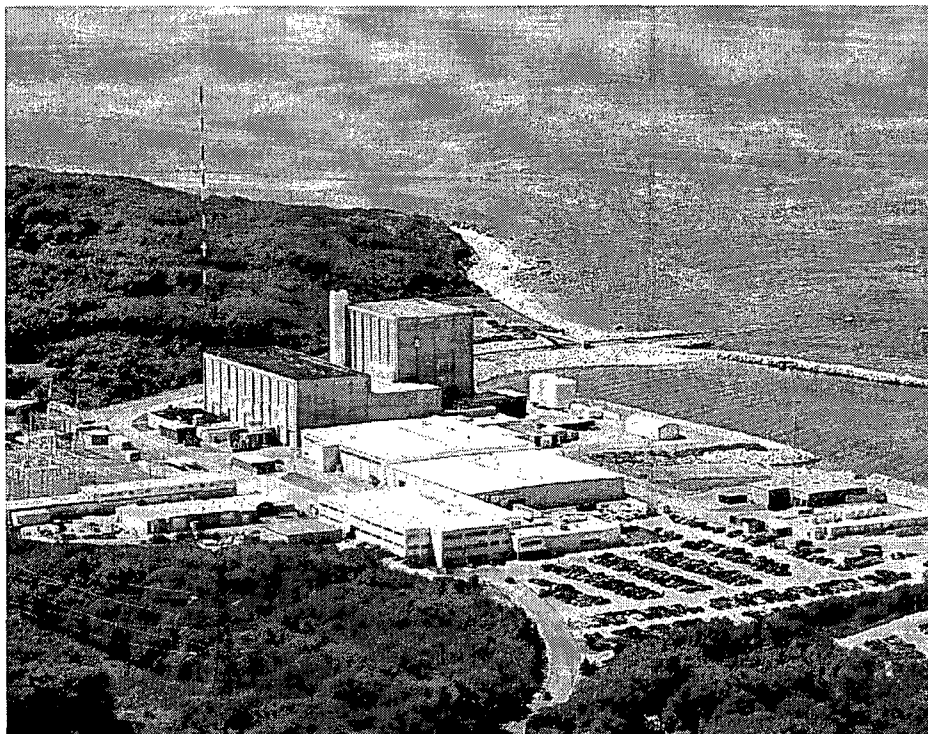


PRELIMINARY DECOMMISSIONING COST ANALYSIS
for the
PILGRIM NUCLEAR POWER STATION



prepared for

Entergy Nuclear

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July 2008

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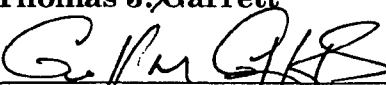


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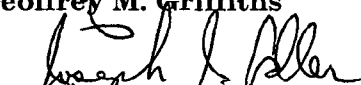


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REVISION LOG

No.	CRA No.	Date	Item Revised	Reason for Revision
		07-16-2008		

1. DECOMMISSIONING COST ANALYSIS

This document presents the cost to decommission the Pilgrim Nuclear Power Station (Pilgrim) assuming a cessation of operations after a nominal 40-year operating life in 2012. In accordance with the requirements of 10 CFR 50.75(f)(3), the cost estimate includes an assessment of the major factors that could affect the cost to decommission the Pilgrim nuclear unit.

The costs (presented in 2007 dollars) are based upon a site-specific estimate originally prepared in 2005 for Entergy Nuclear. The 2005 estimate reflected a 60-year operating life scenario, with shutdown in 2032 followed by prompt decommissioning. The scenario was revised in 2006 for a 40-year operating life and deferred decommissioning. The revised estimate was used as the basis for the Company's spent fuel management plan filed in 2007 (in accordance with 10 CFR 50.54(bb)).^[1]

The estimate presented in this document escalates the 2006 cost estimate to 2007 dollars for consistent year comparison with the Company's latest filing on the status of the Pilgrim Station decommissioning trust fund.^[2]

The current cost to decommission Pilgrim is estimated at \$914.4 million (in 2007 dollars). The cost includes the monies anticipated to be spent for operating license termination, spent fuel storage and site restoration activities. The cost is based on several key assumptions in areas of regulation, component characterization, high-level radioactive waste management, low-level radioactive waste disposal, performance uncertainties (contingency) and site restoration requirements. Many of these assumptions are discussed in more detail in this document.

