,504
PRESSURIZER	355,320	117,920	56,640	1,416	531,296
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	39,480	14,740	21,240	531	75,991
PRESSURIZER RELIEF TANK	118,440	29,480	14,160	354	162,434
SAFETY INJECTION ACCUM TANKS	394,800	117,920	56,640	1,416	570,776
STEAM GENERATORS	2,108,429	471,680	226,560	5,664	2,812,333
REACTOR COOLANT PIPING	325,710	103,180	49,560	1,239	479,689
REMAINING CONTAM. MATLS	5,192,410	1,488,740	2,909,880	72,747	9,663,777
CONTAMINATED MATRL OTHR BLD	47,089,967	11,733,040	26,259,720	656,493	85,739,220
FILTER CARTRIDGES	31,091	88,440	42,480	302,400	464,411
SPENT RESINS	197,400	294,800	141,600	1,510,000	2,143,800
COMBUSTIBLE WASTES	999,338	884,400	424,800	10,620	2,319,158
EVAPORATOR BOTTOMS	927,780	1,385,560	665,520	2,231,879	5,210,739
POST-TMI-2 ADDITIONS	1,536,068	0	0	0	1,536,068
HEAVY OBJECT SURCHARGE					152,809
SITE AVAILABILITY CHARGES, (3 YRS)					374,400
SUBTOTAL PWR COSTS	**63,883,279**	**20,090,620**	**33,537,960**	**14,000,786**	**132,039,854**
TAXES & FEES (% OF CHARGES)					5,677,714
TAXES & FEES ($/UNIT VOL.)					11,165,011
ANNUAL PERMIT FEES (3 YRS)					127,200
TOTAL PWR COSTS					**149,009,778**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.2 BWR Burial Costs at the Washington Site (2008 dollars)

REFERENCE BWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	CONTAINER DOSE RATE CHARGE	DISPOSAL COST
STEAM SEPARATOR	34,841	206,360	198,240	35,504,000	35,943,441
FUEL SUPPORT & PIECES	17,470	103,180	99,120	1,057,000	1,276,770
CONTROL RODS/INCORES	52,311	117,920	56,640	10,144,000	10,370,871
CONTROL RODS GUIDES	13,917	88,440	84,960	906,000	1,093,317
JET PUMPS	48,857	294,800	283,200	50,720,000	51,346,857
TOP FUEL GUIDES	83,698	1,061,280	509,760	91,296,000	92,950,738
CORE SUPPORT PLATE	38,394	235,840	219,480	2,340,500	2,834,214
CORE SHROUD [a]	163,842	2,063,600	991,200	177,520,000	180,738,642
REACTOR VESSEL WALL	27,932	294,800	155,760	1,661,000	2,139,492
SAC SHIELD (NEUTRON ACT. MATL.)	313,669	206,360	99,120	2,478	621,627
REACT. WATER REC	306,760	73,700	42,480	1,062	424,002
SAC SHIELD (CONTAM. MATL.)	1,080,568	560,120	269,040	6,726	1,916,454
OTHER PRIMARY CONTAINMENT	12,324,669	2,505,800	6,563,160	164,079	21,557,708
CONTAINM. ATMOSPHERIC	167,297	14,740	14,160	354	196,551
HIGH PRESSURE CORE SPRAY	59,220	29,480	14,160	354	103,214
LOW PRESSURE CORE SPRAY	34,841	14,740	7,080	177	56,838
REACTOR BLDG CLOSED COOLING	111,531	29,480	42,480	1,062	184,553
REACTOR CORE ISO COOLING	45,303	14,740	21,240	531	81,814
RESIDUAL HEAT REMOVAL	216,153	73,700	49,560	1,239	340,652
POOL LINER & RACKS	1,328,009	265,320	261,960	6,549	1,861,838
CONTAMINATED CONCRETE	1,512,775	412,720	764,640	19,116	2,709,251
OTHER REACTOR BUILDING	4,945,857	678,040	2,761,200	69,030	8,454,127
TURBINE	4,900,652	1,208,680	1,968,240	49,206	8,126,778
NUCLEAR STEAM CONDENSATE	1,265,235	191,620	311,520	7,788	1,776,163
LOW PRESSURE FEEDWATER HEATERS	2,568,766	619,080	311,520	7,788	3,507,154
MAIN STEAM	247,540	29,480	21,240	531	298,791
MOISTURE SEPARATOR REHEATERS	2,492,175	383,240	184,080	4,602	3,064,097
REACTOR FEEDWATER PUMPS	676,194	88,440	141,600	3,540	909,774
HIGH PRESSURE FEEDWATER HEATERS	421,745	117,920	56,640	1,416	597,721
OTHER TG BLDG	16,929,024	3,508,120	9,090,720	227,268	29,755,132
RAD WASTE BLDG	8,382,690	1,061,280	4,545,360	113,634	14,102,964
REACTOR BLDG	1,057,077	560,120	10,110,240	252,756	11,980,193
TG BLDG	713,601	368,500	6,825,120	170,628	8,077,849
RAD WASTE & CONTROL	615,888	339,020	5,890,560	147,264	6,992,732
CONCENTRATOR BOTTOMS	2,220,750	3,316,500	1,593,000	5,296,145	12,426,395
OTHER	602,070	899,140	431,880	246,454	2,179,544
POST-TMI-2 ADDITIONS	125,546	0	0	0	125,546
HEAVY OBJECT SURCHARGE					220,034
SITE AVAILABILITY CHARGES, (3.5 YRS)					499,200
SUBTOTAL BWR COSTS	**66,146,865**	**22,036,300**	**54,990,360**	**377,950,277**	**521,843,036**
TAXES & FEES (% OF CHARGES)					22,439,251
TAXES & FEES ($/UNIT VOL.)					11,560,622
ANNUAL PERMIT FEES (3.5 YRS)					169,600
TOTAL BWR COSTS					**556,012,508**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.3 PWR Burial Costs at the Washington Site (2006 dollars)

REFERENCE PWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	CONTAINER DOSE RATE CHARGE	DISPOSAL COST
VESSEL WALL	330,220	460,180	230,280	1,014,600	2,035,280
VESSEL HEAD & BOTTOM	347,600	484,400	242,400	2,520	1,076,920
UPPER CORE SUPPORT ASSM	34,760	48,440	24,240	71,200	178,640
UPPER SUPPORT COLUMN	34,760	48,440	24,240	71,200	178,640
UPPER CORE BARREL	17,380	24,220	12,120	53,400	107,120
UPPER CORE GRID PLATE	43,450	60,550	30,300	133,500	267,800
GUIDE TUBES	52,140	72,660	36,360	106,800	267,960
LOWER CORE BARREL [a]	278,080	387,520	193,920	854,400	1,713,920
THERMAL SHIELDS [a]	52,140	72,660	36,360	160,200	321,360
CORE SHROUD [a]	34,760	48,440	24,240	106,800	214,240
LOWER GRID PLATE [a]	43,450	60,550	30,300	133,500	267,800
LOWER SUPPORT COLUMN	8,690	12,110	6,060	26,700	53,560
LOWER CORE FORGING	95,590	133,210	66,660	293,700	589,160
MISC INTERNALS	69,520	96,880	48,480	213,600	428,480
BIO SHIELD CONCRETE	2,169,024	593,390	1,181,700	12,285	3,956,399
REACTOR CAVITY LINER	44,493	12,110	24,240	252	81,095
REACTOR COOLANT PUMPS	364,980	145,320	72,720	756	583,776
PRESSURIZER	312,840	96,880	48,480	504	458,704
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	34,760	12,110	18,180	189	65,239
PRESSURIZER RELIEF TANK	104,280	24,220	12,120	126	140,746
SAFETY INJECTION ACCUM TANKS	347,600	96,880	48,480	504	493,464
STEAM GENERATORS	1,856,358	387,520	193,920	2,016	2,439,814
REACTOR COOLANT PIPING	286,770	84,770	42,420	441	414,401
REMAINING CONTAM. MATLS	4,571,635	1,223,110	2,490,660	25,893	8,311,298
CONTAMINATED MATRL OTHR BLD	41,460,164	9,639,560	22,476,540	233,667	73,809,931
FILTER CARTRIDGES	27,374	72,660	36,360	106,800	243,194
SPENT RESINS	173,800	242,200	121,200	534,000	1,071,200
COMBUSTIBLE WASTES	879,863	726,600	363,600	3,780	1,973,843
EVAPORATOR BOTTOMS	816,860	1,138,340	569,640	790,701	3,315,541
POST-TMI-2 ADDITIONS	1,352,425	0	0	0	1,352,425
HEAVY OBJECT SURCHARGE					144,483
SITE AVAILABILITY CHARGES, (3 YRS)					401,727
SUBTOTAL PWR COSTS	**56,245,764**	**16,505,930**	**28,706,220**	**4,954,034**	**106,958,158**
TAXES & FEES (% OF CHARGES)					4,599,201
TAXES & FEES ($/UNIT VOL.)					11,165,011
ANNUAL PERMIT FEES (3 YRS)					127,200
TOTAL PWR COSTS					**122,849,569**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.4 BWR Burial Costs at the Washington Site (2006 dollars)

REFERENCE BWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	CONTAINER DOSE RATE CHARGE	DISPOSAL COST
STEAM SEPARATOR	30,676	169,540	169,680	12,555,200	12,925,096
FUEL SUPPORT & PIECES	15,381	84,770	84,840	373,800	558,791
CONTROL RODS/INCORES	46,057	96,880	48,480	3,587,200	3,778,617
CONTROL RODS GUIDES	12,253	72,660	72,720	320,400	478,033
JET PUMPS	43,016	242,200	242,400	17,936,000	18,463,616
TOP FUEL GUIDES	73,691	871,920	436,320	32,284,800	33,666,731
CORE SUPPORT PLATE	33,804	193,760	187,860	827,700	1,243,124
CORE SHROUD [a]	144,254	1,695,400	848,400	62,776,000	65,464,054
REACTOR VESSEL WALL	24,593	242,200	133,320	587,400	987,513
SAC SHIELD (NEUTRON ACT. MATL.)	276,168	169,540	84,840	882	531,430
REACT. WATER REC	270,085	60,550	36,360	378	367,373
SAC SHIELD (CONTAM. MATL.)	951,381	460,180	230,280	2,394	1,644,235
OTHER PRIMARY CONTAINMENT	10,851,203	2,058,700	5,617,620	58,401	18,585,924
CONTAINM. ATMOSPHERIC	147,296	12,110	12,120	126	171,652
HIGH PRESSURE CORE SPRAY	52,140	24,220	12,120	126	88,606
LOW PRESSURE CORE SPRAY	30,676	12,110	6,060	63	48,909
REACTOR BLDG CLOSED COOLING	98,197	24,220	36,360	378	159,155
REACTOR CORE ISO COOLING	39,887	12,110	18,180	189	70,366
RESIDUAL HEAT REMOVAL	190,311	60,550	42,420	441	293,722
POOL LINER & RACKS	1,169,240	217,980	224,220	2,331	1,613,771
CONTAMINATED CONCRETE	1,331,916	339,080	654,480	6,804	2,332,280
OTHER REACTOR BUILDING	4,354,559	557,060	2,363,400	24,570	7,299,589
TURBINE	4,314,759	993,020	1,684,680	17,514	7,009,973
NUCLEAR STEAM CONDENSATE	1,113,971	157,430	266,640	2,772	1,540,813
LOW PRESSURE FEEDWATER HEATERS	2,261,659	508,620	266,640	2,772	3,039,691
MAIN STEAM	217,945	24,220	18,180	189	260,534
MOISTURE SEPARATOR REHEATERS	2,194,225	314,860	157,560	1,638	2,668,283
REACTOR FEEDWATER PUMPS	595,352	72,660	121,200	1,260	790,472
HIGH PRESSURE FEEDWATER HEATERS	371,324	96,880	48,480	504	517,188
OTHER TG BLDG	14,905,088	2,882,180	7,781,040	80,892	25,649,200
RAD WASTE BLDG	7,380,504	871,920	3,890,520	40,446	12,183,390
REACTOR BLDG	930,699	460,180	8,653,680	89,964	10,134,523
TG BLDG	628,287	302,750	5,841,840	60,732	6,833,609
RAD WASTE & CONTROL	542,256	278,530	5,041,920	52,416	5,915,122
CONCENTRATOR BOTTOMS	1,955,250	2,724,750	1,363,500	1,876,335	7,919,835
OTHER	530,090	738,710	369,660	87,766	1,726,226
POST-TMI-2 ADDITIONS	110,537	0	0	0	110,537
HEAVY OBJECT SURCHARGE					207,760
SITE AVAILABILITY CHARGES, (3.5 YRS)					535,636
SUBTOTAL BWR COSTS	**58,238,729**	**18,104,450**	**47,068,020**	**133,660,783**	**257,815,378**
TAXES & FEES (% OF CHARGES)					11,086,061
TAXES & FEES ($/UNIT VOL.)					11,560,622
ANNUAL PERMIT FEES (3.5 YRS)					169,600
TOTAL BWR COSTS					**280,631,661**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.5 PWR Burial Costs at the Washington Site (2004 dollars)

REFERENCE PWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	BENTON COUNTY TAX SURCHARGE	DISPOSAL COST
VESSEL WALL	215,080	373,160	187,340	1,520,000	0	2,295,580
VESSEL HEAD & BOTTOM	226,400	392,800	197,200	3,800	0	820,200
UPPER CORE SUPPORT ASSM	22,640	39,280	19,720	107,200	0	188,840
UPPER SUPPORT COLUMN	22,640	39,280	19,720	107,200	0	188,840
UPPER CORE BARREL	11,320	19,640	9,860	80,000	0	120,820
UPPER CORE GRID PLATE	28,300	49,100	24,650	200,000	0	302,050
GUIDE TUBES	33,960	58,920	29,580	160,800	0	283,260
LOWER CORE BARREL [a]	181,120	314,240	157,760	1,280,000	0	1,933,120
THERMAL SHIELDS [a]	33,960	58,920	29,580	240,000	0	362,460
CORE SHROUD [a]	22,640	39,280	19,720	160,000	0	241,640
LOWER GRID PLATE [a]	28,300	49,100	24,650	200,000	0	302,050
LOWER SUPPORT COLUMN	5,660	9,820	4,930	40,000	0	60,410
LOWER CORE FORGING	62,260	108,020	54,230	440,000	0	664,510
MISC INTERNALS	45,280	78,560	39,440	320,000	0	483,280
BIO SHIELD CONCRETE	1,412,736	481,180	961,350	0	0	2,855,266
REACTOR CAVITY LINER	28,979	9,820	19,720	0	0	58,519
REACTOR COOLANT PUMPS	237,720	117,840	59,160	0	0	414,720
PRESSURIZER	203,760	78,560	39,440	0	0	321,760
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	22,640	9,820	14,790	0	0	47,250
PRESSURIZER RELIEF TANK	67,920	19,640	9,860	0	0	97,420
SAFETY INJECTION ACCUM TANKS	226,400	78,560	39,440	0	0	344,400
STEAM GENERATORS	1,209,089	314,240	157,760	0	0	1,681,089
REACTOR COOLANT PIPING	186,780	68,740	34,510	0	0	290,030
REMAINING CONTAM. MATLS	2,977,613	991,820	2,026,230	0	0	5,995,663
CONTAMINATED MATRL OTHR BLD	27,003,973	7,816,720	18,285,370	0	0	53,106,063
FILTER CARTRIDGES	17,829	58,920	29,580	1,125,600	0	1,231,929
SPENT RESINS	113,200	196,400	98,600	800,000	0	1,208,200
COMBUSTIBLE WASTES	573,075	589,200	295,800	0	0	1,458,075
EVAPORATOR BOTTOMS	532,040	923,080	463,420	1,186,315	0	3,104,855
POST-TMI-2 ADDITIONS	880,866	0	0	0	0	880,866
HEAVY OBJECT SURCHARGE						136,313
SITE AVAILABILITY CHARGES (3 YRS)						382,821
SUBTOTAL PWR COSTS	**36,634,180**	**13,384,660**	**23,353,410**	**7,970,915**	**0**	**81,862,299**
TAXES & FEES (% OF CHARGES)						3,520,079
TAXES & FEES ($/UNIT VOL.)						11,165,011
ANNUAL PERMIT FEES (3 YRS)						127,200
TOTAL PWR COSTS						**96,674,588**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.6 BWR Burial Costs at the Washington Site (2004 dollars)

REFERENCE BWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	BENTON COUNTY TAX SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	19,980	137,480	138,040	18,816,000	0	19,111,500
FUEL SUPPORT & PIECES	10,018	68,740	69,020	560,000	0	707,778
CONTROL RODS/INCORES	29,998	78,560	39,440	5,376,000	0	5,523,998
CONTROL RODS GUIDES	7,981	58,920	59,160	480,000	0	606,061
JET PUMPS	28,017	196,400	197,200	26,880,000	0	27,301,617
TOP FUEL GUIDES	47,997	707,040	354,960	48,384,000	0	49,493,997
CORE SUPPORT PLATE	22,017	157,120	152,830	1,240,000	0	1,571,967
CORE SHROUD [a]	93,956	1,374,800	690,200	94,080,000	0	96,238,956
REACTOR VESSEL WALL	16,018	196,400	108,460	880,000	0	1,200,878
SAC SHIELD (NEUTRON ACT. MATL.)	179,875	137,480	69,020	0	0	386,375
REACT. WATER REC	175,913	49,100	29,580	0	0	254,593
SAC SHIELD (CONTAM. MATL.)	619,657	373,160	187,340	0	0	1,180,157
OTHER PRIMARY CONTAINMENT	7,067,642	1,669,400	4,570,110	0	0	13,307,152
CONTAINM. ATMOSPHERIC	95,937	9,820	9,860	0	0	115,617
HIGH PRESSURE CORE SPRAY	33,960	19,640	9,860	0	0	63,460
LOW PRESSURE CORE SPRAY	19,980	9,820	4,930	0	0	34,730
REACTOR BLDG CLOSED COOLING	63,958	19,640	29,580	0	0	113,178
REACTOR CORE ISO COOLING	25,979	9,820	14,790	0	0	50,589
RESIDUAL HEAT REMOVAL	123,954	49,100	34,510	0	0	207,564
POOL LINER & RACKS	761,553	176,760	182,410	0	0	1,120,723
CONTAMINATED CONCRETE	867,508	274,960	532,440	0	0	1,674,908
OTHER REACTOR BUILDING	2,836,226	451,720	1,922,700	0	0	5,210,646
TURBINE	2,810,303	805,240	1,370,540	0	0	4,986,083
NUCLEAR STEAM CONDENSATE	725,555	127,660	216,920	0	0	1,070,135
LOW PRESSURE FEEDWATER HEATERS	1,473,072	412,440	216,920	0	0	2,102,432
MAIN STEAM	141,953	19,640	14,790	0	0	176,383
MOISTURE SEPARATOR REHEATERS	1,429,150	255,320	128,180	0	0	1,812,650
REACTOR FEEDWATER PUMPS	387,767	58,920	98,600	0	0	545,287
HIGH PRESSURE FEEDWATER HEATERS	241,852	78,560	39,440	0	0	359,852
OTHER TG BLDG	9,708,032	2,337,160	6,330,120	0	0	18,375,312
RAD WASTE BLDG	4,807,095	707,040	3,165,060	0	0	8,679,195
REACTOR BLDG	606,186	373,160	7,040,040	0	0	8,019,386
TG BLDG	409,218	245,500	4,752,520	0	0	5,407,238
RAD WASTE & CONTROL	353,184	225,860	4,101,760	0	0	4,680,804
CONCENTRATOR BOTTOMS	1,273,500	2,209,500	1,109,250	2,815,175	0	7,407,425
OTHER	345,260	599,020	300,730	132,240	0	1,377,250
POST-TMI-2 ADDITIONS	71,995	0	0	0	0	71,995
HEAVY OBJECT SURCHARGE						196,250
SITE AVAILABILITY CHARGES (3.5 YRS)						510,428
SUBTOTAL BWR COSTS	**37,932,245**	**14,680,900**	**38,291,310**	**199,643,415**	**0**	**291,254,548**
TAXES & FEES (% OF CHARGES)						12,523,946
TAXES & FEES ($/UNIT VOL.)						11,560,622
ANNUAL PERMIT FEES (3.5 YRS)						169,600
TOTAL BWR COSTS						**315,508,715**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.7 PWR Burial Costs at the Washington Site (2002 dollars)

