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# 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 $ 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

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

where

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

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

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

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

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

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

$\Sigma S_x$ = summation of surcharges in Year X dollars

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

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

Values for $L_x$ and $E_x$ for years subsequent to 1986 are to be based on the national producer price 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 [$ft^3$] * \$6$ft^3$ = 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 [$ft^3$] * \$6$ft^3$ = 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 [$ft^3$] * \$6$ft^3$ = 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 [$ft^3$] * \$6$ft^3$ = 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 |

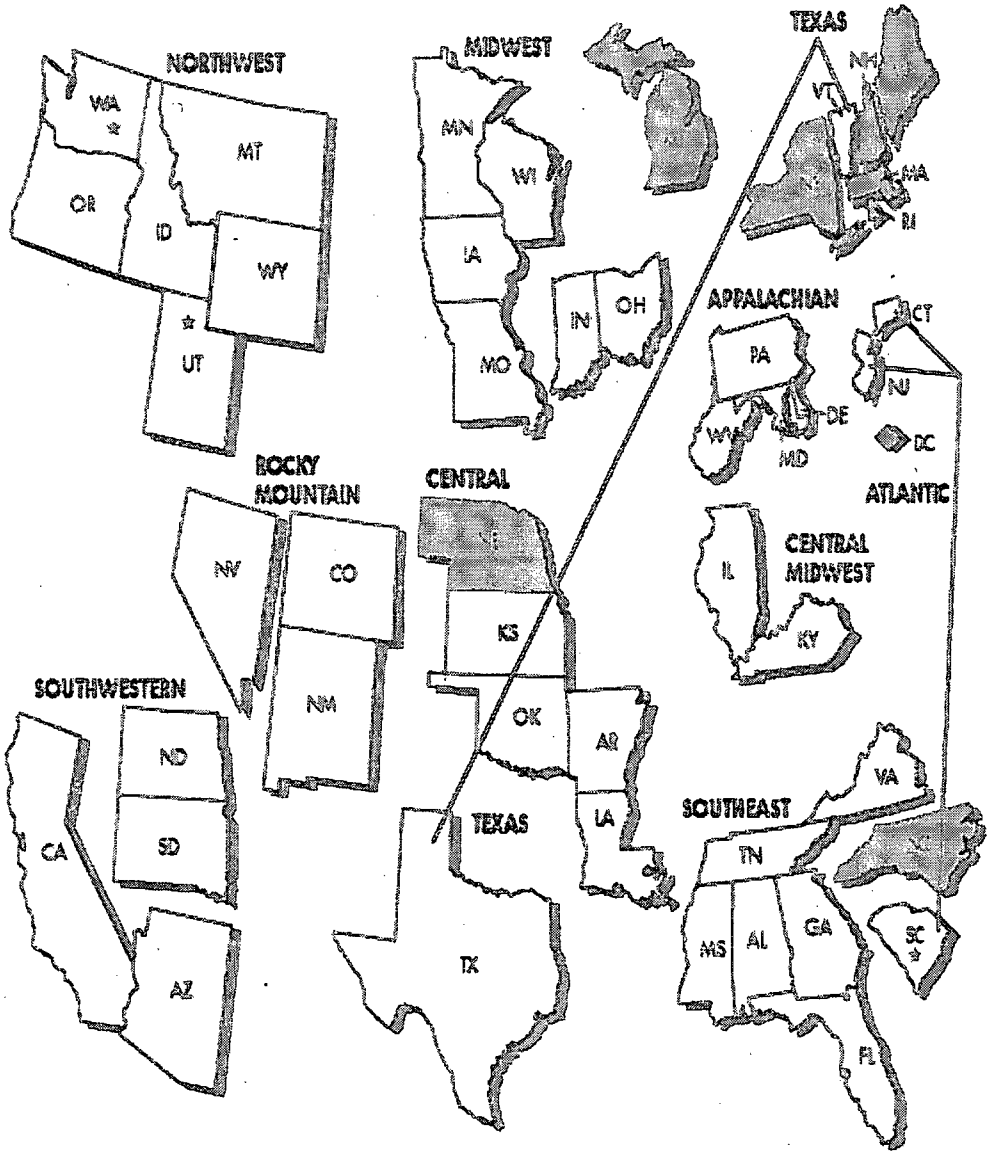
# Appendix E

# 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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Supercedes NUREG-1307, Revision 12, dated Februray 2007

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.

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

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decommissioning
cost estimate
10 CFR 50.75(c)(2)

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