It is the current plan, based on the growth of the funds in the Pilgrim decommissioning trust, to fund the expenditures for license termination and spent fuel management from the currently existing decommissioning trust fund and from proceeds from spent fuel litigation against the Department of Energy (DOE). Expenditures from the trust fund for the management of the spent fuel, until it can be transferred to the DOE, will not reduce the value of the decommissioning trust fund to below the amount necessary to place and maintain the reactor in safe storage and will not adversely affect the licensee's ability to ultimately release the site and terminate the license. The licensee acknowledges that it may be necessary to request an exemption pursuant to 10 CFR 50.12(a) to use trust funds for anything beyond decommissioning activities as defined in 10 CFR 50.2.

¹ Entergy Nuclear Operations submittal of its "Spent Fuel Management Plan" to the Nuclear Regulatory Commission, Letter No. 2.07.055, dated June 7, 2007

² Entergy Nuclear Operations submittal of its "Decommissioning Fund Status Report" to the Nuclear Regulatory Commission, Letter No. ENOC-08-00018, dated March 26, 2008

1.1 DECOMMISSIONING ALTERNATIVES

The Nuclear Regulatory Commission (NRC) provided general decommissioning guidance in a rule adopted on June 27, 1988.^[3] In this rule, the NRC set forth technical and financial criteria for decommissioning licensed nuclear facilities. The regulations addressed planning needs, timing, funding methods, and environmental review requirements for decommissioning. The rule also defined three decommissioning alternatives as being acceptable to the NRC: DECON, SAFSTOR, and ENTOMB.

DECON is defined as "the alternative in which the equipment, structures, and portions of a facility and site containing radioactive contaminants are removed or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations."^[4]

SAFSTOR is defined as "the alternative in which the nuclear facility is placed and maintained in a condition that allows the nuclear facility to be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use."^[5] Decommissioning is to be completed within 60 years, although longer time periods will be considered when necessary to protect public health and safety.

ENTOMB is defined as "the alternative in which radioactive contaminants are encased in a structurally long-lived material, such as concrete; the entombed structure is appropriately maintained and continued surveillance is carried out until the radioactive material decays to a level permitting unrestricted release of the property."^[6] As with the SAFSTOR alternative, decommissioning is currently required to be completed within 60 years.

1.2 REGULATORY GUIDANCE

In 1996, the NRC published revisions to its general requirements for decommissioning nuclear power plants to clarify ambiguities and codify procedures and terminology as a means of enhancing efficiency and uniformity in

³ U.S. Code of Federal Regulations, Title 10, Parts 30, 40, 50, 51, 70 and 72 "General Requirements for Decommissioning Nuclear Facilities," Nuclear Regulatory Commission, Federal Register Volume 53, Number 123 (p 24018 et seq.), June 27, 1988.

⁴ Ibid. Page FR24022, Column 3

⁵ Ibid.

⁶ Ibid. Page FR24023, Column 2

the decommissioning process.^[7] The amendments allow for greater public participation and better define the transition process from operations to decommissioning. Regulatory Guide 1.184, issued in July 2000, further described the methods and procedures that are acceptable to the NRC staff for implementing the requirements of the 1996 revised rule that relate to the initial activities and the major phases of the decommissioning process. The Pilgrim cost estimate follows the general guidance and sequence presented in the amended regulations.

1.3 BASIS OF COST ESTIMATE

For the purpose of the analysis, Pilgrim is assumed to cease operations in June 2012 after 40 years of operations. The unit would then be placed in safe-storage (SAFSTOR), with the spent fuel relocated to an Independent Spent Fuel Storage Installation (ISFSI) to await the transfer to a Department of Energy (DOE) facility. Based upon a 2017 start date for the pickup of spent fuel from the commercial industry, Entergy anticipates that the removal of the Pilgrim fuel from the site could be completed by the year 2042. At that time, the plant would be decommissioned and the site released for alternative use without restriction. This sequence of events is delineated in Figure 1 along with major milestone dates.

The 2005 estimate was developed using the site-specific, technical information relied upon in the decommissioning assessment prepared in 2002.^[8] The site-specific considerations and assumptions used in the previous evaluation were revisited. Modifications were incorporated where new information was available or experience from recent decommissioning projects provided viable alternatives or improved processes.