REFERENCE PWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	BENTON COUNTY TAX SURCHARGE	DISPOSAL COST
VESSEL WALL	144,020	228,342	78,280	2,101,400	0	2,552,042
VESSEL HEAD & BOTTOM	151,600	240,360	82,400	5,200	0	479,560
UPPER CORE SUPPORT ASSM	15,160	24,036	8,240	147,200	0	194,636
UPPER SUPPORT COLUMN	15,160	24,036	8,240	147,200	0	194,636
UPPER CORE BARREL	7,580	12,018	4,120	110,600	0	134,318
UPPER CORE GRID PLATE	18,950	30,045	10,300	276,500	0	335,795
GUIDE TUBES	22,740	36,054	12,360	220,800	0	291,954
LOWER CORE BARREL [a]	121,280	192,288	65,920	1,769,600	0	2,149,088
THERMAL SHIELDS [a]	22,740	36,054	12,360	331,800	0	402,954
CORE SHROUD [a]	15,160	24,036	8,240	221,200	0	268,636
LOWER GRID PLATE [a]	18,950	30,045	10,300	276,500	0	335,795
LOWER SUPPORT COLUMN	3,790	6,009	2,060	55,300	0	67,159
LOWER CORE FORGING	41,690	66,099	22,660	608,300	0	738,749
MISC INTERNALS	30,320	48,072	16,480	442,400	0	537,272
BIO SHIELD CONCRETE	945,984	294,441	401,700	0	0	1,642,125
REACTOR CAVITY LINER	19,405	6,009	8,240	0	0	33,654
REACTOR COOLANT PUMPS	159,180	72,108	24,720	0	0	256,008
PRESSURIZER	136,440	48,072	16,480	0	0	200,992
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	15,160	6,009	6,180	0	0	27,349
PRESSURIZER RELIEF TANK	45,480	12,018	4,120	0	0	61,618
SAFETY INJECTION ACCUM TANKS	151,600	48,072	16,480	0	0	216,152
STEAM GENERATORS	809,620	192,288	65,920	0	0	1,067,828
REACTOR COOLANT PIPING	125,070	42,063	14,420	0	0	181,553
REMAINING CONTAM. MATLS	1,993,843	606,909	846,660	0	0	3,447,412
CONTAMINATED MATRL OTHR BLD	18,082,166	4,783,164	7,640,540	0	0	30,505,870
FILTER CARTRIDGES	11,939	36,054	12,360	1,545,600	0	1,605,953
SPENT RESINS	75,800	120,180	41,200	1,106,000	0	1,343,180
COMBUSTIBLE WASTES	383,738	360,540	123,600	0	0	867,878
EVAPORATOR BOTTOMS	356,260	564,846	193,640	1,635,910	0	2,750,656
POST-TMI-2 ADDITIONS	589,838	0	0	0	0	589,838
HEAVY OBJECT SURCHARGE						127,975
SITE AVAILABILITY CHARGES (3 YRS)						372,474
SUBTOTAL PWR COSTS	**24,530,661**	**8,190,267**	**9,758,220**	**11,001,510**	**0**	**53,981,107**
TAXES & FEES (% OF CHARGES)						2,051,282
TAXES & FEES ($/UNIT VOL.)						9,223,270
ANNUAL PERMIT FEES (3 YRS)						123,300
TOTAL PWR COSTS						**65,378,959**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.8 BWR Burial Costs at the Washington Site (2002 dollars)

REFERENCE BWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	BENTON COUNTY TAX SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	13,379	84,126	57,680	25,984,000	0	26,139,185
FUEL SUPPORT & PIECES	6,708	42,063	28,840	774,200	0	851,811
CONTROL RODS/INCORES	20,087	48,072	16,480	7,424,000	0	7,508,639
CONTROL RODS GUIDES	5,344	36,054	24,720	663,600	0	729,718
JET PUMPS	18,761	120,180	82,400	37,120,000	0	37,341,341
TOP FUEL GUIDES	32,139	432,648	148,320	66,816,000	0	67,429,107
CORE SUPPORT PLATE	14,743	96,144	63,860	1,714,300	0	1,889,047
CORE SHROUD [a]	62,914	841,260	288,400	129,920,000	0	131,112,574
REACTOR VESSEL WALL	10,726	120,180	45,320	1,216,600	0	1,392,826
SAC SHIELD (NEUTRON ACT. MATL.)	120,446	84,126	28,840	0	0	233,412
REACT. WATER REC	117,793	30,045	12,360	0	0	160,198
SAC SHIELD (CONTAM. MATL.)	414,929	228,342	78,280	0	0	721,551
OTHER PRIMARY CONTAINMENT	4,732,573	1,021,530	1,909,620	0	0	7,663,723
CONTAINM. ATMOSPHERIC	64,241	6,009	4,120	0	0	74,370
HIGH PRESSURE CORE SPRAY	22,740	12,018	4,120	0	0	38,878
LOW PRESSURE CORE SPRAY	13,379	6,009	2,060	0	0	21,448
REACTOR BLDG CLOSED COOLING	42,827	12,018	12,360	0	0	67,205
REACTOR CORE ISO COOLING	17,396	6,009	6,180	0	0	29,585
RESIDUAL HEAT REMOVAL	83,001	30,045	14,420	0	0	127,466
POOL LINER & RACKS	509,945	108,162	76,220	0	0	694,327
CONTAMINATED CONCRETE	580,893	168,252	222,480	0	0	971,625
OTHER REACTOR BUILDING	1,899,169	276,414	803,400	0	0	2,978,983
TURBINE	1,881,811	492,738	572,680	0	0	2,947,229
NUCLEAR STEAM CONDENSATE	485,840	78,117	90,640	0	0	654,597
LOW PRESSURE FEEDWATER HEATERS	986,385	252,378	90,640	0	0	1,329,403
MAIN STEAM	95,053	12,018	6,180	0	0	113,251
MOISTURE SEPARATOR REHEATERS	956,975	156,234	53,560	0	0	1,166,769
REACTOR FEEDWATER PUMPS	259,653	36,054	41,200	0	0	336,907
HIGH PRESSURE FEEDWATER HEATERS	161,947	48,072	16,480	0	0	226,499
OTHER TG BLDG	6,500,608	1,430,142	2,645,040	0	0	10,575,790
RAD WASTE BLDG	3,218,885	432,648	1,322,520	0	0	4,974,053
REACTOR BLDG	405,909	228,342	2,941,680	0	0	3,575,931
TG BLDG	274,017	150,225	1,985,840	0	0	2,410,082
RAD WASTE & CONTROL	236,496	138,207	1,713,920	0	0	2,088,623
CONCENTRATOR BOTTOMS	852,750	1,352,025	463,500	3,881,970	0	6,550,245
OTHER	231,190	366,549	125,660	181,020	0	904,419
POST-TMI-2 ADDITIONS	48,209	0	0	0	0	48,209
HEAVY OBJECT SURCHARGE						184,275
SITE AVAILABILITY CHARGES (3.5 YRS)						496,632
SUBTOTAL BWR COSTS	**25,399,860**	**8,983,455**	**16,000,020**	**275,695,690**	**0**	**326,759,932**
TAXES & FEES (% OF CHARGES)						12,416,877
TAXES & FEES ($/UNIT VOL.)						9,550,079
ANNUAL PERMIT FEES (3.5 YRS)						164,400
TOTAL BWR COSTS						**348,891,289**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.9 PWR Burial Costs at the Washington Site (2000 dollars)

REFERENCE PWR 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 ($/UNIT VOL.)						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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.10 BWR Burial Costs at the Washington Site (2000 dollars)

REFERENCE BWR 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 (NEUTRON ACT. MATL.)	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 (CONTAM. MATL.)	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 ($/UNIT VOL.)						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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.11 PWR Burial Costs at the Washington Site (1998 dollars)

REFERENCE PWR 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 ($/UNIT VOL.)						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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.12 BWR Burial Costs at the Washington Site (1998 dollars)

REFERENCE BWR 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 (NEUTRON ACT. MATL.)	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 (CONTAM. MATL.)	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 ($/UNIT VOL.)						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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.13 PWR Burial Costs at the South Carolina Site Atlantic Compact (2008 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
VESSEL WALL	3,682,407	2,673,832	7,052,800	0	1,767,555	15,176,594
VESSEL HEAD & BOTTOM	2,346,371	2,814,560	9,280	0	0	5,170,211
UPPER CORE SUPPORT ASSM	221,514	281,456	4,640	0	70,884	578,494
UPPER SUPPORT COLUMN	204,796	281,456	46,400	0	65,535	598,186
UPPER CORE BARREL	97,524	140,728	371,200	0	46,812	656,264
UPPER CORE GRID PLATE	243,810	351,820	928,000	0	117,029	1,640,659
GUIDE TUBES	360,839	422,184	46,400	0	97,426	926,849
LOWER CORE BARREL [a]	1,560,384	2,251,648	5,939,200	0	748,984	10,500,216
THERMAL SHIELDS [a]	292,572	422,184	1,113,600	0	140,435	1,968,791
CORE SHROUD [a]	226,529	281,456	11,321,600	0	108,734	11,938,319
LOWER GRID PLATE [a]	243,810	351,820	1,856,000	0	117,029	2,568,659
LOWER SUPPORT COLUMN	61,857	70,364	185,600	0	29,691	347,512
LOWER CORE FORGING	672,064	774,004	1,160,000	0	322,591	2,928,658
MISC INTERNALS	544,880	562,912	928,000	0	261,542	2,297,334
BIO SHIELD CONCRETE	13,281,450	0	556,800	0	0	13,838,250
REACTOR CAVITY LINER	267,488	0	4,640	0	0	272,128
REACTOR COOLANT PUMPS	4,655,632	0	36,034	0	0	4,691,666
PRESSURIZER	2,113,020	0	2,352	0	0	2,115,372
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	195,048	0	5,471	0	0	200,519
PRESSURIZER RELIEF TANK	585,144	0	1,875	0	0	587,019
SAFETY INJECTION ACCUM TANKS	2,084,166	0	37,788	0	0	2,121,954
STEAM GENERATORS	17,037,632	0	2,041,600	0	0	19,079,232
REACTOR COOLANT PIPING	1,855,681	0	138,272	0	0	1,993,953
REMAINING CONTAM. MATLS	32,804,896	0	103,839	0	0	32,908,734
CONTAMINATED MATRL OTHR BLD	252,369,160	0	85,492	0	0	252,454,652
FILTER CARTRIDGES	334,314	422,184	2,320,000	0	40,118	3,116,616
SPENT RESINS	1,225,980	1,407,280	3,712,000	0	588,470	6,933,730
COMBUSTIBLE WASTES	5,851,440	4,221,840	139,200	0	0	10,212,480
EVAPORATOR BOTTOMS	5,762,106	6,614,216	17,446,400	0	787,079	30,609,801
POST-TMI-2 ADDITIONS	11,562,064	0	0	0	0	11,562,064
SUBTOTAL PWR COSTS	**362,744,576**	**24,345,944**	**57,594,483**	**0**	**5,309,914**	**449,994,916**
ATLANTIC COMPACT COMMISSION ADMINISTRATIVE SURCHARGE						3,883,482
TOTAL PWR COSTS (INSIDE COMPACT)						**453,878,398**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.14 BWR Burial Costs at the South Carolina Site Atlantic Compact (2008 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	226,342	1,970,192	2,598,400	0	108,644	4,903,579
FUEL SUPPORT & PIECES	99,706	985,096	324,800	0	47,859	1,457,461
CONTROL RODS/INCORES	296,851	562,912	1,484,800	0	142,488	2,487,051
CONTROL RODS GUIDES	83,437	844,368	46,400	0	30,872	1,005,077
JET PUMPS	241,372	2,814,560	3,712,000	0	115,859	6,883,790
TOP FUEL GUIDES	413,502	5,066,208	13,363,200	0	198,481	19,041,391
CORE SUPPORT PLATE	277,208	2,181,284	301,600	0	102,567	2,862,659
CORE SHROUD [a]	809,449	9,850,960	25,984,000	0	388,536	37,032,945
REACTOR VESSEL WALL	176,108	1,548,008	1,002,240	0	65,160	2,791,516
SAC SHIELD	3,704,707	0	77,952	0	0	3,782,659
REACT. WATER REC	1,603,223	0	20,391	0	0	1,623,614
SAC SHIELD	9,594,069	0	71,829	0	0	9,665,898
OTHER PRIMARY CONTAINMENT	67,298,062	0	819,267	0	0	68,117,329
CONTAINM. ATMOSPHERIC	826,516	0	11,121	0	0	837,637
HIGH PRESSURE CORE SPRAY	415,471	0	3,937	0	0	419,408
LOW PRESSURE CORE SPRAY	183,898	0	2,316	0	0	186,214
REACTOR BLDG CLOSED COOLING	648,426	0	7,414	0	0	655,840
REACTOR CORE ISO COOLING	223,818	0	3,011	0	0	226,829
RESIDUAL HEAT REMOVAL	1,253,238	0	14,369	0	0	1,267,606
POOL LINER & RACKS	8,265,051	0	88,278	0	0	8,353,328
CONTAMINATED CONCRETE	9,115,824	0	100,560	0	0	9,216,384
OTHER REACTOR BUILDING	24,434,638	0	328,770	0	0	24,763,408
TURBINE	30,578,192	0	325,765	0	0	30,903,956
NUCLEAR STEAM CONDENSATE	6,250,801	0	84,105	0	0	6,334,906
LOW PRESSURE FEEDWATER HEATERS	13,571,672	0	170,756	0	0	13,742,428
MAIN STEAM	1,222,951	0	16,455	0	0	1,239,406
MOISTURE SEPARATOR REHEATERS	12,312,405	0	165,664	0	0	12,478,069
REACTOR FEEDWATER PUMPS	3,340,685	0	44,949	0	0	3,385,634
HIGH PRESSURE FEEDWATER HEATERS	2,202,078	0	28,035	0	0	2,230,113
OTHER TG BLDG	83,636,582	0	1,125,336	0	0	84,761,918
RAD WASTE BLDG	41,414,054	0	557,229	0	0	41,971,283
REACTOR BLDG	10,585,738	4,503,296	88,160	0	0	15,177,194
TG BLDG	6,964,301	2,955,288	58,000	0	0	9,977,589
RAD WASTE & CONTROL	6,407,157	2,673,832	53,360	0	0	9,134,349
CONCENTRATOR BOTTOMS	23,677,260	15,831,900	41,760,000	0	3,207,479	84,476,639
OTHER	6,419,168	4,292,204	444,976	0	159,953	11,316,301
POST-TMI-2 ADDITIONS	944,994	0	0	0	0	944,994
SUBTOTAL BWR COSTS	379,718,953	56,080,108	95,289,444	0	4,567,898	535,656,402
ATLANTIC COMPACT COMMISSION ADMINISTRATIVE SURCHARGE						4,021,086
TOTAL BWR COSTS (INSIDE COMPACT)						539,677,488

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.15 PWR Burial Costs at the South Carolina Site Atlantic Compact (2006 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
VESSEL WALL	3,344,560	2,428,580	6,399,200	0	1,605,389	13,777,729
VESSEL HEAD & BOTTOM	2,131,074	2,556,400	8,420	0	0	4,695,894
UPPER CORE SUPPORT ASSM	201,188	255,640	4,210	0	64,380	525,418
UPPER SUPPORT COLUMN	186,004	255,640	42,100	0	59,521	543,265
UPPER CORE BARREL	88,578	127,820	336,800	0	42,517	595,715
UPPER CORE GRID PLATE	221,445	319,550	842,000	0	106,294	1,489,289
GUIDE TUBES	327,739	383,460	42,100	0	88,489	841,788
LOWER CORE BARREL [a]	1,417,248	2,045,120	5,388,800	0	680,279	9,531,447
THERMAL SHIELDS [a]	265,734	383,460	1,010,400	0	127,552	1,787,146
CORE SHROUD [a]	205,743	255,640	10,272,400	0	98,757	10,832,540
LOWER GRID PLATE [a]	221,445	319,550	1,684,000	0	106,294	2,331,289
LOWER SUPPORT COLUMN	56,181	63,910	168,400	0	26,967	315,458
LOWER CORE FORGING	610,397	703,010	1,052,500	0	292,990	2,658,897
MISC INTERNALS	494,880	511,280	842,000	0	237,542	2,085,702
BIO SHIELD CONCRETE	12,062,700	0	505,200	0	0	12,567,900
REACTOR CAVITY LINER	242,944	0	4,210	0	0	247,154
REACTOR COOLANT PUMPS	4,228,496	0	32,695	0	0	4,261,191
PRESSURIZER	1,919,190	0	2,134	0	0	1,921,324
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	177,156	0	4,964	0	0	182,120
PRESSURIZER RELIEF TANK	531,468	0	1,701	0	0	533,169
SAFETY INJECTION ACCUM TANKS	1,892,916	0	34,286	0	0	1,927,202
STEAM GENERATORS	15,474,496	0	1,852,400	0	0	17,326,896
REACTOR COOLANT PIPING	1,685,409	0	125,458	0	0	1,810,867
REMAINING CONTAM. MATLS	29,794,804	0	94,216	0	0	29,889,020
CONTAMINATED MATRL OTHR BLD	229,212,426	0	77,569	0	0	229,289,995
FILTER CARTRIDGES	303,642	383,460	2,105,000	0	36,437	2,828,539
SPENT RESINS	1,113,480	1,278,200	3,368,000	0	534,470	6,294,150
COMBUSTIBLE WASTES	5,314,680	3,834,600	126,300	0	0	9,275,580
EVAPORATOR BOTTOMS	5,233,356	6,007,540	15,829,600	0	714,854	27,785,350
POST-TMI-2 ADDITIONS	10,501,290	0	0	0	0	10,501,290
SUBTOTAL PWR COSTS	**329,460,668**	**22,112,860**	**52,257,063**	**0**	**4,822,734**	**408,653,325**
ATLANTIC COMPACT COMMISSION ADMINISTRATIVE SURCHARGE						3,883,482
TOTAL PWR COSTS (INSIDE COMPACT)						**412,536,807**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.16 BWR Burial Costs at the South Carolina Site Atlantic Compact (2006 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	205,580	1,789,480	2,357,600	0	98,678	4,451,338
FUEL SUPPORT & PIECES	90,557	894,740	294,700	0	43,468	1,323,465
CONTROL RODS/INCORES	269,611	511,280	1,347,200	0	129,413	2,257,504
CONTROL RODS GUIDES	75,783	766,920	42,100	0	28,040	912,843
JET PUMPS	219,231	2,556,400	3,368,000	0	105,231	6,248,861
TOP FUEL GUIDES	375,571	4,601,520	12,124,800	0	180,274	17,282,165
CORE SUPPORT PLATE	251,770	1,981,210	273,650	0	93,155	2,599,785
CORE SHROUD [a]	735,197	8,947,400	23,576,000	0	352,895	33,611,492
REACTOR VESSEL WALL	159,949	1,406,020	909,360	0	59,181	2,534,509
SAC SHIELD	3,364,814	0	70,728	0	0	3,435,542
REACT. WATER REC	1,456,115	0	18,502	0	0	1,474,617
SAC SHIELD	8,713,851	0	65,173	0	0	8,779,023
OTHER PRIMARY CONTAINMENT	61,124,725	0	743,344	0	0	61,868,069
CONTAINM. ATMOSPHERIC	750,699	0	10,090	0	0	760,789
HIGH PRESSURE CORE SPRAY	377,346	0	3,572	0	0	380,918
LOW PRESSURE CORE SPRAY	167,024	0	2,101	0	0	169,125
REACTOR BLDG CLOSED COOLING	588,945	0	6,727	0	0	595,672
REACTOR CORE ISO COOLING	203,287	0	2,732	0	0	206,019
RESIDUAL HEAT REMOVAL	1,138,236	0	13,037	0	0	1,151,273
POOL LINER & RACKS	7,506,887	0	80,097	0	0	7,586,984
CONTAMINATED CONCRETE	8,279,380	0	91,241	0	0	8,370,620
OTHER REACTOR BUILDING	22,193,218	0	298,302	0	0	22,491,520
TURBINE	27,772,417	0	295,575	0	0	28,067,992
NUCLEAR STEAM CONDENSATE	5,677,407	0	76,311	0	0	5,753,718
LOW PRESSURE FEEDWATER HEATERS	12,326,371	0	154,931	0	0	12,481,302
MAIN STEAM	1,110,768	0	14,930	0	0	1,125,698
MOISTURE SEPARATOR REHEATERS	11,182,973	0	150,312	0	0	11,333,284
REACTOR FEEDWATER PUMPS	3,034,239	0	40,784	0	0	3,075,023
HIGH PRESSURE FEEDWATER HEATERS	2,000,008	0	25,437	0	0	2,025,445
OTHER TG BLDG	75,964,493	0	1,021,048	0	0	76,985,541
RAD WASTE BLDG	37,615,091	0	505,589	0	0	38,120,680
REACTOR BLDG	9,614,538	4,090,240	79,990	0	0	13,784,768
TG BLDG	6,325,354	2,684,220	52,625	0	0	9,062,199
RAD WASTE & CONTROL	5,819,326	2,428,580	48,415	0	0	8,296,321
CONCENTRATOR BOTTOMS	21,504,964	14,379,750	37,890,000	0	2,913,206	76,687,920
OTHER	5,830,235	3,898,510	403,739	0	145,278	10,277,762
POST-TMI-2 ADDITIONS	858,295	0	0	0	0	858,295
SUBTOTAL BWR COSTS	**344,884,253**	**50,936,270**	**86,458,741**	**0**	**4,148,818**	**486,428,082**
ATLANTIC COMPACT COMMISSION ADMINISTRATIVE SURCHARGE						4,021,086
TOTAL BWR COSTS (INSIDE COMPACT)						**490,449,168**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.17 PWR Burial Costs at the South Carolina Site Non-Atlantic Compact (2006 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
VESSEL WALL	3,207,162	2,686,790	6,874,200	0	1,539,438	14,307,589
VESSEL HEAD & BOTTOM	1,929,813	2,828,200	9,000	0	0	4,767,013
UPPER CORE SUPPORT ASSM	191,569	282,820	4,500	0	61,302	540,190
UPPER SUPPORT COLUMN	188,724	282,820	45,000	0	60,392	576,935
UPPER CORE BARREL	71,112	141,410	362,000	0	34,134	608,656
UPPER CORE GRID PLATE	163,200	353,525	943,380	0	78,336	1,538,441
GUIDE TUBES	288,112	424,230	45,000	0	77,790	835,132
LOWER CORE BARREL [a]	1,336,868	2,262,560	6,932,032	0	641,697	11,173,157
THERMAL SHIELDS [a]	258,980	424,230	1,340,000	0	124,310	2,147,520
CORE SHROUD [a]	195,906	282,820	11,381,968	0	94,035	11,954,729
LOWER GRID PLATE [a]	185,597	353,525	2,293,800	0	89,087	2,922,009
LOWER SUPPORT COLUMN	50,875	70,705	200,000	0	24,420	346,000
LOWER CORE FORGING	552,750	777,755	1,125,000	0	265,320	2,720,825
MISC INTERNALS	455,120	565,640	900,000	0	218,458	2,139,218
BIO SHIELD CONCRETE	12,017,850	0	540,000	0	0	12,557,850
REACTOR CAVITY LINER	246,496	0	4,500	0	0	250,996
REACTOR COOLANT PUMPS	4,054,784	0	34,947	0	0	4,089,731
PRESSURIZER	1,848,990	0	2,282	0	0	1,851,272
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	167,820	0	5,306	0	0	173,125
PRESSURIZER RELIEF TANK	435,200	0	1,818	0	0	437,018
SAFETY INJECTION ACCUM TANKS	1,885,878	0	36,648	0	0	1,922,526
STEAM GENERATORS	15,169,024	0	1,980,000	0	0	17,149,024
REACTOR COOLANT PIPING	1,604,824	0	134,100	0	0	1,738,924
REMAINING CONTAM. MATLS	26,980,938	0	100,706	0	0	27,081,643
CONTAMINATED MATRL OTHR BLD	232,563,661	0	0	0	0	232,563,661
FILTER CARTRIDGES	291,168	424,230	2,260,000	0	23,293	2,998,691
SPENT RESINS	1,055,880	1,414,100	3,684,000	0	506,822	6,660,802
COMBUSTIBLE WASTES	5,120,280	4,242,300	135,000	0	0	9,497,580
EVAPORATOR BOTTOMS	4,962,636	6,646,270	17,000,528	0	487,817	29,097,251
POST-TMI-2 ADDITIONS	5,754,886	0	0	0	0	5,754,886
SUBTOTAL PWR COSTS	**323,236,099**	**24,463,930**	**58,375,714**	**0**	**4,326,649**	**410,402,392**
ATLANTIC COMPACT COMMISSION ADMINISTRATIVE SURCHARGE						3,883,482
TOTAL PWR COSTS (OUTSIDE COMPACT)						**414,285,874**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.18 BWR Burial Costs at the South Carolina Site Non-Atlantic Compact (2006 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	180,723	1,979,740	2,539,208	0	86,747	4,786,418
FUEL SUPPORT & PIECES	86,228	989,870	315,000	0	41,389	1,432,487
CONTROL RODS/INCORES	263,465	565,640	1,818,000	0	126,463	2,773,569
CONTROL RODS GUIDES	73,011	848,460	45,000	0	27,014	993,486
JET PUMPS	187,730	2,828,200	3,640,000	0	90,111	6,746,041
TOP FUEL GUIDES	331,666	5,090,760	13,020,192	0	159,200	18,601,818
CORE SUPPORT PLATE	231,542	2,191,855	292,500	0	85,671	2,801,568
CORE SHROUD [a]	751,170	9,898,700	37,800,000	0	360,562	48,810,432
REACTOR VESSEL WALL	144,843	1,555,510	972,000	0	53,592	2,725,945
SAC SHIELD	3,226,584	0	75,600	0	0	3,302,184
REACT. WATER REC	1,477,405	0	19,776	0	0	1,497,181
SAC SHIELD	8,355,875	0	69,662	0	0	8,425,537
OTHER PRIMARY CONTAINMENT	62,565,584	0	794,548	0	0	63,360,132
CONTAINM. ATMOSPHERIC	651,850	0	10,785	0	0	662,635
HIGH PRESSURE CORE SPRAY	347,029	0	3,818	0	0	350,847
LOW PRESSURE CORE SPRAY	169,466	0	2,246	0	0	171,712
REACTOR BLDG CLOSED COOLING	567,403	0	7,190	0	0	574,593
REACTOR CORE ISO COOLING	207,217	0	2,921	0	0	210,138
RESIDUAL HEAT REMOVAL	1,112,292	0	13,935	0	0	1,126,227
POOL LINER & RACKS	6,599,226	0	85,614	0	0	6,684,841
CONTAMINATED CONCRETE	7,497,463	0	97,526	0	0	7,594,988
OTHER REACTOR BUILDING	19,329,718	0	318,850	0	0	19,648,567
TURBINE	25,149,548	0	315,936	0	0	25,465,483
NUCLEAR STEAM CONDENSATE	5,444,142	0	81,567	0	0	5,525,710
LOW PRESSURE FEEDWATER HEATERS	12,506,591	0	165,603	0	0	12,672,194
MAIN STEAM	1,009,776	0	15,958	0	0	1,025,735
MOISTURE SEPARATOR REHEATERS	10,337,603	0	160,666	0	0	10,498,269
REACTOR FEEDWATER PUMPS	2,719,222	0	43,593	0	0	2,762,815
HIGH PRESSURE FEEDWATER HEATERS	1,992,572	0	27,189	0	0	2,019,761
OTHER TG BLDG	74,855,064	0	1,091,382	0	0	75,946,446
RAD WASTE BLDG	34,088,712	0	540,416	0	0	34,629,128
REACTOR BLDG	9,219,561	4,525,120	85,500	0	0	13,830,181
TG BLDG	6,065,500	2,969,610	56,250	0	0	9,091,360
RAD WASTE & CONTROL	5,580,260	2,686,790	51,750	0	0	8,318,800
CONCENTRATOR BOTTOMS	20,621,513	15,908,625	40,690,470	0	2,001,662	79,222,269
OTHER	5,590,721	4,313,005	431,550	0	0	10,335,276
POST-TMI-2 ADDITIONS	470,360	0	0	0	0	470,360
SUBTOTAL BWR COSTS	**330,008,637**	**56,351,885**	**105,702,201**	**0**	**3,032,410**	**495,095,133**
ATLANTIC COMPACT COMMISSION ADMINISTRATIVE SURCHARGE						4,021,086
TOTAL BWR COSTS (OUTSIDE COMPACT)						**499,116,219**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.19 PWR Burial Costs at the South Carolina Site Atlantic Compact (2004 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
VESSEL WALL	2,838,980	2,061,272	5,441,752	0	1,362,711	11,704,715
VESSEL HEAD & BOTTOM	1,808,550	2,169,760	7,160	0	0	3,985,470
UPPER CORE SUPPORT ASSM	170,740	216,976	3,580	0	54,637	445,932
UPPER SUPPORT COLUMN	157,854	216,976	35,800	0	50,513	461,143
UPPER CORE BARREL	75,177	108,488	286,408	0	36,085	506,158
UPPER CORE GRID PLATE	187,943	271,220	716,020	0	90,212	1,265,395
GUIDE TUBES	278,155	325,464	35,800	0	75,102	714,521
LOWER CORE BARREL [a]	1,202,832	1,735,808	4,582,528	0	577,359	8,098,527
THERMAL SHIELDS [a]	225,531	325,464	859,224	0	108,255	1,518,474
CORE SHROUD [a]	174,605	216,976	8,735,444	0	83,811	9,210,836
LOWER GRID PLATE [a]	187,943	271,220	1,432,040	0	90,212	1,981,415
LOWER SUPPORT COLUMN	47,678	54,244	143,204	0	22,886	268,012
LOWER CORE FORGING	518,017	596,684	895,000	0	248,648	2,258,349
MISC INTERNALS	420,000	433,952	716,000	0	201,600	1,771,552
BIO SHIELD CONCRETE	10,237,500	0	429,600	0	0	10,667,100
REACTOR CAVITY LINER	206,176	0	3,580	0	0	209,756
REACTOR COOLANT PUMPS	3,589,296	0	27,802	0	0	3,617,098
PRESSURIZER	1,628,835	0	1,815	0	0	1,630,650
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	150,354	0	4,221	0	0	154,575
PRESSURIZER RELIEF TANK	451,062	0	1,446	0	0	452,508
SAFETY INJECTION ACCUM TANKS	1,606,500	0	29,156	0	0	1,635,656
STEAM GENERATORS	13,135,296	0	1,575,200	0	0	14,710,496
REACTOR COOLANT PIPING	1,430,333	0	106,684	0	0	1,537,017
REMAINING CONTAM. MATLS	25,285,554	0	80,117	0	0	25,365,670
CONTAMINATED MATRL OTHR BLD	194,522,610	0	65,962	0	0	194,588,572
FILTER CARTRIDGES	257,742	325,464	1,790,000	0	30,929	2,404,135
SPENT RESINS	945,000	1,084,880	2,864,080	0	453,600	5,347,560
COMBUSTIBLE WASTES	4,510,620	3,254,640	107,400	0	0	7,872,660
EVAPORATOR BOTTOMS	4,441,500	5,098,936	13,461,176	0	606,690	23,608,302
POST-TMI-2 ADDITIONS	8,913,864	0	0	0	0	8,913,864
SUBTOTAL PWR COSTS	**279,606,246**	**18,768,424**	**44,438,198**	**0**	**4,093,250**	**346,906,118**
ATLANTIC COMPACT SURCHARGE						3,883,482
TOTAL PWR COSTS (INSIDE COMPACT)						**350,789,600**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.20 BWR Burial Costs at the South Carolina Site Atlantic Compact (2004 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	174,477	1,518,832	2,004,856	0	83,749	3,781,915
FUEL SUPPORT & PIECES	76,852	759,416	250,600	0	36,889	1,123,757
CONTROL RODS/INCORES	228,816	433,952	1,145,632	0	109,832	1,918,232
CONTROL RODS GUIDES	64,318	650,928	35,800	0	23,798	774,844
JET PUMPS	186,063	2,169,760	2,864,080	0	89,310	5,309,213
TOP FUEL GUIDES	318,750	3,905,568	10,310,688	0	153,000	14,688,007
CORE SUPPORT PLATE	213,675	1,681,564	232,700	0	79,060	2,206,999
CORE SHROUD [a]	623,969	7,594,160	20,048,560	0	299,505	28,566,194
REACTOR VESSEL WALL	135,741	1,193,368	773,280	0	50,224	2,152,614
SAC SHIELD (NEUTRON ACT. MATL.)	2,856,173	0	60,144	0	0	2,916,317
REACT. WATER REC	1,235,742	0	15,733	0	0	1,251,475
SAC SHIELD (CONTAM. MATL.)	7,396,623	0	55,420	0	0	7,452,043
OTHER PRIMARY CONTAINMENT	51,877,142	0	632,107	0	0	52,509,249
CONTAINM. ATMOSPHERIC	637,125	0	8,580	0	0	645,705
HIGH PRESSURE CORE SPRAY	320,250	0	3,037	0	0	323,287
LOW PRESSURE CORE SPRAY	141,746	0	1,787	0	0	143,533
REACTOR BLDG CLOSED COOLING	499,844	0	5,720	0	0	505,564
REACTOR CORE ISO COOLING	172,531	0	2,324	0	0	174,855
RESIDUAL HEAT REMOVAL	966,011	0	11,086	0	0	977,097
POOL LINER & RACKS	6,371,167	0	68,111	0	0	6,439,278
CONTAMINATED CONCRETE	7,026,349	0	77,587	0	0	7,103,936
OTHER REACTOR BUILDING	18,835,597	0	253,663	0	0	19,089,260
TURBINE	23,569,241	0	251,344	0	0	23,820,586
NUCLEAR STEAM CONDENSATE	4,818,470	0	64,891	0	0	4,883,361
LOW PRESSURE FEEDWATER HEATERS	10,460,855	0	131,747	0	0	10,592,602
MAIN STEAM	942,720	0	12,696	0	0	955,415
MOISTURE SEPARATOR REHEATERS	9,491,096	0	127,819	0	0	9,618,915
REACTOR FEEDWATER PUMPS	2,575,188	0	34,681	0	0	2,609,869
HIGH PRESSURE FEEDWATER HEATERS	1,697,388	0	21,630	0	0	1,719,018
OTHER TG BLDG	64,471,795	0	868,255	0	0	65,340,050
RAD WASTE BLDG	31,924,289	0	429,931	0	0	32,354,220
REACTOR BLDG	8,161,158	3,471,616	68,020	0	0	11,700,794
TG BLDG	5,369,183	2,278,248	44,750	0	0	7,692,181
RAD WASTE & CONTROL	4,939,648	2,061,272	41,170	0	0	7,042,090
CONCENTRATOR BOTTOMS	18,254,169	12,204,900	32,220,900	0	2,472,831	65,152,801
OTHER	4,948,908	3,308,884	343,322	0	123,317	8,724,431
POST-TMI-2 ADDITIONS	728,551	0	0	0	0	728,551
SUBTOTAL BWR COSTS	**292,711,621**	**43,232,468**	**73,522,651**	**0**	**3,521,516**	**412,988,255**
ATLANTIC COMPACT SURCHARGE						4,021,086
TOTAL BWR COSTS (INSIDE COMPACT)						**417,009,341**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.21 PWR Burial Costs at the South Carolina Site Non-Atlantic Compact (2004 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
VESSEL WALL	2,841,954	2,380,320	6,064,800	0	1,364,138	12,651,213
VESSEL HEAD & BOTTOM	1,709,463	2,505,600	7,980	0	0	4,223,043
UPPER CORE SUPPORT ASSM	169,733	250,560	3,990	0	54,314	478,597
UPPER SUPPORT COLUMN	167,213	250,560	39,900	0	53,508	511,181
UPPER CORE BARREL	63,000	125,280	319,200	0	30,240	537,720
UPPER CORE GRID PLATE	144,585	313,200	798,000	0	69,401	1,325,186
GUIDE TUBES	255,245	375,840	39,900	0	68,916	739,901
LOWER CORE BARREL [a]	1,184,400	2,004,480	5,107,200	0	568,512	8,864,592
THERMAL SHIELDS [a]	229,425	375,840	957,600	0	110,124	1,672,989
CORE SHROUD [a]	173,576	250,560	9,735,600	0	83,316	10,243,052
LOWER GRID PLATE [a]	164,430	313,200	1,596,000	0	78,926	2,152,556
LOWER SUPPORT COLUMN	45,066	62,640	159,600	0	21,632	288,938
LOWER CORE FORGING	489,636	689,040	997,500	0	235,025	2,411,201
MISC INTERNALS	403,200	501,120	798,000	0	193,536	1,895,856
BIO SHIELD CONCRETE	10,647,000	0	478,800	0	0	11,125,800
REACTOR CAVITY LINER	218,400	0	3,990	0	0	222,390
REACTOR COOLANT PUMPS	3,593,056	0	30,986	0	0	3,624,042
PRESSURIZER	1,638,000	0	2,023	0	0	1,640,023
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	148,680	0	4,704	0	0	153,384
PRESSURIZER RELIEF TANK	385,560	0	1,612	0	0	387,172
SAFETY INJECTION ACCUM TANKS	1,670,760	0	32,495	0	0	1,703,255
STEAM GENERATORS	13,438,016	0	1,755,600	0	0	15,193,616
REACTOR COOLANT PIPING	1,421,897	0	118,902	0	0	1,540,799
REMAINING CONTAM. MATLS	23,900,205	0	89,292	0	0	23,989,497
CONTAMINATED MATRL OTHR BLD	206,055,691	0	0	0	0	206,055,691
FILTER CARTRIDGES	258,012	375,840	1,995,000	0	20,641	2,649,493
SPENT RESINS	935,640	1,252,800	3,192,000	0	449,107	5,829,547
COMBUSTIBLE WASTES	4,536,000	3,758,400	119,700	0	0	8,414,100
EVAPORATOR BOTTOMS	4,397,508	5,888,160	15,002,400	0	432,266	25,720,334
POST-TMI-2 ADDITIONS	5,098,439	0	0	0	0	5,098,439
SUBTOTAL PWR COSTS	**286,383,788**	**21,673,440**	**49,452,774**	**0**	**3,833,603**	**361,343,605**
ATLANTIC COMPACT SURCHARGE						3,883,482
TOTAL PWR COSTS (OUTSIDE COMPACT)						**365,227,087**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Disposal Cost Based on Flat Rate Calculation

Base Cost = (Waste Volume [ft^3]) * $600/$ft^3$ = 645,247 * 600 =	387,148,200
Spent Resins = (Resin Volume [ft^3]) * $1,800/$ft^3$ = 2000 * 1,800 =	3,600,000
Atlantic Compact Surcharge = Volume [ft^3] * 6ft^3$ = 647,247 * 6 =	3,883,482
Total	**394,631,682**