The 2005 estimate evaluated a scenario based upon renewal of the operating license with operations continuing through 2032. At that time the unit would be promptly decommissioned. In 2006, the estimate was revised to reflect its current operating license (without license renewal) and a 2012 shutdown date. Economic components of the estimate were escalated to 2006 dollars and the spent fuel management plan modified for an earlier shutdown date. The current estimate escalates the 2006 base year estimate to 2007 dollars. No other changes were made to the 2006 estimate for purposes of this analysis.

⁷ U.S. Code of Federal Regulations, Title 10, Parts 2, 50, and 51, "Decommissioning of Nuclear Power Reactors," Nuclear Regulatory Commission, Federal Register Volume 61, (p 39278 et seq.), July 29, 1996.

⁸ TLG Document No. E11-1430-002, December 19, 2002

1.4 METHODOLOGY

The methodology used to develop the estimate followed the basic approach originally presented in the AIF/NESP-036 study report, "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates,"^[9] and the DOE "Decommissioning Handbook."^[10] These documents present a unit cost factor method for estimating decommissioning activity costs that simplifies the calculations. Unit factors for concrete removal (\$/cubic yard), steel removal (\$/ton), and cutting costs (\$/inch) were developed using local labor rates. The activity-dependent costs were then estimated with the item quantities (cubic yards and tons), developed from plant drawings and inventory documents. Removal rates and material costs for the conventional disposition of components and structures relied upon information available in the industry publication, "Building Construction Cost Data," published by R.S. Means.^[11]

The unit factor method provides a demonstrable basis for establishing reliable cost estimates. The detail provided in the unit factors, including activity duration, labor costs (by craft), and equipment and consumable costs, ensures that essential elements have not been omitted.

This analysis reflected lessons learned from TLG's involvement in the Shippingport Station decommissioning, completed in 1989, as well as the decommissioning of the Cintichem reactor, hot cells, and associated facilities, completed in 1997. In addition, the planning and engineering for the Pathfinder, Shoreham, Rancho Seco, Trojan, Yankee Rowe, Big Rock Point, Maine Yankee, Humboldt Bay-3, Connecticut Yankee, and San Onofre-1 nuclear units have provided additional insight into the process, the regulatory aspects, and the technical challenges of decommissioning commercial nuclear units.

Work Difficulty Factors

TLG has historically applied work difficulty adjustment factors (WDFs) to account for the inefficiencies in working in a power plant environment. WDFs

⁹ T.S. LaGuardia et al., "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates," AIF/NESP-036, May 1986

¹⁰ W.J. Manion and T.S. LaGuardia, "Decommissioning Handbook," U.S. Department of Energy, DOE/EV/10128-1, November 1980

¹¹ "Building Construction Cost Data 2005," Robert Snow Means Company, Inc., Kingston, Massachusetts

are assigned to each unique set of unit factors, commensurate with the working conditions. The ranges used for the WDFs were as follows:

• Access Factor	0% to 30%
• Respiratory Protection Factor	0% to 50%
• Radiation/ALARA Factor	0% to 100%
• Protective Clothing Factor	0% to 50%
• Work Break Factor	8.33%

The factors and their associated range of values were originally developed in conjunction with the AIF/NESP-036 study.

Scheduling Program Durations

Activity durations are used to develop the total decommissioning program schedule. The unit cost factors, adjusted for WDFs as described above, are applied against the inventory of materials to be removed. The work area (or building area) is then evaluated for the most efficient number of workers/crews for the identified decommissioning activities. The adjusted unit cost factors are then compared against the available manpower so that an overall duration for removal of components and piping from each work area can be calculated.

The schedule is used to assign carrying costs, which include program management, administration, field engineering, equipment rental, and support services such as quality control and security.

1.5 IMPACT OF DECOMMISSIONING MULTIPLE REACTOR UNITS

In estimating the near simultaneous decommissioning of similar and regional reactor units there can be opportunities to achieve economies of scale, by sharing costs between units, and coordinating the sequence of work activities. The Entergy Northeast fleet currently consists of three Mark I design BWRs (Pilgrim, Vermont and FitzPatrick) with shutdown dates of 2012, 2012 and 2014, respectively.

The cost model assumes that Entergy will manage the decontamination and dismantling of Pilgrim, directly supervising the field crews. Specialty contractors would be engaged as needed to support the project or to provide project critical skills. As part of a fleet of reactors in the northeast, it was also assumed that Pilgrim would benefit from certain synergies (planning, engineering, contracting, and administration). As such, the program management labor costs (excluding security) were reduced 5% to reflect such anticipated savings.