Table B.22 BWR Burial Costs at the South Carolina Site Non-Atlantic Compact (2004 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	160,107	1,753,920	2,234,400	0	76,851	4,225,278
FUEL SUPPORT & PIECES	76,399	876,960	279,300	0	36,671	1,269,330
CONTROL RODS/INCORES	233,392	501,120	1,276,800	0	112,028	2,123,341
CONTROL RODS GUIDES	64,680	751,680	39,900	0	23,932	880,192
JET PUMPS	166,320	2,505,600	3,192,000	0	79,834	5,943,754
TOP FUEL GUIDES	293,832	4,510,080	11,491,200	0	141,039	16,436,151
CORE SUPPORT PLATE	205,128	1,941,840	259,350	0	75,897	2,482,215
CORE SHROUD [a]	665,469	8,769,600	22,344,000	0	319,425	32,098,494
REACTOR VESSEL WALL	128,304	1,378,080	861,840	0	47,473	2,415,697
SAC SHIELD (NEUTRON ACT. MATL.)	2,859,165	0	67,032	0	0	2,926,197
REACT. WATER REC	1,309,008	0	17,535	0	0	1,326,543
SAC SHIELD (CONTAM. MATL.)	7,404,371	0	61,767	0	0	7,466,138
OTHER PRIMARY CONTAINMENT	55,429,605	0	704,499	0	0	56,134,104
CONTAINM. ATMOSPHERIC	577,500	0	9,563	0	0	587,063
HIGH PRESSURE CORE SPRAY	307,440	0	3,385	0	0	310,825
LOW PRESSURE CORE SPRAY	150,150	0	1,992	0	0	152,142
REACTOR BLDG CLOSED COOLING	502,656	0	6,375	0	0	509,031
REACTOR CORE ISO COOLING	183,576	0	2,590	0	0	186,165
RESIDUAL HEAT REMOVAL	985,331	0	12,356	0	0	997,686
POOL LINER & RACKS	5,846,402	0	75,911	0	0	5,922,313
CONTAMINATED CONCRETE	6,641,389	0	86,473	0	0	6,727,861
OTHER REACTOR BUILDING	17,125,189	0	282,714	0	0	17,407,903
TURBINE	22,277,926	0	280,130	0	0	22,558,056
NUCLEAR STEAM CONDENSATE	4,822,853	0	72,323	0	0	4,895,176
LOW PRESSURE FEEDWATER HEATERS	11,081,070	0	146,835	0	0	11,227,905
MAIN STEAM	894,613	0	14,150	0	0	908,762
MOISTURE SEPARATOR REHEATERS	9,157,868	0	142,457	0	0	9,300,325
REACTOR FEEDWATER PUMPS	2,408,903	0	38,652	0	0	2,447,555
HIGH PRESSURE FEEDWATER HEATERS	1,765,284	0	24,108	0	0	1,789,391
OTHER TG BLDG	66,314,836	0	967,692	0	0	67,282,528
RAD WASTE BLDG	30,200,940	0	479,169	0	0	30,680,109
REACTOR BLDG	8,169,707	4,008,960	75,810	0	0	12,254,477
TG BLDG	5,374,807	2,630,880	49,875	0	0	8,055,562
RAD WASTE & CONTROL	4,944,823	2,380,320	45,885	0	0	7,371,028
CONCENTRATOR BOTTOMS	18,273,292	14,094,000	35,910,000	0	1,773,728	70,051,019
OTHER	4,954,092	3,821,040	382,641	0	0	9,157,773
POST-TMI-2 ADDITIONS	416,707	0	0	0	0	416,707
SUBTOTAL BWR COSTS	**292,373,132**	**49,924,080**	**81,940,707**	**0**	**2,686,878**	**426,924,797**
ATLANTIC COMPACT SURCHARGE						4,021,086
TOTAL BWR COSTS (OUTSIDE COMPACT)						**430,945,883**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Disposal Cost Based on Flat Rate Calculation

Base Cost = (Waste Volume [ft^3]) * $600/$ft^3$ = 670,181 * 600 =	402,108,600
Spent Resins = (Resin Volume [ft^3]) * $1,800/$ft^3$ = 0 * 1,800 =	0
Atlantic Compact Surcharge = Volume [ft^3] * 6ft^3$ = 670,181 * 6 =	4,021,086
Total	**406,129,686**

Table B.23 PWR Burial Costs at the South Carolina Site Atlantic Compact (2002 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
VESSEL WALL	2,617,120	1,900,304	5,016,760	0	1,256,218	10,790,402
VESSEL HEAD & BOTTOM	1,667,358	2,000,320	6,600	0	0	3,674,278
UPPER CORE SUPPORT ASSM	157,410	200,032	3,300	0	50,371	411,113
UPPER SUPPORT COLUMN	145,530	200,032	33,000	0	46,570	425,132
UPPER CORE BARREL	69,300	100,016	264,040	0	33,264	466,620
UPPER CORE GRID PLATE	173,250	250,040	660,100	0	83,160	1,166,550
GUIDE TUBES	256,410	300,048	33,000	0	69,231	658,689
LOWER CORE BARREL [a]	1,108,800	1,600,256	4,224,640	0	532,224	7,465,920
THERMAL SHIELDS [a]	207,900	300,048	792,120	0	99,792	1,399,860
CORE SHROUD [a]	160,974	200,032	8,053,220	0	77,268	8,491,494
LOWER GRID PLATE [a]	173,250	250,040	1,320,200	0	83,160	1,826,650
LOWER SUPPORT COLUMN	43,956	50,008	132,020	0	21,099	247,083
LOWER CORE FORGING	477,576	550,088	825,000	0	229,236	2,081,900
MISC INTERNALS	387,200	400,064	660,000	0	185,856	1,633,120
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	300,048	1,650,000	0	28,512	2,216,160
SPENT RESINS	871,200	1,000,160	2,640,400	0	418,176	4,929,936
COMBUSTIBLE WASTES	4,158,000	3,000,480	99,000	0	0	7,257,480
EVAPORATOR BOTTOMS	4,094,640	4,700,752	12,409,880	0	559,310	21,764,582
POST-TMI-2 ADDITIONS	8,217,949	0	0	0	0	8,217,949
SUBTOTAL PWR COSTS	**257,774,622**	**17,302,768**	**40,966,973**	**0**	**3,773,446**	**319,817,810**
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						2,588,988
TOTAL PWR COSTS (INSIDE COMPACT)						**322,406,798**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.24 BWR Burial Costs at the South Carolina Site Atlantic Compact (2002 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	160,838	1,400,224	1,848,280	0	77,202	3,486,544
FUEL SUPPORT & PIECES	70,852	700,112	231,000	0	34,009	1,035,973
CONTROL RODS/INCORES	210,947	400,064	1,056,160	0	101,254	1,768,425
CONTROL RODS GUIDES	59,290	600,096	33,000	0	21,937	714,323
JET PUMPS	171,518	2,000,320	2,640,400	0	82,328	4,894,566
TOP FUEL GUIDES	293,832	3,600,576	9,505,440	0	141,039	13,540,887
CORE SUPPORT PLATE	196,988	1,550,248	214,500	0	72,886	2,034,622
CORE SHROUD [a]	575,190	7,001,120	18,482,800	0	276,091	26,335,201
REACTOR VESSEL WALL	125,144	1,100,176	712,800	0	46,303	1,984,423
SAC SHIELD (NEUTRON ACT. MATL.)	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 (CONTAM. MATL.)	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	3,200,512	62,700	0	0	10,786,592
TG BLDG	4,949,592	2,100,336	41,250	0	0	7,091,178
RAD WASTE & CONTROL	4,553,625	1,900,304	37,950	0	0	6,491,879
CONCENTRATOR BOTTOMS	16,827,644	11,251,800	29,704,500	0	2,279,585	60,063,529
OTHER	4,562,161	3,050,488	316,470	0	113,680	8,042,799
POST-TMI-2 ADDITIONS	671,672	0	0	0	0	671,672
SUBTOTAL BWR COSTS	**269,835,058**	**39,856,376**	**67,780,090**	**0**	**3,246,316**	**380,717,839**
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						2,680,724
TOTAL BWR COSTS (INSIDE COMPACT)						**383,398,563**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.25 BWR Burial Costs at the South Carolina Site Non-Atlantic Compact (2002 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE LINER SURCHARGE	DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
VESSEL WALL	2,730,132	1,983,600	5,236,704	0	1,310,463	11,260,899
VESSEL HEAD & BOTTOM	1,740,340	2,088,000	7,600	0	0	3,835,940
UPPER CORE SUPPORT ASSM	164,300	208,800	3,800	0	52,576	429,476
UPPER SUPPORT COLUMN	151,900	208,800	38,000	0	48,608	447,308
UPPER CORE BARREL	72,360	104,400	275,616	0	34,733	487,109
UPPER CORE GRID PLATE	180,900	261,000	689,040	0	86,832	1,217,772
GUIDE TUBES	267,732	313,200	38,000	0	72,288	691,220
LOWER CORE BARREL [a]	1,157,760	1,670,400	4,409,856	0	555,725	7,793,741
THERMAL SHIELDS [a]	217,080	313,200	826,848	0	104,198	1,461,326
CORE SHROUD [a]	168,020	208,800	8,406,288	0	80,650	8,863,758
LOWER GRID PLATE [a]	180,900	261,000	1,378,080	0	86,832	1,906,812
LOWER SUPPORT COLUMN	45,880	52,200	137,808	0	22,022	257,910
LOWER CORE FORGING	498,480	574,200	950,000	0	239,270	2,261,950
MISC INTERNALS	404,000	417,600	760,000	0	193,920	1,775,520
BIO SHIELD CONCRETE	9,847,500	0	456,000	0	0	10,303,500
REACTOR CAVITY LINER	198,400	0	3,800	0	0	202,200
REACTOR COOLANT PUMPS	3,451,680	0	29,511	0	0	3,481,191
PRESSURIZER	1,567,800	0	1,927	0	0	1,569,727
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	144,720	0	4,480	0	0	149,200
PRESSURIZER RELIEF TANK	434,160	0	1,535	0	0	435,695
SAFETY INJECTION ACCUM TANKS	1,545,300	0	30,947	0	0	1,576,247
STEAM GENERATORS	12,631,680	0	1,672,000	0	0	14,303,680
REACTOR COOLANT PIPING	1,376,388	0	113,240	0	0	1,489,628
REMAINING CONTAM. MATLS	24,331,900	0	85,040	0	0	24,416,940
CONTAMINATED MATRL OTHR BLD	187,186,122	0	70,015	0	0	187,256,137
FILTER CARTRIDGES	247,860	313,200	1,900,000	0	29,743	2,490,803
SPENT RESINS	909,000	1,044,000	2,756,160	0	436,320	5,145,480
COMBUSTIBLE WASTES	4,341,600	3,132,000	114,000	0	0	7,587,600
EVAPORATOR BOTTOMS	4,272,300	4,906,800	12,953,952	0	583,578	22,716,630
POST-TMI-2 ADDITIONS	8,572,815	0	0	0	0	8,572,815
SUBTOTAL PWR COSTS	**269,039,008**	**18,061,200**	**43,350,247**	**0**	**3,937,759**	**334,388,214**
ATLANTIC COMPACT SURCHARGE (OUTSIDE COMPACT)						2,588,988
TOTAL PWR COSTS (OUTSIDE COMPACT)						**336,977,202**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.26 BWR Burial Costs at the South Carolina Site Non-Atlantic Compact (2002 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	LINER DOSE RATE	DOSE RATE SURCHARGE	DISPOSAL COST
STEAM SEPARATOR	167,940	1,461,600	1,929,312	0	80,611	3,639,462
FUEL SUPPORT & PIECES	73,954	730,800	266,000	0	35,498	1,106,251
CONTROL RODS/INCORES	220,099	417,600	1,102,464	0	105,648	1,845,811
CONTROL RODS GUIDES	61,908	626,400	38,000	0	22,906	749,214
JET PUMPS	179,091	2,088,000	2,756,160	0	85,964	5,109,215
TOP FUEL GUIDES	306,806	3,758,400	9,922,176	0	147,267	14,134,649
CORE SUPPORT PLATE	205,535	1,618,200	247,000	0	76,048	2,146,783
CORE SHROUD [a]	600,588	7,308,000	19,293,120	0	288,282	27,489,990
REACTOR VESSEL WALL	130,622	1,148,400	820,800	0	48,330	2,148,152
SAC SHIELD (NEUTRON ACT. MATL.)	2,746,665	0	63,840	0	0	2,810,505
REACT. WATER REC	1,189,135	0	16,700	0	0	1,205,835
SAC SHIELD (CONTAM. MATL.)	7,113,031	0	58,826	0	0	7,171,857
OTHER PRIMARY CONTAINMENT	49,933,224	0	670,951	0	0	50,604,175
CONTAINM. ATMOSPHERIC	613,251	0	9,108	0	0	622,359
HIGH PRESSURE CORE SPRAY	308,050	0	3,224	0	0	311,274
LOW PRESSURE CORE SPRAY	136,400	0	1,897	0	0	138,297
REACTOR BLDG CLOSED COOLING	481,114	0	6,072	0	0	487,185
REACTOR CORE ISO COOLING	166,066	0	2,466	0	0	168,532
RESIDUAL HEAT REMOVAL	929,210	0	11,767	0	0	940,977
POOL LINER & RACKS	6,132,430	0	72,296	0	0	6,204,726
CONTAMINATED CONCRETE	6,761,348	0	82,355	0	0	6,843,703
OTHER REACTOR BUILDING	18,129,798	0	269,251	0	0	18,399,049
TURBINE	22,680,319	0	266,790	0	0	22,947,109
NUCLEAR STEAM CONDENSATE	4,637,914	0	68,879	0	0	4,706,793
LOW PRESSURE FEEDWATER HEATERS	10,066,320	0	139,843	0	0	10,206,163
MAIN STEAM	907,394	0	13,476	0	0	920,870
MOISTURE SEPARATOR REHEATERS	9,135,450	0	135,673	0	0	9,271,123
REACTOR FEEDWATER PUMPS	2,478,692	0	36,812	0	0	2,515,504
HIGH PRESSURE FEEDWATER HEATERS	1,632,726	0	22,960	0	0	1,655,685
OTHER TG BLDG	62,055,936	0	921,611	0	0	62,977,547
RAD WASTE BLDG	30,728,036	0	456,351	0	0	31,184,387
REACTOR BLDG	7,848,254	3,340,800	72,200	0	0	11,261,254
TG BLDG	5,163,325	2,192,400	47,500	0	0	7,403,225
RAD WASTE & CONTROL	4,750,259	1,983,600	43,700	0	0	6,777,559
CONCENTRATOR BOTTOMS	17,554,292	11,745,000	31,006,800	0	2,378,021	62,684,114
OTHER	4,759,164	3,184,200	364,420	0	118,589	8,426,373
POST-TMI-2 ADDITIONS	700,676	0	0	0	0	700,676
SUBTOTAL BWR COSTS	**281,685,021**	**41,603,400**	**71,240,801**	**0**	**3,387,164**	**397,916,385**
ATLANTIC COMPACT SURCHARGE (OUTSIDE COMPACT)						2,680,724
TOTAL BWR COSTS (OUTSIDE COMPACT)						**400,597,109**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.27 PWR Burial Costs at the South Carolina Site Atlantic Compact (2000 dollars)

REFERENCE PWR 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
SUBTOTAL PWR COSTS	**257,774,622**	**17,300,000**	**40,961,593**	**0**	**3,773,446**	**319,809,662**
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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.28 BWR Burial Costs at the South Carolina Site Atlantic Compact (2000 dollars)

REFERENCE BWR 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	210,947	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	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 (NEUTRON ACT. MATL.)	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 (CONTAM. MATL.)	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
SUBTOTAL BWR COSTS	**269,835,058**	**39,850,000**	**67,770,510**	**0**	**3,246,316**	**380,701,883**
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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.29 PWR Burial Costs at the South Carolina Site Non-Atlantic Compact (2000 dollars)

REFERENCE PWR 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
SUBTOTAL PWR COSTS	**257,774,622**	**17,300,000**	**44,685,374**	**0**	**3,773,446**	**323,533,443**
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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.30 BWR Burial Costs at the South Carolina Site Non-Atlantic Compact (2000 dollars)

REFERENCE BWR 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	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 (NEUTRON ACT. MATL.)	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 (CONTAM. MATL.)	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
SUBTOTAL BWR COSTS	**269,835,058**	**39,850,000**	**73,931,465**	**0**	**3,246,316**	**386,862,839**
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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.31 PWR Burial Costs at the South Carolina Site (1998 dollars)

REFERENCE PWR 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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.32 BWR Burial Costs at the South Carolina Site (1998 dollars)

REFERENCE BWR 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 (NEUTRON ACT. MATL.)	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 (CONTAM. MATL.)	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	8,060,860
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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.33 PWR Disposition Costs Using Waste Vendors with Burial Costs at the Washington Site (2008 dollars)

REFERENCE PWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	CONTAINER DOSE RATE CHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	375,060	560,120	269,040	2,869,000	0	4,073,220
VESSEL HEAD & BOTTOM	394,800	589,600	283,200	7,080	0	1,274,680
UPPER CORE SUPPORT ASSM	39,480	58,960	28,320	201,600	0	328,360
UPPER SUPPORT COLUMN	39,480	58,960	28,320	201,600	0	328,360
UPPER CORE BARREL	19,740	29,480	14,160	151,000	0	214,380
UPPER CORE GRID PLATE	49,350	73,700	35,400	377,500	0	535,950
GUIDE TUBES	59,220	88,440	42,480	302,400	0	492,540
LOWER CORE BARREL [a]	315,840	471,680	226,560	2,416,000	0	3,430,080
THERMAL SHIELDS [a]	59,220	88,440	42,480	453,000	0	643,140
CORE SHROUD [a]	39,480	58,960	28,320	302,000	0	428,760
LOWER GRID PLATE [a]	49,350	73,700	35,400	377,500	0	535,950
LOWER SUPPORT COLUMN	9,870	14,740	7,080	75,500	0	107,190
LOWER CORE FORGING	108,570	162,140	77,880	830,500	0	1,179,090
MISC INTERNALS	78,960	117,920	56,640	604,000	0	857,520
BIO SHIELD CONCRETE	0	0	0	0	3,193,693	3,193,693
REACTOR CAVITY LINER	50,534	14,740	28,320	708	0	94,302
REACTOR COOLANT PUMPS	0	0	0	0	1,231,619	1,231,619
PRESSURIZER	0	0	0	0	319,369	319,369
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	19,326	19,326
PRESSURIZER RELIEF TANK	0	0	0	0	44,548	44,548
SAFETY INJECTION ACCUM TANKS	0	0	0	0	501,164	501,164
STEAM GENERATORS	0	0	0	0	4,507,202	4,507,202
REACTOR COOLANT PIPING	0	0	0	0	363,586	363,586
REMAINING CONTAM. MATLS	0	0	0	0	6,427,512	6,427,512
CONTAMINATED MATRL OTHR BLD	0	0	0	0	49,447,064	49,447,064
FILTER CARTRIDGES	0	0	0	0	88,441	88,441
SPENT RESINS	197,400	294,800	141,600	1,510,000	0	2,143,800
COMBUSTIBLE WASTES	0	0	0	0	884,407	884,407
EVAPORATOR BOTTOMS	927,780	1,385,560	665,520	2,231,879	0	5,210,739
POST-TMI-2 ADDITIONS	1,536,068	0	0	0	0	1,536,068
HEAVY OBJECT SURCHARGE						0
SITE AVAILABILITY CHARGES, (3 YRS)						374,400
SUBTOTAL PWR COSTS	4,350,203	4,141,940	2,010,720	12,911,267	67,027,931	90,816,460
TAXES & FEES (% OF CHARGES)						1,022,907
TAXES & FEES ($/UNIT VOL)						725,794
ANNUAL PERMIT FEES (3 YRS)						127,200
TOTAL PWR COSTS						92,692,361

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.34 BWR Disposition Costs Using Waste Vendors with Burial Costs at the Washington Site (2008 dollars)