1.6 FINANCIAL COMPONENTS OF THE COST MODEL

TLG's proprietary decommissioning cost model, DECCER, produces a number of distinct cost elements. These direct expenditures, however, do not comprise the total cost to accomplish the project goal (i.e., license termination and site restoration).

Inherent in any cost estimate that does not rely on historical data is the inability to specify the precise source of costs imposed by factors such as tool breakage, accidents, illnesses, weather delays, and labor stoppages. In the DECCER cost model, contingency fulfills this role. Contingency is added to each line item to account for costs that are difficult or impossible to develop analytically. Such costs are historically inevitable over the duration of a job of this magnitude; therefore, this cost analysis includes funds to cover these types of expenses.

1.6.1 Contingency

Consistent with standard cost estimating practices, contingencies were applied to the decontamination and dismantling costs developed as a "specific provision for unforeseeable elements of cost within the defined project scope, particularly important where previous experience relating estimates and actual costs has shown that unforeseeable events which will increase costs are likely to occur."¹² The cost elements in the estimate were based on ideal conditions; therefore, the types of unforeseeable events that are almost certain to occur in decommissioning, based on industry experience, were addressed through a percentage contingency applied on a line-item basis. This contingency factor is a nearly universal element in all large-scale construction and demolition projects. It should be noted that contingency, as used in this analysis, does not account for price escalation and inflation in the cost of decommissioning over the remaining operating life of the nuclear unit.

The contingency values are applied to the appropriate components of the estimates on a line item basis. A composite value is then reported at the end of the detailed estimate. The composite contingency value reported for the SAFSTOR scenario, and as shown in the detail table in Appendix A, was 17.34%.

¹² Project and Cost Engineers' Handbook, Second Edition, American Association of Cost Engineers, Marcel Dekker, Inc., New York, New York, p. 239.

1.6.2 Financial Risk

In addition to the routine uncertainties addressed by contingency, another cost element that is sometimes necessary to consider when bounding decommissioning costs relates to uncertainty, or risk. Examples can include changes in work scope, pricing, job performance, and other variations that could conceivably, but not necessarily, occur. Consideration is sometimes necessary to generate a level of confidence in the estimate, within a range of probabilities. TLG considers these types of costs under the broad term "financial risk." Included within the category of financial risk are:

- Transition activities and costs: ancillary expenses associated with eliminating 50% to 80% of the site labor force shortly after the cessation of plant operations, added cost for worker separation packages throughout the decommissioning program, national or company-mandated retraining, and retention incentives for key personnel.
- Delays in approval of the decommissioning plan due to intervention, legal challenges, and national and local hearings.
- Changes in the project work scope from the baseline estimate, involving the discovery of unexpected levels of contaminants, contamination in places not previously expected, contaminated soil previously undiscovered (either radioactive or hazardous material contamination), variations in plant inventory or configuration not indicated by the as-built drawings.
- Regulatory changes (e.g., affecting worker health and safety, site release criteria, waste transportation, and disposal).
- Policy decisions altering national commitments (e.g., in the ability to accommodate certain waste forms for disposition, or in the timetable for such: the start and rate of acceptance of spent fuel by the DOE).
- Pricing changes for basic inputs, such as labor, energy, materials, and burial.

It has been TLG's experience that the results of a risk analysis, when compared with the base case estimate for decommissioning, indicate that the chances of the base decommissioning estimate's being too high is a low probability, and the chances that the estimate is too low is a higher probability. This is mostly due to the pricing uncertainty for low-level radioactive waste burial, and to a lesser extent due to schedule increases from changes in plant conditions and to pricing variations in

the cost of labor (both craft and staff). This cost study, however, does not add any additional costs to the estimate for financial risk, since there is insufficient historical data from which to project future liabilities. Consequently, the areas of uncertainty or risk are revisited periodically and addressed through updates of the base estimate.

1.7 SITE-SPECIFIC CONSIDERATIONS

There are a number of site-specific considerations that affect the method for dismantling and removal of equipment from the site and the degree of restoration required. The cost impacts of the considerations identified below were included within the estimate.

1.7.1 Spent Fuel Disposition

Congress passed the "Nuclear Waste Policy Act"^[13] (NWP) in 1982, assigning the federal government's long-standing responsibility for disposal of the spent nuclear fuel created by the commercial nuclear generating plants to the DOE. The NWP provided that DOE would enter into contracts with utilities in which DOE would promise to take the utilities' spent fuel and high-level radioactive waste and utilities would pay the cost of the disposition services for that material. NWP, along with the individual contracts with the utilities, specified that the DOE was to begin accepting spent fuel by January 31, 1998.

Since the original legislation, the DOE has announced several delays in the program schedule. By January 1998, the DOE had failed to accept any spent fuel or high level waste, as required by the NWP and utility contracts. Delays continue and, as a result, generators have initiated legal action against the DOE in an attempt to obtain compensation for DOE's breach of contract.

Operation of DOE's yet-to-be constructed repository is contingent upon the review and approval of the facility's license application by the NRC, the successful resolution of pending litigation, and the development of a national transportation system. The DOE submitted its license application to the NRC on June 3, 2008, seeking authorization to construct the repository at Yucca Mountain, Nevada. Assuming a timely review, DOE expects that receipt of fuel could begin as early as 2017,^[14] depending upon the level of funding appropriated by Congress.

¹³ "Nuclear Waste Policy Act of 1982 and Amendments," DOE's Office of Civilian Radioactive Management, 1982.

¹⁴ "DOE Announces Yucca Mountain License Application Schedule", U.S. Department of Energy's

It is generally necessary that spent fuel be actively cooled and stored for a minimum period at the generating site prior to transfer. The NRC requires that licensees establish a program to manage and provide funding for the management of all irradiated fuel at the reactor until title of the fuel is transferred to the DOE, pursuant to 10 CFR Part 50.54(bb).^[15] This funding requirement is fulfilled through inclusion of certain cost elements in the decommissioning estimate, for example, costs associated with the isolation and continued operation of the spent fuel pool and construction and operation of an ISFSI.

At shutdown, the spent fuel pool is expected to contain freshly discharged assemblies (from the most recent refueling cycles) as well as the final reactor core. Over a period of five and one-half years following shutdown, the assemblies are packaged into multipurpose canisters for transfer to the ISFSI. It is assumed that this period provides the necessary cooling for the final core to meet the design requirements for decay heat.

DOE's contracts with utilities generally order the acceptance of spent fuel from utilities based upon the oldest fuel receiving the highest priority. For purposes of this analysis, acceptance of commercial spent fuel by the DOE was expected to begin in 2017. The first assemblies removed from the Pilgrim site are assumed to be in 2019. With an estimated rate of transfer of 3,000 metric tons of uranium (MTU)/year, completion of the removal of fuel from the site is projected to be in the year 2042.

An ISFSI, which can be operated under the Station's general license, is assumed to be constructed to permit post-shutdown dry fuel storage. Once the pool is emptied, the spent fuel storage and handling facilities are placed into safe-storage.

Entergy Nuclear's position is that the DOE has a contractual obligation to accept Pilgrim fuel earlier than the projections set out above. No assumption made in the study should be interpreted to be inconsistent with this claim. However, at this time, including the cost of storing spent fuel in this study is the most reasonable approach because it insures the availability of sufficient decommissioning funds at the end of the station's life if, contrary to its contractual obligation, the DOE has not performed earlier.

Office of Public Affairs, Press Release July 19, 2006

¹⁵ U.S. Code of Federal Regulations, Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities," Subpart 54 (bb), "Conditions of Licenses."

ISFSI

In the assumed scenario, 3,594 assemblies are generated through the end of currently licensed operations in 2012. An ISFSI is constructed within the owner controlled area to permit post-shutdown dry fuel storage. The assemblies stored in the reactor building's spent fuel storage pool at the time of shutdown are loaded into multi-purpose canisters (MPCs) and moved into storage casks on the new pad by late 2017. The MPCs are periodically off-loaded into a DOE transport cask such that all canisters are removed from the site by the year 2042. Entergy Nuclear's analysis assumes, for purposes only of this report, that Entergy Nuclear does not employ DOE spent fuel disposal contract allowances for up to 20% additional fuel designation for shipment to DOE each year.

The estimate includes the cost to build the ISFSI pad, transporter path, and security systems and support facilities. Once completed, Entergy anticipates loading 53 MPCs with the assemblies stored in the reactor building's spent fuel pool. The MPCs will then be placed in storage casks on the ISFSI.

In the absence of identifiable DOE transport cask requirements, the design and capacity of the new ISFSI is based upon a commercial dry cask storage system. It should be noted that Entergy's contract with the DOE requires DOE to provide transport canisters to Entergy, but for present purposes, this estimate includes this cost.