REFERENCE BWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	CONTAINER DOSE RATE CHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	34,841	206,360	198,240	35,504,000	0	35,943,441
FUEL SUPPORT & PIECES	17,470	103,180	99,120	1,057,000	0	1,276,770
CONTROL RODS/INCORES	52,311	117,920	56,640	10,144,000	0	10,370,871
CONTROL RODS GUIDES	13,917	88,440	84,960	906,000	0	1,093,317
JET PUMPS	48,857	294,800	283,200	50,720,000	0	51,346,857
TOP FUEL GUIDES	83,698	1,061,280	509,760	91,296,000	0	92,950,738
CORE SUPPORT PLATE	38,394	235,840	219,480	2,340,500	0	2,834,214
CORE SHROUD [a]	163,842	2,063,600	991,200	177,520,000	0	180,738,642
REACTOR VESSEL WALL	27,932	294,800	155,760	1,661,000	0	2,139,492
SAC SHIELD	0	0	0	0	1,632,589	1,632,589
REACT. WATER REC	0	0	0	0	523,267	523,267
SAC SHIELD	0	0	0	0	4,227,912	4,227,912
OTHER PRIMARY CONTAINMENT	0	0	0	0	16,944,058	16,944,058
CONTAINM. ATMOSPHERIC	0	0	0	0	68,206	68,206
HIGH PRESSURE CORE SPRAY	0	0	0	0	166,423	166,423
LOW PRESSURE CORE SPRAY	0	0	0	0	60,021	60,021
REACTOR BLDG CLOSED COOLING	0	0	0	0	163,258	163,258
REACTOR CORE ISO COOLING	0	0	0	0	52,999	52,999
RESIDUAL HEAT REMOVAL	0	0	0	0	502,003	502,003
POOL LINER & RACKS	0	0	0	0	2,080,944	2,080,944
CONTAMINATED CONCRETE	0	0	0	0	2,975,264	2,975,264
OTHER REACTOR BUILDING	0	0	0	0	3,708,077	3,708,077
TURBINE	0	0	0	0	9,980,248	9,980,248
NUCLEAR STEAM CONDENSATE	0	0	0	0	1,319,092	1,319,092
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	4,429,584	4,429,584
MAIN STEAM	0	0	0	0	193,708	193,708
MOISTURE SEPARATOR REHEATERS	0	0	0	0	2,504,756	2,504,756
REACTOR FEEDWATER PUMPS	0	0	0	0	658,856	658,856
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	882,075	882,075
OTHER TG BLDG	0	0	0	0	19,145,326	19,145,326
RAD WASTE BLDG	0	0	0	0	6,539,338	6,539,338
REACTOR BLDG	0	0	0	0	4,664,920	4,664,920
TG BLDG	0	0	0	0	3,069,026	3,069,026
RAD WASTE & CONTROL	0	0	0	0	2,823,504	2,823,504
CONCENTRATOR BOTTOMS	2,220,750	3,316,500	1,593,000	5,296,145	0	12,426,395
OTHER	602,070	899,140	431,880	246,454	0	2,179,544
POST-TMI-2 ADDITIONS	125,546	0	0	0	0	125,546
HEAVY OBJECT SURCHARGE						0
SITE AVAILABILITY CHARGES, (3.5 YRS)						499,200
SUBTOTAL BWR COSTS	**3,429,628**	**8,681,860**	**4,623,240**	**376,691,099**	**89,315,455**	**483,240,482**
TAXES & FEES (% OF CHARGES)						16,938,776
TAXES & FEES ($/UNIT VOL.)						599,403
ANNUAL PERMIT FEES (3.5 YRS)						169,600
TOTAL BWR COSTS						**500,948,261**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.35 PWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Atlantic Compact (2008 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	3,682,407	2,673,832	7,052,800	1,767,555	0	15,176,594
VESSEL HEAD & BOTTOM	2,346,371	2,814,560	9,280	0	0	5,170,211
UPPER CORE SUPPORT ASSM	221,514	281,456	4,640	70,884	0	578,494
UPPER SUPPORT COLUMN	204,796	281,456	46,400	65,535	0	598,186
UPPER CORE BARREL	97,524	140,728	371,200	46,812	0	656,264
UPPER CORE GRID PLATE	243,810	351,820	928,000	117,029	0	1,640,659
GUIDE TUBES	360,839	422,184	46,400	97,426	0	926,849
LOWER CORE BARREL [a]	1,560,384	2,251,648	5,939,200	748,984	0	10,500,216
THERMAL SHIELDS [a]	292,572	422,184	1,113,600	140,435	0	1,968,791
CORE SHROUD [a]	226,529	281,456	11,321,600	108,734	0	11,938,319
LOWER GRID PLATE [a]	243,810	351,820	1,856,000	117,029	0	2,568,659
LOWER SUPPORT COLUMN	61,857	70,364	185,600	29,691	0	347,512
LOWER CORE FORGING	672,064	774,004	1,160,000	322,591	0	2,928,658
MISC INTERNALS	544,880	562,912	928,000	261,542	0	2,297,334
BIO SHIELD CONCRETE	0	0	0	0	3,193,693	3,193,693
REACTOR CAVITY LINER	267,488	0	4,640	0	0	272,128
REACTOR COOLANT PUMPS	0	0	0	0	1,231,619	1,231,619
PRESSURIZER	0	0	0	0	319,369	319,369
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	19,326	19,326
PRESSURIZER RELIEF TANK	0	0	0	0	44,548	44,548
SAFETY INJECTION ACCUM TANKS	0	0	0	0	501,164	501,164
STEAM GENERATORS	0	0	0	0	4,507,202	4,507,202
REACTOR COOLANT PIPING	0	0	0	0	363,586	363,586
REMAINING CONTAM. MATLS	0	0	0	0	6,427,512	6,427,512
CONTAMINATED MATRL OTHR BLD	0	0	0	0	49,447,064	49,447,064
FILTER CARTRIDGES	0	0	0	0	88,441	88,441
SPENT RESINS	1,225,980	1,407,280	3,712,000	588,470	0	6,933,730
COMBUSTIBLE WASTES	0	0	0	0	884,407	884,407
EVAPORATOR BOTTOMS	5,762,106	6,614,216	17,446,400	787,079	0	30,609,801
POST-TMI-2 ADDITIONS	11,562,064	0	0	0	0	11,562,064
SITE ACCESS FEES, (3 YRS)						0
SUBTOTAL PWR COSTS	**29,576,993**	**19,701,920**	**52,125,760**	**5,269,796**	**67,027,931**	**173,702,400**
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						3,883,482
TOTAL PWR COSTS (INSIDE COMPACT)						**177,585,882**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.36 BWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Atlantic Compact (2008 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	226,342	1,970,192	2,598,400	108,644	0	4,903,579
FUEL SUPPORT & PIECES	99,706	985,096	324,800	47,859	0	1,457,461
CONTROL RODS/INCORES	296,851	562,912	1,484,800	142,488	0	2,487,051
CONTROL RODS GUIDES	83,437	844,368	46,400	30,872	0	1,005,077
JET PUMPS	241,372	2,814,560	3,712,000	115,859	0	6,883,790
TOP FUEL GUIDES	413,502	5,066,208	13,363,200	198,481	0	19,041,391
CORE SUPPORT PLATE	277,208	2,181,284	301,600	102,567	0	2,862,659
CORE SHROUD [a]	809,449	9,850,960	25,984,000	388,536	0	37,032,945
REACTOR VESSEL WALL	176,108	1,548,008	1,002,240	65,160	0	2,791,516
SAC SHIELD	0	0	0	0	1,632,589	1,632,589
REACT. WATER REC	0	0	0	0	523,267	523,267
SAC SHIELD	0	0	0	0	4,227,912	4,227,912
OTHER PRIMARY CONTAINMENT	0	0	0	0	16,944,058	16,944,058
CONTAINM. ATMOSPHERIC	0	0	0	0	68,206	68,206
HIGH PRESSURE CORE SPRAY	0	0	0	0	166,423	166,423
LOW PRESSURE CORE SPRAY	0	0	0	0	60,021	60,021
REACTOR BLDG CLOSED COOLING	0	0	0	0	163,258	163,258
REACTOR CORE ISO COOLING	0	0	0	0	52,999	52,999
RESIDUAL HEAT REMOVAL	0	0	0	0	502,003	502,003
POOL LINER & RACKS	0	0	0	0	2,080,944	2,080,944
CONTAMINATED CONCRETE	0	0	0	0	2,975,264	2,975,264
OTHER REACTOR BUILDING	0	0	0	0	3,708,077	3,708,077
TURBINE	0	0	0	0	9,980,248	9,980,248
NUCLEAR STEAM CONDENSATE	0	0	0	0	1,319,092	1,319,092
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	4,429,584	4,429,584
MAIN STEAM	0	0	0	0	193,708	193,708
MOISTURE SEPARATOR REHEATERS	0	0	0	0	2,504,756	2,504,756
REACTOR FEEDWATER PUMPS	0	0	0	0	658,856	658,856
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	882,075	882,075
OTHER TG BLDG	0	0	0	0	19,145,326	19,145,326
RAD WASTE BLDG	0	0	0	0	6,539,338	6,539,338
REACTOR BLDG	0	0	0	0	4,664,920	4,664,920
TG BLDG	0	0	0	0	3,069,026	3,069,026
RAD WASTE & CONTROL	0	0	0	0	2,823,504	2,823,504
CONCENTRATOR BOTTOMS	23,677,260	15,831,900	41,760,000	3,207,479	0	84,476,639
OTHER	6,419,168	4,292,204	444,976	159,953	0	11,316,301
POST-TMI-2 ADDITIONS	944,994	0	0	0	0	944,994
SITE ACCESS FEES, (3.5 YRS)						0
SUBTOTAL BWR COSTS	**33,665,397**	**45,947,692**	**91,022,416**	**4,567,898**	**89,315,455**	**264,518,858**
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						4,021,086
TOTAL BWR COSTS (INSIDE COMPACT)						**268,539,944**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.37 PWR Disposition Costs Using Waste Vendors with Burial Costs at the Washington Site (2006 dollars)

REFERENCE PWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	CONTAINER DOSE RATE CHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	330,220	460,180	230,280	1,014,600	0	2,035,280
VESSEL HEAD & BOTTOM	347,600	484,400	242,400	2,520	0	1,076,920
UPPER CORE SUPPORT ASSM	34,760	48,440	24,240	71,200	0	178,640
UPPER SUPPORT COLUMN	34,760	48,440	24,240	71,200	0	178,640
UPPER CORE BARREL	17,380	24,220	12,120	53,400	0	107,120
UPPER CORE GRID PLATE	43,450	60,550	30,300	133,500	0	267,800
GUIDE TUBES	52,140	72,660	36,360	106,800	0	267,960
LOWER CORE BARREL [a]	278,080	387,520	193,920	854,400	0	1,713,920
THERMAL SHIELDS [a]	52,140	72,660	36,360	160,200	0	321,360
CORE SHROUD [a]	34,760	48,440	24,240	106,800	0	214,240
LOWER GRID PLATE [a]	43,450	60,550	30,300	133,500	0	267,800
LOWER SUPPORT COLUMN	8,690	12,110	6,060	26,700	0	53,560
LOWER CORE FORGING	95,590	133,210	66,660	293,700	0	589,160
MISC INTERNALS	69,520	96,880	48,480	213,600	0	428,480
BIO SHIELD CONCRETE	0	0	0	0	2,571,846	2,571,846
REACTOR CAVITY LINER	44,493	12,110	24,240	252	0	81,095
REACTOR COOLANT PUMPS	0	0	0	0	991,810	991,810
PRESSURIZER	0	0	0	0	257,185	257,185
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	15,563	15,563
PRESSURIZER RELIEF TANK	0	0	0	0	35,874	35,874
SAFETY INJECTION ACCUM TANKS	0	0	0	0	403,582	403,582
STEAM GENERATORS	0	0	0	0	3,629,601	3,629,601
REACTOR COOLANT PIPING	0	0	0	0	292,792	292,792
REMAINING CONTAM. MATLS	0	0	0	0	5,176,006	5,176,006
CONTAMINATED MATRL OTHR BLD	0	0	0	0	39,819,187	39,819,187
FILTER CARTRIDGES	0	0	0	0	71,220	71,220
SPENT RESINS	173,800	242,200	121,200	534,000	0	1,071,200
COMBUSTIBLE WASTES	0	0	0	0	712,204	712,204
EVAPORATOR BOTTOMS	816,860	1,138,340	569,640	790,701	0	3,315,541
POST-TMI-2 ADDITIONS	1,352,425	0	0	0	0	1,352,425
HEAVY OBJECT SURCHARGE						0
SITE AVAILABILITY CHARGES, (3 YRS)						401,727
SUBTOTAL PWR COSTS	**3,830,118**	**3,402,910**	**1,721,040**	**4,567,073**	**53,976,869**	**67,899,737**
TAXES & FEES (% OF CHARGES)						598,683
TAXES & FEES ($/UNIT VOL)						725,794
ANNUAL PERMIT FEES (3 YRS)						127,200
TOTAL PWR COSTS						**69,351,414**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.38 BWR Disposition Costs Using Waste Vendors with Burial Costs at the Washington Site (2006 dollars)

REFERENCE BWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	CONTAINER DOSE RATE CHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	30,676	169,540	169,680	12,555,200	0	12,925,096
FUEL SUPPORT & PIECES	15,381	84,770	84,840	373,800	0	558,791
CONTROL RODS/INCORES	46,057	96,880	48,480	3,587,200	0	3,778,617
CONTROL RODS GUIDES	12,253	72,660	72,720	320,400	0	478,033
JET PUMPS	43,016	242,200	242,400	17,936,000	0	18,463,616
TOP FUEL GUIDES	73,691	871,920	436,320	32,284,800	0	33,666,731
CORE SUPPORT PLATE	33,804	193,760	187,860	827,700	0	1,243,124
CORE SHROUD [a]	144,254	1,695,400	848,400	62,776,000	0	65,464,054
REACTOR VESSEL WALL	24,593	242,200	133,320	587,400	0	987,513
SAC SHIELD	0	0	0	0	1,115,496	1,115,496
REACT. WATER REC	0	0	0	0	357,532	357,532
SAC SHIELD	0	0	0	0	2,888,796	2,888,796
OTHER PRIMARY CONTAINMENT	0	0	0	0	11,577,329	11,577,329
CONTAINM. ATMOSPHERIC	0	0	0	0	46,603	46,603
HIGH PRESSURE CORE SPRAY	0	0	0	0	113,712	113,712
LOW PRESSURE CORE SPRAY	0	0	0	0	41,011	41,011
REACTOR BLDG CLOSED COOLING	0	0	0	0	111,549	111,549
REACTOR CORE ISO COOLING	0	0	0	0	36,212	36,212
RESIDUAL HEAT REMOVAL	0	0	0	0	343,003	343,003
POOL LINER & RACKS	0	0	0	0	1,421,842	1,421,842
CONTAMINATED CONCRETE	0	0	0	0	2,032,902	2,032,902
OTHER REACTOR BUILDING	0	0	0	0	2,533,609	2,533,609
TURBINE	0	0	0	0	6,819,182	6,819,182
NUCLEAR STEAM CONDENSATE	0	0	0	0	901,293	901,293
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,026,592	3,026,592
MAIN STEAM	0	0	0	0	132,355	132,355
MOISTURE SEPARATOR REHEATERS	0	0	0	0	1,711,419	1,711,419
REACTOR FEEDWATER PUMPS	0	0	0	0	450,175	450,175
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	602,694	602,694
OTHER TG BLDG	0	0	0	0	13,081,385	13,081,385
RAD WASTE BLDG	0	0	0	0	4,468,119	4,468,119
REACTOR BLDG	0	0	0	0	3,187,390	3,187,390
TG BLDG	0	0	0	0	2,096,967	2,096,967
RAD WASTE & CONTROL	0	0	0	0	1,929,210	1,929,210
CONCENTRATOR BOTTOMS	1,955,250	2,724,750	1,363,500	1,876,335	0	7,919,835
OTHER	530,090	738,710	369,660	87,766	0	1,726,226
POST-TMI-2 ADDITIONS	110,537	0	0	0	0	110,537
HEAVY OBJECT SURCHARGE						0
SITE AVAILABILITY CHARGES, (3.5 YRS)						535,636
SUBTOTAL BWR COSTS	**3,019,601**	**7,132,790**	**3,957,180**	**133,212,601**	**61,026,373**	**208,884,182**
TAXES & FEES (% OF CHARGES)						6,357,886
TAXES & FEES ($/UNIT VOL.)						599,403
ANNUAL PERMIT FEES (3.5 YRS)						169,600
TOTAL BWR COSTS						**216,011,070**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.39 PWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Atlantic Compact (2006 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	3,344,560	2,428,580	6,399,200	1,605,389	0	13,777,729
VESSEL HEAD & BOTTOM	2,131,074	2,556,400	8,420	0	0	4,695,894
UPPER CORE SUPPORT ASSM	201,188	255,640	4,210	64,380	0	525,418
UPPER SUPPORT COLUMN	186,004	255,640	42,100	59,521	0	543,265
UPPER CORE BARREL	88,578	127,820	336,800	42,517	0	595,715
UPPER CORE GRID PLATE	221,445	319,550	842,000	106,294	0	1,489,289
GUIDE TUBES	327,739	383,460	42,100	88,489	0	841,788
LOWER CORE BARREL [a]	1,417,248	2,045,120	5,388,800	680,279	0	9,531,447
THERMAL SHIELDS [a]	265,734	383,460	1,010,400	127,552	0	1,787,146
CORE SHROUD [a]	205,743	255,640	10,272,400	98,757	0	10,832,540
LOWER GRID PLATE [a]	221,445	319,550	1,684,000	106,294	0	2,331,289
LOWER SUPPORT COLUMN	56,181	63,910	168,400	26,967	0	315,458
LOWER CORE FORGING	610,397	703,010	1,052,500	292,990	0	2,658,897
MISC INTERNALS	494,880	511,280	842,000	237,542	0	2,085,702
BIO SHIELD CONCRETE	0	0	0	0	2,571,846	2,571,846
REACTOR CAVITY LINER	242,944	0	4,210	0	0	247,154
REACTOR COOLANT PUMPS	0	0	0	0	991,810	991,810
PRESSURIZER	0	0	0	0	257,185	257,185
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	15,563	15,563
PRESSURIZER RELIEF TANK	0	0	0	0	35,874	35,874
SAFETY INJECTION ACCUM TANKS	0	0	0	0	403,582	403,582
STEAM GENERATORS	0	0	0	0	3,629,601	3,629,601
REACTOR COOLANT PIPING	0	0	0	0	292,792	292,792
REMAINING CONTAM. MATLS	0	0	0	0	5,176,006	5,176,006
CONTAMINATED MATRL OTHR BLD	0	0	0	0	39,819,187	39,819,187
FILTER CARTRIDGES	0	0	0	0	71,220	71,220
SPENT RESINS	1,113,480	1,278,200	3,368,000	534,470	0	6,294,150
COMBUSTIBLE WASTES	0	0	0	0	712,204	712,204
EVAPORATOR BOTTOMS	5,233,356	6,007,540	15,829,600	714,854	0	27,785,350
POST-TMI-2 ADDITIONS	10,501,290	0	0	0	0	10,501,290
SITE ACCESS FEES, (3 YRS)						0
SUBTOTAL PWR COSTS	**26,863,286**	**17,894,800**	**47,295,140**	**4,786,297**	**53,976,869**	**150,816,392**
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						3,883,482
TOTAL PWR COSTS (INSIDE COMPACT)						**154,699,874**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.40 BWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Atlantic Compact (2006 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	205,580	1,789,480	2,357,600	98,678	0	4,451,338
FUEL SUPPORT & PIECES	90,557	894,740	294,700	43,468	0	1,323,465
CONTROL RODS/INCORES	269,611	511,280	1,347,200	129,413	0	2,257,504
CONTROL RODS GUIDES	75,783	766,920	42,100	28,040	0	912,843
JET PUMPS	219,231	2,556,400	3,368,000	105,231	0	6,248,861
TOP FUEL GUIDES	375,571	4,601,520	12,124,800	180,274	0	17,282,165
CORE SUPPORT PLATE	251,770	1,981,210	273,650	93,155	0	2,599,785
CORE SHROUD [a]	735,197	8,947,400	23,576,000	352,895	0	33,611,492
REACTOR VESSEL WALL	159,949	1,406,020	909,360	59,181	0	2,534,509
SAC SHIELD	0	0	0	0	1,115,496	1,115,496
REACT. WATER REC	0	0	0	0	357,532	357,532
SAC SHIELD	0	0	0	0	2,888,796	2,888,796
OTHER PRIMARY CONTAINMENT	0	0	0	0	11,577,329	11,577,329
CONTAINM. ATMOSPHERIC	0	0	0	0	46,603	46,603
HIGH PRESSURE CORE SPRAY	0	0	0	0	113,712	113,712
LOW PRESSURE CORE SPRAY	0	0	0	0	41,011	41,011
REACTOR BLDG CLOSED COOLING	0	0	0	0	111,549	111,549
REACTOR CORE ISO COOLING	0	0	0	0	36,212	36,212
RESIDUAL HEAT REMOVAL	0	0	0	0	343,003	343,003
POOL LINER & RACKS	0	0	0	0	1,421,842	1,421,842
CONTAMINATED CONCRETE	0	0	0	0	2,032,902	2,032,902
OTHER REACTOR BUILDING	0	0	0	0	2,533,609	2,533,609
TURBINE	0	0	0	0	6,819,182	6,819,182
NUCLEAR STEAM CONDENSATE	0	0	0	0	901,293	901,293
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,026,592	3,026,592
MAIN STEAM	0	0	0	0	132,355	132,355
MOISTURE SEPARATOR REHEATERS	0	0	0	0	1,711,419	1,711,419
REACTOR FEEDWATER PUMPS	0	0	0	0	450,175	450,175
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	602,694	602,694
OTHER TG BLDG	0	0	0	0	13,081,385	13,081,385
RAD WASTE BLDG	0	0	0	0	4,468,119	4,468,119
REACTOR BLDG	0	0	0	0	3,187,390	3,187,390
TG BLDG	0	0	0	0	2,096,967	2,096,967
RAD WASTE & CONTROL	0	0	0	0	1,929,210	1,929,210
CONCENTRATOR BOTTOMS	21,504,964	14,379,750	37,890,000	2,913,206	0	76,687,920
OTHER	5,830,235	3,898,510	403,739	145,278	0	10,277,762
POST-TMI-2 ADDITIONS	858,295	0	0	0	0	858,295
SITE ACCESS FEES, (3.5 YRS)						0
SUBTOTAL BWR COSTS	**30,576,742**	**41,733,230**	**82,587,149**	**4,148,818**	**61,026,373**	**220,072,312**
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						4,021,086
TOTAL BWR COSTS (INSIDE COMPACT)						**224,093,398**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.41 PWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Non-Atlantic Compact (2006 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	3,207,162	2,686,790	6,874,200	1,539,438	0	14,307,589
VESSEL HEAD & BOTTOM	1,929,813	2,828,200	9,000	0	0	4,767,013
UPPER CORE SUPPORT ASSM	191,569	282,820	4,500	61,302	0	540,190
UPPER SUPPORT COLUMN	188,724	282,820	45,000	60,392	0	576,935
UPPER CORE BARREL	71,112	141,410	362,000	34,134	0	608,656
UPPER CORE GRID PLATE	163,200	353,525	943,380	78,336	0	1,538,441
GUIDE TUBES	288,112	424,230	45,000	77,790	0	835,132
LOWER CORE BARREL [a]	1,336,868	2,262,560	6,932,032	641,697	0	11,173,157
THERMAL SHIELDS [a]	258,980	424,230	1,340,000	124,310	0	2,147,520
CORE SHROUD [a]	195,906	282,820	11,381,968	94,035	0	11,954,729
LOWER GRID PLATE [a]	185,597	353,525	2,293,800	89,087	0	2,922,009
LOWER SUPPORT COLUMN	50,875	70,705	200,000	24,420	0	346,000
LOWER CORE FORGING	552,750	777,755	1,125,000	265,320	0	2,720,825
MISC INTERNALS	455,120	565,640	900,000	218,458	0	2,139,218
BIO SHIELD CONCRETE	0	0	0	0	2,571,846	2,571,846
REACTOR CAVITY LINER	246,496	0	4,500	0	0	250,996
REACTOR COOLANT PUMPS	0	0	0	0	991,810	991,810
PRESSURIZER	0	0	0	0	257,185	257,185
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	15,563	15,563
PRESSURIZER RELIEF TANK	0	0	0	0	35,874	35,874
SAFETY INJECTION ACCUM TANKS	0	0	0	0	403,582	403,582
STEAM GENERATORS	0	0	0	0	3,629,601	3,629,601
REACTOR COOLANT PIPING	0	0	0	0	292,792	292,792
REMAINING CONTAM. MATLS	0	0	0	0	5,176,006	5,176,006
CONTAMINATED MATRL OTHR BLD	0	0	0	0	39,819,187	39,819,187
FILTER CARTRIDGES	0	0	0	0	71,220	71,220
SPENT RESINS	1,055,880	1,414,100	3,684,000	506,822	0	6,660,802
COMBUSTIBLE WASTES	0	0	0	0	712,204	712,204
EVAPORATOR BOTTOMS	4,962,636	6,646,270	17,000,528	487,817	0	29,097,251
POST-TMI-2 ADDITIONS	5,754,886	0	0	0	0	5,754,886
SITE ACCESS FEES, (3 YRS)						0
SUBTOTAL PWR COSTS	**21,095,684**	**19,797,400**	**53,144,908**	**4,303,356**	**53,976,869**	**152,318,217**
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (OUTSIDE COMPACT)						3,883,482
TOTAL PWR COSTS (OUTSIDE COMPACT)						**156,201,699**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.42 BWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Non-Atlantic Compact (2006 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	180,723	1,979,740	2,539,208	86,747	0	4,786,418
FUEL SUPPORT & PIECES	86,228	989,870	315,000	41,389	0	1,432,487
CONTROL RODS/INCORES	263,465	565,640	1,818,000	126,463	0	2,773,569
CONTROL RODS GUIDES	73,011	848,460	45,000	27,014	0	993,486
JET PUMPS	187,730	2,828,200	3,640,000	90,111	0	6,746,041
TOP FUEL GUIDES	331,666	5,090,760	13,020,192	159,200	0	18,601,818
CORE SUPPORT PLATE	231,542	2,191,855	292,500	85,671	0	2,801,568
CORE SHROUD [a]	751,170	9,898,700	37,800,000	360,562	0	48,810,432
REACTOR VESSEL WALL	144,843	1,555,510	972,000	53,592	0	2,725,945
SAC SHIELD	0	0	0	0	1,115,496	1,115,496
REACT. WATER REC	0	0	0	0	357,532	357,532
SAC SHIELD	0	0	0	0	2,888,796	2,888,796
OTHER PRIMARY CONTAINMENT	0	0	0	0	11,577,329	11,577,329
CONTAINM. ATMOSPHERIC	0	0	0	0	46,603	46,603
HIGH PRESSURE CORE SPRAY	0	0	0	0	113,712	113,712
LOW PRESSURE CORE SPRAY	0	0	0	0	41,011	41,011
REACTOR BLDG CLOSED COOLING	0	0	0	0	111,549	111,549
REACTOR CORE ISO COOLING	0	0	0	0	36,212	36,212
RESIDUAL HEAT REMOVAL	0	0	0	0	343,003	343,003
POOL LINER & RACKS	0	0	0	0	1,421,842	1,421,842
CONTAMINATED CONCRETE	0	0	0	0	2,032,902	2,032,902
OTHER REACTOR BUILDING	0	0	0	0	2,533,609	2,533,609
TURBINE	0	0	0	0	6,819,182	6,819,182
NUCLEAR STEAM CONDENSATE	0	0	0	0	901,293	901,293
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,026,592	3,026,592
MAIN STEAM	0	0	0	0	132,355	132,355
MOISTURE SEPARATOR REHEATERS	0	0	0	0	1,711,419	1,711,419
REACTOR FEEDWATER PUMPS	0	0	0	0	450,175	450,175
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	602,694	602,694
OTHER TG BLDG	0	0	0	0	13,081,385	13,081,385
RAD WASTE BLDG	0	0	0	0	4,468,119	4,468,119
REACTOR BLDG	0	0	0	0	3,187,390	3,187,390
TG BLDG	0	0	0	0	2,096,967	2,096,967
RAD WASTE & CONTROL	0	0	0	0	1,929,210	1,929,210
CONCENTRATOR BOTTOMS	20,621,513	15,908,625	40,690,470	2,001,662	0	79,222,269
OTHER	5,590,721	4,313,005	431,550	0	0	10,335,276
POST-TMI-2 ADDITIONS	470,360	0	0	0	0	470,360
SITE ACCESS FEES, (3.5 YRS)						0
SUBTOTAL BWR COSTS	**28,932,973**	**46,170,365**	**101,563,920**	**3,032,410**	**61,026,373**	**240,726,042**
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (OUTSIDE COMPACT)						4,021,086
TOTAL BWR COSTS (OUTSIDE COMPACT)						**244,747,128**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.43 PWR Disposition Costs Using Waste Vendors with Burial Costs at the Washington Site (2004 dollars)

REFERENCE PWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	215,080	373,160	187,340	1,520,000	0	2,295,580
VESSEL HEAD & BOTTOM	226,400	392,800	197,200	3,800	0	820,200
UPPER CORE SUPPORT ASSM	22,640	39,280	19,720	107,200	0	188,840
UPPER SUPPORT COLUMN	22,640	39,280	19,720	107,200	0	188,840
UPPER CORE BARREL	11,320	19,640	9,860	80,000	0	120,820
UPPER CORE GRID PLATE	28,300	49,100	24,650	200,000	0	302,050
GUIDE TUBES	33,960	58,920	29,580	160,800	0	283,260
LOWER CORE BARREL [a]	181,120	314,240	157,760	1,280,000	0	1,933,120
THERMAL SHIELDS [a]	33,960	58,920	29,580	240,000	0	362,460
CORE SHROUD [a]	22,640	39,280	19,720	160,000	0	241,640
LOWER GRID PLATE [a]	28,300	49,100	24,650	200,000	0	302,050
LOWER SUPPORT COLUMN	5,660	9,820	4,930	40,000	0	60,410
LOWER CORE FORGING	62,260	108,020	54,230	440,000	0	664,510
MISC INTERNALS	45,280	78,560	39,440	320,000	0	483,280
BIO SHIELD CONCRETE	0	0	0	0	2,571,846	2,571,846
REACTOR CAVITY LINER	28,979	9,820	19,720	0	0	58,519
REACTOR COOLANT PUMPS	0	0	0	0	991,810	991,810
PRESSURIZER	0	0	0	0	257,185	257,185
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	15,563	15,563
PRESSURIZER RELIEF TANK	0	0	0	0	35,874	35,874
SAFETY INJECTION ACCUM TANKS	0	0	0	0	403,582	403,582
STEAM GENERATORS	0	0	0	0	3,629,601	3,629,601
REACTOR COOLANT PIPING	0	0	0	0	292,792	292,792
REMAINING CONTAM. MATLS	0	0	0	0	5,176,006	5,176,006
CONTAMINATED MATRL OTHR BLD	0	0	0	0	39,819,187	39,819,187
FILTER CARTRIDGES	0	0	0	0	71,220	71,220
SPENT RESINS	113,200	196,400	98,600	800,000	0	1,208,200
COMBUSTIBLE WASTES	0	0	0	0	712,204	712,204
EVAPORATOR BOTTOMS	532,040	923,080	463,420	1,186,315	0	3,104,855
POST-TMI-2 ADDITIONS	880,866	0	0	0	0	880,866
HEAVY OBJECT SURCHARGE						0
SITE AVAILABILITY CHARGES (3 YRS)						382,821
SUBTOTAL PWR COSTS	**2,494,645**	**2,759,420**	**1,400,120**	**6,845,315**	**53,976,869**	**67,859,190**
TAXES & FEES (% OF CHARGES)						596,940
TAXES & FEES ($/CU.FT.)						599,569
ANNUAL PERMIT FEES (3 YRS)						127,200
TOTAL PWR COSTS						**69,182,899**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.44 BWR Disposition Costs Using Waste Vendors with Burial Costs at the Washington Site (2004 dollars)

REFERENCE BWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	19,980	137,480	138,040	18,816,000	0	19,111,500
FUEL SUPPORT & PIECES	10,018	68,740	69,020	560,000	0	707,778
CONTROL RODS/INCORES	29,998	78,560	39,440	5,376,000	0	5,523,998
CONTROL RODS GUIDES	7,981	58,920	59,160	480,000	0	606,061
JET PUMPS	28,017	196,400	197,200	26,880,000	0	27,301,617
TOP FUEL GUIDES	47,997	707,040	354,960	48,384,000	0	49,493,997
CORE SUPPORT PLATE	22,017	157,120	152,830	1,240,000	0	1,571,967
CORE SHROUD [a]	93,956	1,374,800	690,200	94,080,000	0	96,238,956
REACTOR VESSEL WALL	16,018	196,400	108,460	880,000	0	1,200,878
SAC SHIELD (NEUTRON ACT. MATL.)	0	0	0	0	1,115,496	1,115,496
REACT. WATER REC	0	0	0	0	357,532	357,532
SAC SHIELD (CONTAM. MATL.)	0	0	0	0	2,888,796	2,888,796
OTHER PRIMARY CONTAINMENT	0	0	0	0	11,577,329	11,577,329
CONTAINM. ATMOSPHERIC	0	0	0	0	46,603	46,603
HIGH PRESSURE CORE SPRAY	0	0	0	0	113,712	113,712
LOW PRESSURE CORE SPRAY	0	0	0	0	41,011	41,011
REACTOR BLDG CLOSED COOLING	0	0	0	0	111,549	111,549
REACTOR CORE ISO COOLING	0	0	0	0	36,212	36,212
RESIDUAL HEAT REMOVAL	0	0	0	0	343,003	343,003
POOL LINER & RACKS	0	0	0	0	1,421,842	1,421,842
CONTAMINATED CONCRETE	0	0	0	0	2,032,902	2,032,902
OTHER REACTOR BUILDING	0	0	0	0	2,533,609	2,533,609
TURBINE	0	0	0	0	6,819,182	6,819,182
NUCLEAR STEAM CONDENSATE	0	0	0	0	901,293	901,293
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,026,592	3,026,592
MAIN STEAM	0	0	0	0	132,355	132,355
MOISTURE SEPARATOR REHEATERS	0	0	0	0	1,711,419	1,711,419
REACTOR FEEDWATER PUMPS	0	0	0	0	450,175	450,175
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	602,694	602,694
OTHER TG BLDG	0	0	0	0	13,081,385	13,081,385
RAD WASTE BLDG	0	0	0	0	4,468,119	4,468,119
REACTOR BLDG	0	0	0	0	3,187,390	3,187,390
TG BLDG	0	0	0	0	2,096,967	2,096,967
RAD WASTE & CONTROL	0	0	0	0	1,929,210	1,929,210
CONCENTRATOR BOTTOMS	1,273,500	2,209,500	1,109,250	2,815,175	0	7,407,425
OTHER	345,260	599,020	300,730	132,240	0	1,377,250
POST-TMI-2 ADDITIONS	71,995	0	0	0	0	71,995
HEAVY OBJECT SURCHARGE						0
SITE AVAILABILITY CHARGES (3.5 YRS)						510,428
SUBTOTAL BWR COSTS	**1,966,737**	**5,783,980**	**3,219,290**	**199,643,415**	**61,026,373**	**272,150,223**
TAXES & FEES (% OF CHARGES)						9,078,326
TAXES & FEES ($/CU.FT.)						495,159
ANNUAL PERMIT FEES (3.5 YRS)						169,600
TOTAL BWR COSTS						**281,893,308**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.45 PWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Atlantic Compact (2004 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	2,838,980	2,061,272	5,441,752	1,362,711	0	11,704,715
VESSEL HEAD & BOTTOM	1,808,550	2,169,760	7,160	0	0	3,985,470
UPPER CORE SUPPORT ASSM	170,740	216,976	3,580	54,637	0	445,932
UPPER SUPPORT COLUMN	157,854	216,976	35,800	50,513	0	461,143
UPPER CORE BARREL	75,177	108,488	286,408	36,085	0	506,158
UPPER CORE GRID PLATE	187,943	271,220	716,020	90,212	0	1,265,395
GUIDE TUBES	278,155	325,464	35,800	75,102	0	714,521
LOWER CORE BARREL [a]	1,202,832	1,735,808	4,582,528	577,359	0	8,098,527
THERMAL SHIELDS [a]	225,531	325,464	859,224	108,255	0	1,518,474
CORE SHROUD [a]	174,605	216,976	8,735,444	83,811	0	9,210,836
LOWER GRID PLATE [a]	187,943	271,220	1,432,040	90,212	0	1,981,415
LOWER SUPPORT COLUMN	47,678	54,244	143,204	22,886	0	268,012
LOWER CORE FORGING	518,017	596,684	895,000	248,648	0	2,258,349
MISC INTERNALS	420,000	433,952	716,000	201,600	0	1,771,552
BIO SHIELD CONCRETE	0	0	0	0	2,571,846	2,571,846
REACTOR CAVITY LINER	206,176	0	3,580	0	0	209,756
REACTOR COOLANT PUMPS	0	0	0	0	991,810	991,810
PRESSURIZER	0	0	0	0	257,185	257,185
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	15,563	15,563
PRESSURIZER RELIEF TANK	0	0	0	0	35,874	35,874
SAFETY INJECTION ACCUM TANKS	0	0	0	0	403,582	403,582
STEAM GENERATORS	0	0	0	0	3,629,601	3,629,601
REACTOR COOLANT PIPING	0	0	0	0	292,792	292,792
REMAINING CONTAM. MATLS	0	0	0	0	5,176,006	5,176,006
CONTAMINATED MATRL OTHR BLD	0	0	0	0	39,819,187	39,819,187
FILTER CARTRIDGES	0	0	0	0	71,220	71,220
SPENT RESINS	945,000	1,084,880	2,864,080	453,600	0	5,347,560
COMBUSTIBLE WASTES	0	0	0	0	712,204	712,204
EVAPORATOR BOTTOMS	4,441,500	5,098,936	13,461,176	606,690	0	23,608,302
POST-TMI-2 ADDITIONS	8,913,864	0	0	0	0	8,913,864
SITE ACCESS FEES, (3 YRS)						0
SUBTOTAL PWR COSTS	**22,800,544**	**15,188,320**	**40,218,796**	**4,062,321**	**53,976,869**	**136,246,850**
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						3,883,482
TOTAL PWR COSTS (INSIDE COMPACT)						**140,130,332**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.46 BWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Atlantic Compact (2004 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	174,477	1,518,832	2,004,856	83,749	0	3,781,915
FUEL SUPPORT & PIECES	76,852	759,416	250,600	36,889	0	1,123,757
CONTROL RODS/INCORES	228,816	433,952	1,145,632	109,832	0	1,918,232
CONTROL RODS GUIDES	64,318	650,928	35,800	23,798	0	774,844
JET PUMPS	186,063	2,169,760	2,864,080	89,310	0	5,309,213
TOP FUEL GUIDES	318,750	3,905,568	10,310,688	153,000	0	14,688,007
CORE SUPPORT PLATE	213,675	1,681,564	232,700	79,060	0	2,206,999
CORE SHROUD [a]	623,969	7,594,160	20,048,560	299,505	0	28,566,194
REACTOR VESSEL WALL	135,741	1,193,368	773,280	50,224	0	2,152,614
SAC SHIELD (NEUTRON ACT. MATL.)	0	0	0	0	1,115,496	1,115,496
REACT. WATER REC	0	0	0	0	357,532	357,532
SAC SHIELD (CONTAM. MATL.)	0	0	0	0	2,888,796	2,888,796
OTHER PRIMARY CONTAINMENT	0	0	0	0	11,577,329	11,577,329
CONTAINM. ATMOSPHERIC	0	0	0	0	46,603	46,603
HIGH PRESSURE CORE SPRAY	0	0	0	0	113,712	113,712
LOW PRESSURE CORE SPRAY	0	0	0	0	41,011	41,011
REACTOR BLDG CLOSED COOLING	0	0	0	0	111,549	111,549
REACTOR CORE ISO COOLING	0	0	0	0	36,212	36,212
RESIDUAL HEAT REMOVAL	0	0	0	0	343,003	343,003
POOL LINER & RACKS	0	0	0	0	1,421,842	1,421,842
CONTAMINATED CONCRETE	0	0	0	0	2,032,902	2,032,902
OTHER REACTOR BUILDING	0	0	0	0	2,533,609	2,533,609
TURBINE	0	0	0	0	6,819,182	6,819,182
NUCLEAR STEAM CONDENSATE	0	0	0	0	901,293	901,293
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,026,592	3,026,592
MAIN STEAM	0	0	0	0	132,355	132,355
MOISTURE SEPARATOR REHEATERS	0	0	0	0	1,711,419	1,711,419
REACTOR FEEDWATER PUMPS	0	0	0	0	450,175	450,175
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	602,694	602,694
OTHER TG BLDG	0	0	0	0	13,081,385	13,081,385
RAD WASTE BLDG	0	0	0	0	4,468,119	4,468,119
REACTOR BLDG	0	0	0	0	3,187,390	3,187,390
TG BLDG	0	0	0	0	2,096,967	2,096,967
RAD WASTE & CONTROL	0	0	0	0	1,929,210	1,929,210
CONCENTRATOR BOTTOMS	18,254,169	12,204,900	32,220,900	2,472,831	0	65,152,801
OTHER	4,948,908	3,308,884	343,322	123,317	0	8,724,431
POST-TMI-2 ADDITIONS	728,551	0	0	0	0	728,551
SITE ACCESS FEES, (3.5 YRS)						0
SUBTOTAL BWR COSTS	**25,954,291**	**35,421,332**	**70,230,418**	**3,521,516**	**61,026,373**	**196,153,930**
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						4,021,086
TOTAL BWR COSTS (INSIDE COMPACT)						**200,175,016**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.47 PWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Non-Atlantic Compact (2004 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	2,841,954	2,380,320	6,064,800	1,364,138	0	12,651,213
VESSEL HEAD & BOTTOM	1,709,463	2,505,600	7,980	0	0	4,223,043
UPPER CORE SUPPORT ASSM	169,733	250,560	3,990	54,314	0	478,597
UPPER SUPPORT COLUMN	167,213	250,560	39,900	53,508	0	511,181
UPPER CORE BARREL	63,000	125,280	319,200	30,240	0	537,720
UPPER CORE GRID PLATE	144,585	313,200	798,000	69,401	0	1,325,186
GUIDE TUBES	255,245	375,840	39,900	68,916	0	739,901
LOWER CORE BARREL [a]	1,184,400	2,004,480	5,107,200	568,512	0	8,864,592
THERMAL SHIELDS [a]	229,425	375,840	957,600	110,124	0	1,672,989
CORE SHROUD [a]	173,576	250,560	9,735,600	83,316	0	10,243,052
LOWER GRID PLATE [a]	164,430	313,200	1,596,000	78,926	0	2,152,556
LOWER SUPPORT COLUMN	45,066	62,640	159,600	21,632	0	288,938
LOWER CORE FORGING	489,636	689,040	997,500	235,025	0	2,411,201
MISC INTERNALS	403,200	501,120	798,000	193,536	0	1,895,856
BIO SHIELD CONCRETE	0	0	0	0	2,571,846	2,571,846
REACTOR CAVITY LINER	218,400	0	3,990	0	0	222,390
REACTOR COOLANT PUMPS	0	0	0	0	991,810	991,810
PRESSURIZER	0	0	0	0	257,185	257,185
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	15,563	15,563
PRESSURIZER RELIEF TANK	0	0	0	0	35,874	35,874
SAFETY INJECTION ACCUM TANKS	0	0	0	0	403,582	403,582
STEAM GENERATORS	0	0	0	0	3,629,601	3,629,601
REACTOR COOLANT PIPING	0	0	0	0	292,792	292,792
REMAINING CONTAM. MATLS	0	0	0	0	5,176,006	5,176,006
CONTAMINATED MATRL OTHR BLD	0	0	0	0	39,819,187	39,819,187
FILTER CARTRIDGES	0	0	0	0	71,220	71,220
SPENT RESINS	935,640	1,252,800	3,192,000	449,107	0	5,829,547
COMBUSTIBLE WASTES	0	0	0	0	712,204	712,204
EVAPORATOR BOTTOMS	4,397,508	5,888,160	15,002,400	432,266	0	25,720,334
POST-TMI-2 ADDITIONS	5,098,439	0	0	0	0	5,098,439
SITE ACCESS FEES, (3 YRS)						0
SUBTOTAL PWR COSTS	**18,690,911**	**17,539,200**	**44,823,660**	**3,812,962**	**53,976,869**	**138,843,602**
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (OUTSIDE COMPACT)						3,883,482
TOTAL PWR COSTS (OUTSIDE COMPACT)						**142,727,084**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Disposal Cost Based on Flat Rate Calculation