Storage Canister Design

The design and capacity of the ISFSI is based upon the Holtec HI-STORM dry cask storage system. The Holtec multi-purpose canister or MPC has a capacity of 68 fuel assemblies.

Canister Loading and Transfer

The estimate includes the costs to purchase, load, and transfer the MPCs from the pool to the ISFSI. Costs are also included for the transfer of the fuel at the ISFSI into a DOE transport cask.

Operations and Maintenance

The estimate includes costs for the operation of the spent fuel pool until it is emptied and the operation of the ISFSI until the spent fuel is transferred to the DOE.

The ISFSI operating duration is based upon the previously stated assumptions on fuel transfer schedule expectations.

ISFSI Design Considerations

A multi-purpose (storage and transport) dry shielded storage canister with a vertical, reinforced concrete storage silo is used as a basis for this cost analysis. Approximately 50% of the silos are assumed to have some level of neutron-induced activation as a result of the long-term storage of the fuel (i.e., to levels exceeding free-release limits). Approximately 10% of the concrete and steel is assumed to be removed from the overpacks for controlled disposal. The cost of the disposition of this material, as well as the demolition of the ISFSI facilities, is reflected within the estimate.

Greater-than-Class C (GTCC)

The dismantling of the reactor internals generates radioactive waste considered unsuitable for shallow land disposal (i.e., low-level radioactive waste with concentrations of radionuclides that exceed the limits established by the NRC for Class C radioactive waste (GTCC)). The Low-Level Radioactive Waste Policy Amendments Act of 1985 assigned the Federal Government the responsibility for the disposal of this material. The Act also stated that the beneficiaries of the activities resulting in the generation of such radioactive waste bear all reasonable costs of disposing of such waste. However, to date, the Federal Government has not identified a cost for disposing of GTCC or a schedule for acceptance. As such, the estimate to decommission Pilgrim included an allowance for the disposition of GTCC material.

For purposes of the study, GTCC was packaged in the same canisters used for spent fuel. The GTCC material is assumed to be shipped directly to a DOE facility as it is generated (since the fuel has been removed from the site prior to the start of decommissioning and the ISFSI deactivated).

1.7.2 Reactor Vessel and Internal Components

The reactor pressure vessel and reactor internal components were assumed to be segmented for disposal in shielded transportation casks. Segmentation and packaging of the internals would be performed in the dryer-separator pool where a turntable and remote cutter are installed. The vessel is segmented in place using a mast-mounted cutter supported off the lower head and directed from a shielded work platform installed overhead in the reactor well. Transportation cask specifications and Department of Transportation (DOT) regulations dictate segmentation and packaging methodology (i.e., packaging will meet the current physical and radiological limitations and regulations). Cask shipments are made in DOT-approved, currently available truck casks.

As stated previously, the dismantling of reactor internals at the Pilgrim reactor will generate radioactive waste considered unsuitable for shallow land disposal (i.e., GTCC). For purposes of this study, the GTCC radioactive waste was packaged and disposed of as high-level waste, at a cost equivalent to that envisioned for the spent fuel.

Intact disposal of the reactor vessel and internal components can provide savings in cost and worker exposure by eliminating the complex segmentation requirements, isolation of the GTCC material, and transport/storage of the resulting waste packages. Portland General Electric (PGE) was able to dispose of the Trojan reactor as an intact package. However, the location of the Trojan Nuclear Plant on the Columbia River simplified the transportation analysis.

It is not known whether this option will be available when Pilgrim ceases operation. Future viability of this option will depend upon the ultimate location of the disposal site, as well as the site licensee's ability to accept highly radioactive packages and effectively isolate them from the environment. Consequently, the study assumes the reactor vessel will be segmented, as a bounding condition.

1.7.3 Primary System Components

The current scenario defers decommissioning for approximately 30 years (until the spent fuel is removed from the site). The delay will result in lower working area dose rate (from natural decay of the radionuclides produced from plant operations). As such, decontamination of the reactor recirculation system components and associated reactor water

cleanup systems is not anticipated to be necessary and no allowance is included for this activity within the estimate.

Reactor recirculation piping is cut from the reactor vessel once the water level in the vessel (used for personnel shielding during dismantling and cutting operations in and around the vessel) drops below the nozzle zone. The piping is boxed and shipped by shielded van. The reactor recirculation pumps and motors are lifted out intact, packaged, and transported for processing or disposal.