Base Cost = (Waste Volume [ft^3]) * \$600/ft^3 = 42,075 * 600 =	25,245,000
Spent Resins = (Resin Volume [ft^3]) * \$1,800/ft^3 = 2000 * 1,800 =	3,600,000
Atlantic Compact Surcharge = Volume [ft^3] * \$6ft^3 = 44,075 * 6 =	264,450
Vendor Costs	53,976,869
Total	**83,086,319**

Table B.48 BWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Non-Atlantic Compact (2004 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	160,107	1,753,920	2,234,400	76,851	0	4,225,278
FUEL SUPPORT & PIECES	76,399	876,960	279,300	36,671	0	1,269,330
CONTROL RODS/INCORES	233,392	501,120	1,276,800	112,028	0	2,123,341
CONTROL RODS GUIDES	64,680	751,680	39,900	23,932	0	880,192
JET PUMPS	166,320	2,505,600	3,192,000	79,834	0	5,943,754
TOP FUEL GUIDES	293,832	4,510,080	11,491,200	141,039	0	16,436,151
CORE SUPPORT PLATE	205,128	1,941,840	259,350	75,897	0	2,482,215
CORE SHROUD [a]	665,469	8,769,600	22,344,000	319,425	0	32,098,494
REACTOR VESSEL WALL	128,304	1,378,080	861,840	47,473	0	2,415,697
SAC SHIELD (NEUTRON ACT. MATL.)	0	0	0	0	1,115,496	1,115,496
REACT. WATER REC	0	0	0	0	357,532	357,532
SAC SHIELD (CONTAM. MATL.)	0	0	0	0	2,888,796	2,888,796
OTHER PRIMARY CONTAINMENT	0	0	0	0	11,577,329	11,577,329
CONTAINM. ATMOSPHERIC	0	0	0	0	46,603	46,603
HIGH PRESSURE CORE SPRAY	0	0	0	0	113,712	113,712
LOW PRESSURE CORE SPRAY	0	0	0	0	41,011	41,011
REACTOR BLDG CLOSED COOLING	0	0	0	0	111,549	111,549
REACTOR CORE ISO COOLING	0	0	0	0	36,212	36,212
RESIDUAL HEAT REMOVAL	0	0	0	0	343,003	343,003
POOL LINER & RACKS	0	0	0	0	1,421,842	1,421,842
CONTAMINATED CONCRETE	0	0	0	0	2,032,902	2,032,902
OTHER REACTOR BUILDING	0	0	0	0	2,533,609	2,533,609
TURBINE	0	0	0	0	6,819,182	6,819,182
NUCLEAR STEAM CONDENSATE	0	0	0	0	901,293	901,293
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,026,592	3,026,592
MAIN STEAM	0	0	0	0	132,355	132,355
MOISTURE SEPARATOR REHEATERS	0	0	0	0	1,711,419	1,711,419
REACTOR FEEDWATER PUMPS	0	0	0	0	450,175	450,175
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	602,694	602,694
OTHER TG BLDG	0	0	0	0	13,081,385	13,081,385
RAD WASTE BLDG	0	0	0	0	4,468,119	4,468,119
REACTOR BLDG	0	0	0	0	3,187,390	3,187,390
TG BLDG	0	0	0	0	2,096,967	2,096,967
RAD WASTE & CONTROL	0	0	0	0	1,929,210	1,929,210
CONCENTRATOR BOTTOMS	18,273,292	14,094,000	35,910,000	1,773,728	0	70,051,019
OTHER	4,954,092	3,821,040	382,641	0	0	9,157,773
POST-TMI-2 ADDITIONS	416,707	0	0	0	0	416,707
SITE ACCESS FEES, (3.5 YRS)						0
SUBTOTAL BWR COSTS	**25,637,722**	**40,903,920**	**78,271,431**	**2,686,878**	**61,026,373**	**208,526,325**
BARNWELL COUNTY BUSINESS TAX						0
ATLANTIC COMPACT SURCHARGE (OUTSIDE COMPACT)						4,021,086
TOTAL BWR COSTS (OUTSIDE COMPACT)						**212,547,411**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Disposal Cost Based on Flat Rate Calculation

Base Cost = (Waste Volume [ft^3]) * \$600/ft^3 = 34,748 * 600 =	20,848,800
Spent Resins = (Resin Volume [ft^3]) * \$1,800/ft^3 = 0 * 1,800 =	0
Atlantic Compact Surcharge = Volume [ft^3] * \$6ft^3 = 34,748 * 6 =	208,488
Vendor Costs	61,026,373
Total	**82,083,661**

Table B.49 PWR Disposition Costs Using Waste Vendors with Burial Costs at the Washington Site (2002 dollars)

REFERENCE PWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	144,020	228,342	78,280	2,101,400	0	2,552,042
VESSEL HEAD & BOTTOM	151,600	240,360	82,400	5,200	0	479,560
UPPER CORE SUPPORT ASSM	15,160	24,036	8,240	147,200	0	194,636
UPPER SUPPORT COLUMN	15,160	24,036	8,240	147,200	0	194,636
UPPER CORE BARREL	7,580	12,018	4,120	110,600	0	134,318
UPPER CORE GRID PLATE	18,950	30,045	10,300	276,500	0	335,795
GUIDE TUBES	22,740	36,054	12,360	220,800	0	291,954
LOWER CORE BARREL [a]	121,280	192,288	65,920	1,769,600	0	2,149,088
THERMAL SHIELDS [a]	22,740	36,054	12,360	331,800	0	402,954
CORE SHROUD [a]	15,160	24,036	8,240	221,200	0	268,636
LOWER GRID PLATE [a]	18,950	30,045	10,300	276,500	0	335,795
LOWER SUPPORT COLUMN	3,790	6,009	2,060	55,300	0	67,159
LOWER CORE FORGING	41,690	66,099	22,660	608,300	0	738,749
MISC INTERNALS	30,320	48,072	16,480	442,400	0	537,272
BIO SHIELD CONCRETE	0	0	0	0	4,210,923	4,210,923
REACTOR CAVITY LINER	19,405	6,009	8,240	0	0	33,654
REACTOR COOLANT PUMPS	0	0	0	0	1,623,905	1,623,905
PRESSURIZER	0	0	0	0	421,092	421,092
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	25,481	25,481
PRESSURIZER RELIEF TANK	0	0	0	0	58,737	58,737
SAFETY INJECTION ACCUM TANKS	0	0	0	0	660,791	660,791
STEAM GENERATORS	0	0	0	0	5,942,800	5,942,800
REACTOR COOLANT PIPING	0	0	0	0	479,393	479,393
REMAINING CONTAM. MATLS	0	0	0	0	8,474,753	8,474,753
CONTAMINATED MATRL OTHR BLD	0	0	0	0	65,196,558	65,196,558
FILTER CARTRIDGES	0	0	0	0	116,610	116,610
SPENT RESINS	75,800	120,180	41,200	1,106,000	0	1,343,180
COMBUSTIBLE WASTES	0	0	0	0	1,166,102	1,166,102
EVAPORATOR BOTTOMS	356,260	564,846	193,640	1,635,910	0	2,750,656
POST-TMI-2 ADDITIONS	589,838	0	0	0	0	589,838
HEAVY OBJECT SURCHARGE						0
SITE AVAILABILITY CHARGES (3 YRS)						372,474
SUBTOTAL PWR COSTS	**1,670,443**	**1,688,529**	**585,040**	**9,455,910**	**88,377,147**	**102,149,542**
TAXES & FEES (% OF CHARGES)						523,351
TAXES & FEES ($/UNIT VOL.)						599,569
ANNUAL PERMIT FEES (3 YRS)						123,300
TOTAL PWR COSTS						**103,395,762**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.50 BWR Disposition Costs Using Waste Vendors with Burial Costs at the Washington Site (2002 dollars)

REFERENCE BWR COMPONENT	VOLUME CHARGE	SHIPMENT CHARGE	CONTAINER CHARGE	LINER DOSE RATE CHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	13,379	84,126	57,680	25,984,000	0	26,139,185
FUEL SUPPORT & PIECES	6,708	42,063	28,840	774,200	0	851,811
CONTROL RODS/INCORES	20,087	48,072	16,480	7,424,000	0	7,508,639
CONTROL RODS GUIDES	5,344	36,054	24,720	663,600	0	729,718
JET PUMPS	18,761	120,180	82,400	37,120,000	0	37,341,341
TOP FUEL GUIDES	32,139	432,648	148,320	66,816,000	0	67,429,107
CORE SUPPORT PLATE	14,743	96,144	63,860	1,714,300	0	1,889,047
CORE SHROUD [a]	62,914	841,260	288,400	129,920,000	0	131,112,574
REACTOR VESSEL WALL	10,726	120,180	45,320	1,216,600	0	1,392,826
SAC SHIELD (NEUTRON ACT. MATL.)	0	0	0	0	1,455,351	1,455,351
REACT. WATER REC	0	0	0	0	466,460	466,460
SAC SHIELD (CONTAM. MATL.)	0	0	0	0	3,768,918	3,768,918
OTHER PRIMARY CONTAINMENT	0	0	0	0	15,104,565	15,104,565
CONTAINM. ATMOSPHERIC	0	0	0	0	60,802	60,802
HIGH PRESSURE CORE SPRAY	0	0	0	0	148,356	148,356
LOW PRESSURE CORE SPRAY	0	0	0	0	53,505	53,505
REACTOR BLDG CLOSED COOLING	0	0	0	0	145,535	145,535
REACTOR CORE ISO COOLING	0	0	0	0	47,245	47,245
RESIDUAL HEAT REMOVAL	0	0	0	0	447,504	447,504
POOL LINER & RACKS	0	0	0	0	1,855,031	1,855,031
CONTAMINATED CONCRETE	0	0	0	0	2,652,261	2,652,261
OTHER REACTOR BUILDING	0	0	0	0	3,305,518	3,305,518
TURBINE	0	0	0	0	8,896,765	8,896,765
NUCLEAR STEAM CONDENSATE	0	0	0	0	1,175,887	1,175,887
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,948,696	3,948,696
MAIN STEAM	0	0	0	0	172,679	172,679
MOISTURE SEPARATOR REHEATERS	0	0	0	0	2,232,832	2,232,832
REACTOR FEEDWATER PUMPS	0	0	0	0	587,328	587,328
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	786,315	786,315
OTHER TG BLDG	0	0	0	0	17,066,857	17,066,857
RAD WASTE BLDG	0	0	0	0	5,829,410	5,829,410
REACTOR BLDG	0	0	0	0	4,158,484	4,158,484
TG BLDG	0	0	0	0	2,735,844	2,735,844
RAD WASTE & CONTROL	0	0	0	0	2,516,977	2,516,977
CONCENTRATOR BOTTOMS	852,750	1,352,025	463,500	3,881,970	0	6,550,245
OTHER	231,190	366,549	125,660	181,020	0	904,419
POST-TMI-2 ADDITIONS	48,209	0	0	0	0	48,209
HEAVY OBJECT SURCHARGE						0
SITE AVAILABILITY CHARGES (3.5 YRS)						496,632
SUBTOTAL BWR COSTS	**1,316,949**	**3,539,301**	**1,345,180**	**275,695,690**	**79,619,124**	**362,012,876**
TAXES & FEES (% OF CHARGES)						10,730,963
TAXES & FEES ($/UNIT VOL.)						495,159
ANNUAL PERMIT FEES (3.5 YRS)						164,400
TOTAL BWR COSTS						**373,403,397**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.51 PWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Atlantic Compact (2002 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	2,617,120	1,900,304	5,016,760	1,256,218	0	10,790,402
VESSEL HEAD & BOTTOM	1,667,358	2,000,320	6,600	0	0	3,674,278
UPPER CORE SUPPORT ASSM	157,410	200,032	3,300	50,371	0	411,113
UPPER SUPPORT COLUMN	145,530	200,032	33,000	46,570	0	425,132
UPPER CORE BARREL	69,300	100,016	264,040	33,264	0	466,620
UPPER CORE GRID PLATE	173,250	250,040	660,100	83,160	0	1,166,550
GUIDE TUBES	256,410	300,048	33,000	69,231	0	658,689
LOWER CORE BARREL [a]	1,108,800	1,600,256	4,224,640	532,224	0	7,465,920
THERMAL SHIELDS [a]	207,900	300,048	792,120	99,792	0	1,399,860
CORE SHROUD [a]	160,974	200,032	8,053,220	77,268	0	8,491,494
LOWER GRID PLATE [a]	173,250	250,040	1,320,200	83,160	0	1,826,650
LOWER SUPPORT COLUMN	43,956	50,008	132,020	21,099	0	247,083
LOWER CORE FORGING	477,576	550,088	825,000	229,236	0	2,081,900
MISC INTERNALS	387,200	400,064	660,000	185,856	0	1,633,120
BIO SHIELD CONCRETE	0	0	0	0	4,210,923	4,210,923
REACTOR CAVITY LINER	190,080	0	3,300	0	0	193,380
REACTOR COOLANT PUMPS	0	0	0	0	1,623,905	1,623,905
PRESSURIZER	0	0	0	0	421,092	421,092
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	25,481	25,481
PRESSURIZER RELIEF TANK	0	0	0	0	58,737	58,737
SAFETY INJECTION ACCUM TANKS	0	0	0	0	660,791	660,791
STEAM GENERATORS	0	0	0	0	5,942,800	5,942,800
REACTOR COOLANT PIPING	0	0	0	0	479,393	479,393
REMAINING CONTAM. MATLS	0	0	0	0	8,474,753	8,474,753
CONTAMINATED MATRL OTHR BLD	0	0	0	0	65,196,558	65,196,558
FILTER CARTRIDGES	0	0	0	0	116,610	116,610
SPENT RESINS	871,200	1,000,160	2,640,400	418,176	0	4,929,936
COMBUSTIBLE WASTES	0	0	0	0	1,166,102	1,166,102
EVAPORATOR BOTTOMS	4,094,640	4,700,752	12,409,880	559,310	0	21,764,582
POST-TMI-2 ADDITIONS	8,217,949	0	0	0	0	8,217,949
SUBTOTAL PWR COSTS	**21,019,903**	**14,002,240**	**37,077,580**	**3,744,934**	**88,377,147**	**164,221,804**
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						2,588,988
TOTAL PWR COSTS (INSIDE COMPACT)						**166,810,792**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.52 BWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Atlantic Compact (2002 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	160,838	1,400,224	1,848,280	77,202	0	3,486,544
FUEL SUPPORT & PIECES	70,852	700,112	231,000	34,009	0	1,035,973
CONTROL RODS/INCORES	210,947	400,064	1,056,160	101,254	0	1,768,425
CONTROL RODS GUIDES	59,290	600,096	33,000	21,937	0	714,323
JET PUMPS	171,518	2,000,320	2,640,400	82,328	0	4,894,566
TOP FUEL GUIDES	293,832	3,600,576	9,505,440	141,039	0	13,540,887
CORE SUPPORT PLATE	196,988	1,550,248	214,500	72,886	0	2,034,622
CORE SHROUD[a]	575,190	7,001,120	18,482,800	276,091	0	26,335,201
REACTOR VESSEL WALL	125,144	1,100,176	712,800	46,303	0	1,984,423
SAC SHIELD (NEUTRON ACT. MATL.)	0	0	0	0	1,455,351	1,455,351
REACT. WATER REC	0	0	0	0	466,460	466,460
SAC SHIELD (CONTAM. MATL.)	0	0	0	0	3,768,918	3,768,918
OTHER PRIMARY CONTAINMENT	0	0	0	0	15,104,565	15,104,565
CONTAINM. ATMOSPHERIC	0	0	0	0	60,802	60,802
HIGH PRESSURE CORE SPRAY	0	0	0	0	148,356	148,356
LOW PRESSURE CORE SPRAY	0	0	0	0	53,505	53,505
REACTOR BLDG CLOSED COOLING	0	0	0	0	145,535	145,535
REACTOR CORE ISO COOLING	0	0	0	0	47,245	47,245
RESIDUAL HEAT REMOVAL	0	0	0	0	447,504	447,504
POOL LINER & RACKS	0	0	0	0	1,855,031	1,855,031
CONTAMINATED CONCRETE	0	0	0	0	2,652,261	2,652,261
OTHER REACTOR BUILDING	0	0	0	0	3,305,518	3,305,518
TURBINE	0	0	0	0	8,896,765	8,896,765
NUCLEAR STEAM CONDENSATE	0	0	0	0	1,175,887	1,175,887
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,948,696	3,948,696
MAIN STEAM	0	0	0	0	172,679	172,679
MOISTURE SEPARATOR REHEATERS	0	0	0	0	2,232,832	2,232,832
REACTOR FEEDWATER PUMPS	0	0	0	0	587,328	587,328
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	786,315	786,315
OTHER TG BLDG	0	0	0	0	17,066,857	17,066,857
RAD WASTE BLDG	0	0	0	0	5,829,410	5,829,410
REACTOR BLDG	0	0	0	0	4,158,484	4,158,484
TG BLDG	0	0	0	0	2,735,844	2,735,844
RAD WASTE & CONTROL	0	0	0	0	2,516,977	2,516,977
CONCENTRATOR BOTTOMS	16,827,644	11,251,800	29,704,500	2,279,585	0	60,063,529
OTHER	4,562,161	3,050,488	316,470	113,680	0	8,042,799
POST-TMI-2 ADDITIONS	671,672	0	0	0	0	671,672
SUBTOTAL BWR COSTS	**23,926,075**	**32,655,224**	**64,745,350**	**3,246,316**	**79,619,124**	**204,192,089**
ATLANTIC COMPACT SURCHARGE (INSIDE COMPACT)						2,680,724
TOTAL BWR COSTS (INSIDE COMPACT)						**206,872,813**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.53 PWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Non-Atlantic Compact (2002 dollars)

REFERENCE PWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
VESSEL WALL	2,730,132	1,983,600	5,236,704	1,310,463	0	11,260,899
VESSEL HEAD & BOTTOM	1,740,340	2,088,000	7,600	0	0	3,835,940
UPPER CORE SUPPORT ASSM	164,300	208,800	3,800	52,576	0	429,476
UPPER SUPPORT COLUMN	151,900	208,800	38,000	48,608	0	447,308
UPPER CORE BARREL	72,360	104,400	275,616	34,733	0	487,109
UPPER CORE GRID PLATE	180,900	261,000	689,040	86,832	0	1,217,772
GUIDE TUBES	267,732	313,200	38,000	72,288	0	691,220
LOWER CORE BARREL [a]	1,157,760	1,670,400	4,409,856	555,725	0	7,793,741
THERMAL SHIELDS [a]	217,080	313,200	826,848	104,198	0	1,461,326
CORE SHROUD [a]	168,020	208,800	8,406,288	80,650	0	8,863,758
LOWER GRID PLATE [a]	180,900	261,000	1,378,080	86,832	0	1,906,812
LOWER SUPPORT COLUMN	45,880	52,200	137,808	22,022	0	257,910
LOWER CORE FORGING	498,480	574,200	950,000	239,270	0	2,261,950
MISC INTERNALS	404,000	417,600	760,000	193,920	0	1,775,520
BIO SHIELD CONCRETE	0	0	0	0	4,210,923	4,210,923
REACTOR CAVITY LINER	198,400	0	3,800	0	0	202,200
REACTOR COOLANT PUMPS	0	0	0	0	1,623,905	1,623,905
PRESSURIZER	0	0	0	0	421,092	421,092
R.Hx,EHx,SUMP PUMP,CAVITY PUMP	0	0	0	0	25,481	25,481
PRESSURIZER RELIEF TANK	0	0	0	0	58,737	58,737
SAFETY INJECTION ACCUM TANKS	0	0	0	0	660,791	660,791
STEAM GENERATORS	0	0	0	0	5,942,800	5,942,800
REACTOR COOLANT PIPING	0	0	0	0	479,393	479,393
REMAINING CONTAM. MATLS	0	0	0	0	8,474,753	8,474,753
CONTAMINATED MATRL OTHR BLD	0	0	0	0	65,196,558	65,196,558
FILTER CARTRIDGES	0	0	0	0	116,610	116,610
SPENT RESINS	909,000	1,044,000	2,756,160	436,320	0	5,145,480
COMBUSTIBLE WASTES	0	0	0	0	1,166,102	1,166,102
EVAPORATOR BOTTOMS	4,272,300	4,906,800	12,953,952	583,578	0	22,716,630
POST-TMI-2 ADDITIONS	8,572,815	0	0	0	0	8,572,815
SUBTOTAL PWR COSTS	**21,932,299**	**14,616,000**	**38,871,552**	**3,908,015**	**88,377,147**	**167,705,013**
ATLANTIC COMPACT SURCHARGE (OUTSIDE COMPACT)						2,588,988
TOTAL PWR COSTS (OUTSIDE COMPACT)						**170,294,001**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.54 BWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Non-Atlantic Compact (2002 dollars)

REFERENCE BWR COMPONENT	BASE DISPOSAL CHARGE	CASK HANDLING	CURIE SURCHARGE	DOSE RATE SURCHARGE	WASTE VENDOR CHARGE	DISPOSAL COST
STEAM SEPARATOR	167,940	1,461,600	1,929,312	80,611	0	3,639,462
FUEL SUPPORT & PIECES	73,954	730,800	266,000	35,498	0	1,106,251
CONTROL RODS/INCORES	220,099	417,600	1,102,464	105,648	0	1,845,811
CONTROL RODS GUIDES	61,908	626,400	38,000	22,906	0	749,214
JET PUMPS	179,091	2,088,000	2,756,160	85,964	0	5,109,215
TOP FUEL GUIDES	306,806	3,758,400	9,922,176	147,267	0	14,134,649
CORE SUPPORT PLATE	205,535	1,618,200	247,000	76,048	0	2,146,783
CORE SHROUD [a]	600,588	7,308,000	19,293,120	288,282	0	27,489,990
REACTOR VESSEL WALL	130,622	1,148,400	820,800	48,330	0	2,148,152
SAC SHIELD (NEUTRON ACT. MATL.)	0	0	0	0	1,455,351	1,455,351
REACT. WATER REC	0	0	0	0	466,460	466,460
SAC SHIELD (CONTAM. MATL.)	0	0	0	0	3,768,918	3,768,918
OTHER PRIMARY CONTAINMENT	0	0	0	0	15,104,565	15,104,565
CONTAINM. ATMOSPHERIC	0	0	0	0	60,802	60,802
HIGH PRESSURE CORE SPRAY	0	0	0	0	148,356	148,356
LOW PRESSURE CORE SPRAY	0	0	0	0	53,505	53,505
REACTOR BLDG CLOSED COOLING	0	0	0	0	145,535	145,535
REACTOR CORE ISO COOLING	0	0	0	0	47,245	47,245
RESIDUAL HEAT REMOVAL	0	0	0	0	447,504	447,504
POOL LINER & RACKS	0	0	0	0	1,855,031	1,855,031
CONTAMINATED CONCRETE	0	0	0	0	2,652,261	2,652,261
OTHER REACTOR BUILDING	0	0	0	0	3,305,518	3,305,518
TURBINE	0	0	0	0	8,896,765	8,896,765
NUCLEAR STEAM CONDENSATE	0	0	0	0	1,175,887	1,175,887
LOW PRESSURE FEEDWATER HEATERS	0	0	0	0	3,948,696	3,948,696
MAIN STEAM	0	0	0	0	172,679	172,679
MOISTURE SEPARATOR REHEATERS	0	0	0	0	2,232,832	2,232,832
REACTOR FEEDWATER PUMPS	0	0	0	0	587,328	587,328
HIGH PRESSURE FEEDWATER HEATERS	0	0	0	0	786,315	786,315
OTHER TG BLDG	0	0	0	0	17,066,857	17,066,857
RAD WASTE BLDG	0	0	0	0	5,829,410	5,829,410
REACTOR BLDG	0	0	0	0	4,158,484	4,158,484
TG BLDG	0	0	0	0	2,735,844	2,735,844
RAD WASTE & CONTROL	0	0	0	0	2,516,977	2,516,977
CONCENTRATOR BOTTOMS	17,554,292	11,745,000	31,006,800	2,378,021	0	62,684,114
OTHER	4,759,164	3,184,200	364,420	118,589	0	8,426,373
POST-TMI-2 ADDITIONS	700,676	0	0	0	0	700,676
SUBTOTAL BWR COSTS	**24,960,674**	**34,086,600**	**67,746,252**	**3,387,164**	**79,619,124**	**209,799,814**
ATLANTIC COMPACT SURCHARGE (OUTSIDE COMPACT)						2,680,724
TOTAL BWR COSTS (OUTSIDE COMPACT)						**212,480,538**

[a] GTCC Material: Assumes a low density, distributed packaging scheme and final disposal as LLW. High density packaging, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.55 PWR Disposition Costs Using Waste Vendors with Burial Costs at the Washington Site (2000 dollars)

REFERENCE PWR 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 ($/UNIT VOL.)						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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.56 BWR Disposition Costs Using Waste Vendors with Burial Costs at the Washington Site (2000 dollars)

REFERENCE BWR 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 (NEUTRON ACT. MATL.)	0	0	0	0	1,156,150	1,156,150
REACT. WATER REC	0	0	0	0	370,562	370,562
SAC SHIELD (CONTAM. MATL.)	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 ($/UNIT VOL.)						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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.57 PWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Atlantic Compact (2000 dollars)

REFERENCE PWR 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
SUBTOTAL PWR COSTS	**20,148,703**	**13,000,000**	**34,432,200**	**3,326,758**	**68,212,943**	**139,120,604**
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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.58 BWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Atlantic Compact (2000 dollars)

REFERENCE BWR 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 (NEUTRON ACT. MATL.)	0	0	0	0	1,156,150	1,156,150
REACT. WATER REC	0	0	0	0	370,562	370,562
SAC SHIELD (CONTAM. MATL.)	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
SUBTOTAL BWR COSTS	**23,926,075**	**32,650,000**	**64,735,770**	**3,246,316**	**63,250,478**	**187,808,639**
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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.59 PWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Non-Atlantic Compact (2000 dollars)

REFERENCE PWR 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
SUBTOTAL PWR COSTS	**20,148,703**	**13,000,000**	**37,562,400**	**3,326,758**	**68,212,943**	**142,250,804**
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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.60 BWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site Non-Atlantic Compact (2000 dollars)

REFERENCE BWR 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 (NEUTRON ACT. MATL.)	0	0	0	0	1,156,150	1,156,150
REACT. WATER REC	0	0	0	0	370,562	370,562
SAC SHIELD (CONTAM. MATL.)	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
SUBTOTAL BWR COSTS	**23,926,075**	**32,650,000**	**70,620,840**	**3,246,316**	**63,250,478**	**193,693,709**
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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.61 PWR Disposition Costs Using Waste Vendors with Burial Costs at the Washington Site (1998 dollars)

REFERENCE PWR 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	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	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 ($/UNIT VOL.)						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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.62 BWR Disposition Costs Using Waste Vendors with Burial Costs at the Washington Site (1998 dollars)

REFERENCE BWR 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 (NEUTRON ACT. MATL.)	0	0	0	0	1,156,150	1,156,150
REACT. WATER REC	0	0	0	0	370,562	370,562
SAC SHIELD (CONTAM. MATL.)	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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.63 PWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site (1998 dollars)

REFERENCE PWR 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, ISFSI storage, and geologic repository disposal could reduce disposal costs.

Table B.64 BWR Disposition Costs Using Waste Vendors with Burial Costs at the South Carolina Site (1998 dollars)

REFERENCE BWR COMPONENT	BASE DISPOS 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 (NEUTRON ACT. MATL.)	0	0	0	0	1,156,150	1,156,150
REACT. WATER REC	0	0	0	0	370,562	370,562
SAC SHIELD (CONTAM. MATL.)	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, ISFSI storage, 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 Internet

Appendix C

Bureau of Labor Statistics on the Internet

For use in the adjustment formula in Chapter 3, the labor indexes for the second quarter of 2008 and the producer price indexes for April 2008 were obtained from the Bureau of Labor Statistics (BLS) data on the Internet. These dates were chosen to agree, to the extent possible, with the effective dates of the waste burial rate schedules. Instructions for accessing and obtaining the specific indexes used in this report follow below.

Bureau of Labor Statistics Internet Data Page

To obtain reports of producer price indexes and labor indexes, proceed as follows:

1. Enter the URL: **http://www.bls.gov/data/**

2. Click on the item labeled *Series Report.*

3. In the box labeled *Enter series id(s) below*, type in the following six series ids, one id per line:

Series ID	Producer Price Indexes
wpu0543	(Industrial electric power -- used in calculation of P_x, per Section 3.2)
wpu0573	(Light fuel oils – used in calculation of F_x per Section 3.2)

Labor Indexes (Used in the calculation of L_x, per Section 3.1)

CIU2010000000210I	(Total compensation, private industry, Northeast region)
CIU2010000000220I	(Total compensation, private industry, South region)
CIU2010000000230I	(Total compensation, private industry, Midwest region)
CIU2010000000240I	(Total compensation, private industry, West region)

4. In the box labeled *Year(s) to report for*, select the years you want.

5. Click on the button labeled *Retrieve Data* and the six tables of data you requested will be displayed.

Appendix D

Representative Examples of Decommissioning Costs for 2000 through 2008

Appendix D

Representative Examples of Decommissioning Costs for 2000 through 2008

In Section 3.4 of this revision and the four previous revisions of NUREG-1307, decommissioning costs for four typical situations were developed. Results of these calculations are summarized below.

Example 1 (LLW Direct Disposal)

Reactor Type: PWR
Thermal Power Rating: 3400 MW thermal
Location of Plant: Northwest Compact
LLW Burial Location: Washington

	2000	2002	2004	2006	2008
L_x	1.612	1.775	1.984	2.11	2.23
E_x	1.016	0.985	1.483	2.152	2.746
B_x	2.223	3.634	5.374	6.829	8.283
Decommissioning Cost (Millions)	$175	$219	$280	$331	$381

Example 2 (LLW Direct Disposal)

Reactor Type: PWR
Thermal Power Rating: 3400 MW thermal
Location of Plant: Atlantic Compact
LLW Burial Location: South Carolina (Atlantic Compact)

	2000	2002	2004	2006	2008
L_x	1.719	1.862	2.070	2.21	2.33
E_x	1.016	0.985	1.483	2.152	2.746
B_x	17.922	17.922	19.500	22.933	25.231
Decommissioning Cost (Millions)	$545	$555	$612	$710	$779

Example 3 (LLW Disposition by Waste Vendors)

Reactor Type: PWR
Thermal Power Rating: 3400 MW thermal
Location of Plant: Atlantic Compact
LLW Burial Location: South Carolina (Atlantic Compact)

	2000	2002	2004	2006	2008
L_x	1.719	1.862	2.070	2.21	2.33
E_x	1.016	0.985	1.483	2.152	2.746
B_x	7.878	9.273	7.790	8.600	9.872
Decommissioning Cost (Millions)	$313	$355	$341	$379	$425

Example 4 (LLW Disposition by Waste Vendors)

Reactor Type: BWR
Thermal Power Rating: 3400 MW thermal
Location of Plant: Midwest Compact
LLW Burial Location: Prior to 2008 - South Carolina (Non-Atlantic Compact), Beginning 2008 – Unknown (Generic LLW Disposal Site)

	2000	2002	2004	2006	2008
L_x	1.649	1.788	2.002	2.13	2.23
E_x	1.007	0.965	1.496	2.206	2.853
B_x	8.189	8.860	8.863	10.206	11.198
Decommissioning Cost (Millions)	$406	$437	$465	$529	$578

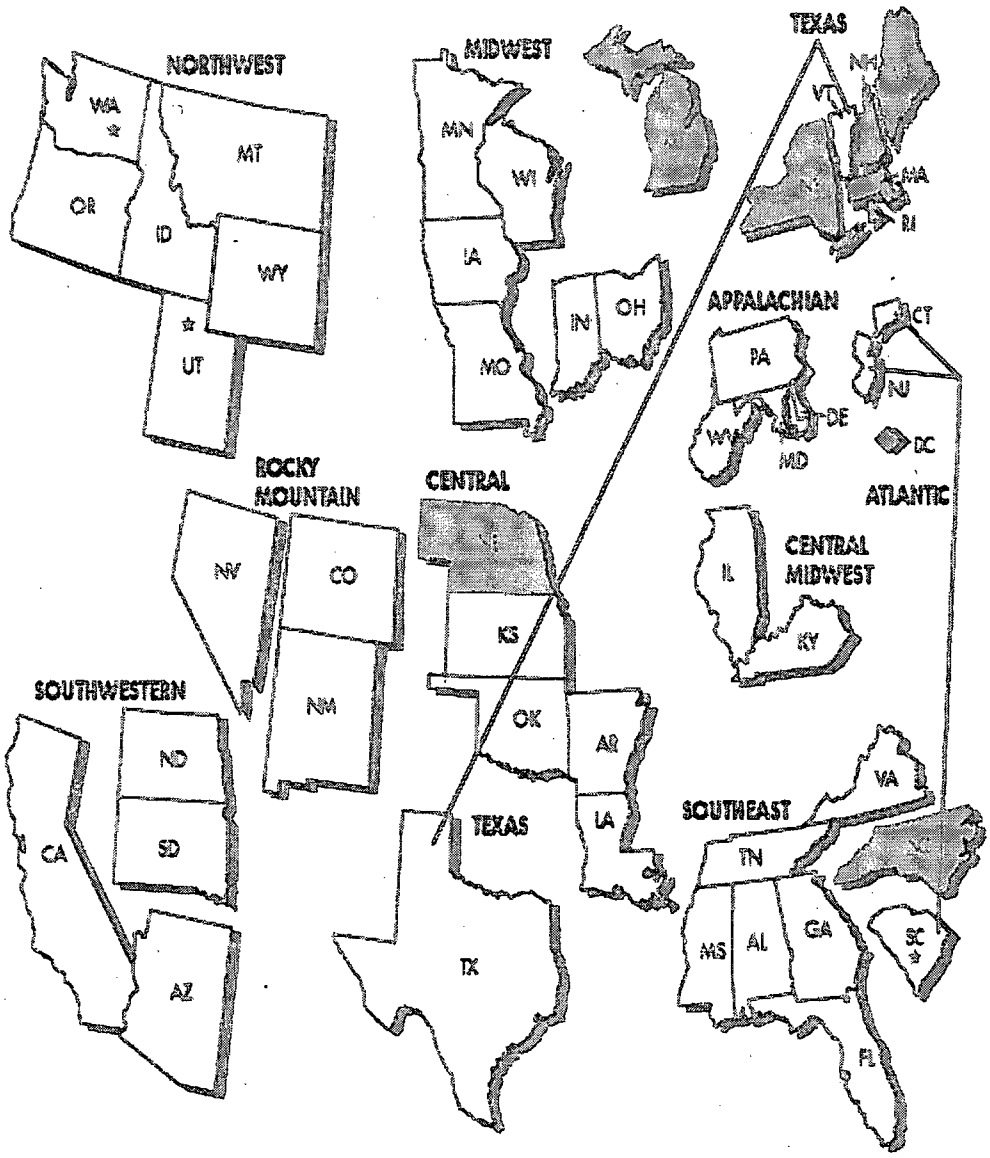
Appendix E

LLW Compacts

Appendix E

LLW Compacts

The figure below identifies the composition of all LLW Compacts as of January 1, 2007 (source: NRC, http://www.nrc.gov/waste/llw-disposal/compacts.html).



★ Active Disposal Site (3)

☐ Approved Compact (10)

☐ Unaffiliated (10)

Note: Data as of January 2007.
Alaska and Hawaii belong to the Northwest Compact. Puerto Rico is unaffiliated.
Source: Nuclear Regulatory Commission

NRC FORM 335
(9-2004)
NRCMD 3.7

U.S. NUCLEAR REGULATORY COMMISSION

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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 that results in a total cost estimate of no less than the amount estimated by using the parameters presented in this report.

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