1.7.4 Retired Components

This estimate assumes that any waste stored on site as a result of operations will be dispositioned as an operating expense. Therefore, the estimate did not include any costs for components that could be in storage at the site upon the cessation of plant operations.

1.7.5 Main Turbine and Condenser

The main turbine is dismantled using conventional maintenance procedures. Decontamination, if needed, will be limited due to the delay in the start of decommissioning and the resulting natural decay of the radionuclides produced from plant operations.

The turbine rotors and shafts are removed to a laydown area. The lower turbine casings are removed from their anchors by controlled demolition. The main condensers are also disassembled and moved to a laydown area. Material is then prepared for transportation to an off-site recycling facility where it will be surveyed and designated for either decontamination or volume reduction, conventional disposal, or controlled disposal. Components are packaged and readied for transport in accordance with the intended disposition.

1.7.6 Transportation Methods

It is expected that most of the contaminated piping, components, and structural material, other than the highly activated reactor vessel and internal components, will qualify as LSA-I, II or III or Surface Contaminated Object, SCO-I or II, as described in Title 49.^[16] The contaminated material is packaged in Industrial Packages (IP-1, IP-2, or

¹⁶ U.S. Department of Transportation, Section 49 of the Code of Federal Regulations, "Transportation," Parts 173 through 178, 2006

IP-3, as defined in subpart 173.411) for transport unless demonstrated to qualify as their own shipping containers. The reactor vessel and internal components are expected to be transported in accordance with §71, as Type B. It is conceivable that the reactor may qualify as LSA II or III. However, the high radiation levels on the outer surface would require that additional shielding be incorporated within the packaging so as to attenuate the dose to levels acceptable for transport.

Any fuel cladding failure that occurred during the lifetime of the plant is assumed to have released fission products at sufficiently low levels that the buildup of long-lived isotopes (e.g., ^{137}Cs , ^{90}Sr , or transuranics) has not reached levels exceeding those that permit the major reactor components to be shipped under current transport regulations requirements.

Transport of the highly activated metal, produced in the segmentation of the reactor vessel and internal components, is by shielded truck cask. Cask shipments may exceed 95,000 pounds, including vessel segment(s), supplementary shielding, cask tie-downs, and tractor-trailer. The maximum level of activity per shipment assumed permissible is based upon the license limits of the available shielded transport casks. The segmentation scheme for the vessel and internal segments is designed to meet these limits.



For estimating purposes, costs to transport low-level radioactive waste were developed from published tariffs from Tri-State Motor Transit¹⁷ with Energy-Solutions' facility in Clive, Utah as the destination. Memphis, Tennessee was used as the destination for off-site processing.

1.7.7 Low-Level Radioactive Waste Conditioning and Disposal

The contaminated and activated material generated in the decontamination and dismantling of a commercial nuclear reactor is classified as low-level (radioactive) waste, although not all of the material

¹⁷ Tri-State Motor Transit Company, published tariffs, Interstate Commerce Commission (ICC), Docket No. MC-427719 Rules Tariff, March 2004, Radioactive Materials Tariff, February 2006.

is suitable for “shallow-land” disposal. With the passage of the “Low-Level Radioactive Waste Policy Act” in 1980,^[18] the states became ultimately responsible for the disposition of low-level radioactive waste generated within their own borders.

The federal law encouraged the formation of regional groups or compacts to implement this objective safely, efficiently, and economically, and set a target date of 1986 for implementation. After little progress, the “Low-Level Radioactive Waste Policy Amendments Act of 1985,”^[19] extended the implementation schedule, with specific milestones and stiff sanctions for non-compliance. Subsequent court rulings have substantially diluted those sanctions and, to date, no new compact facilities have been successfully sited, licensed and constructed.

At the time this analysis was prepared, Pilgrim was able to dispose of Class A, B or C low-level radioactive waste ^[20] at the licensed commercial low-level radioactive waste disposal facility in Barnwell, South Carolina. In June 2000, South Carolina formally joined with Connecticut and New Jersey to form the Atlantic Compact. Current South Carolina legislation requires South Carolina to gradually limit disposal capacity at the Barnwell facility through mid-2008. As of June 30, 2008, access to the Barnwell Low-Level Radioactive Waste Disposal Facility is available only to generators located in states affiliated with the Atlantic Compact. However, Pilgrim is still able to dispose of Class A material at EnergySolutions’ facility in Clive, Utah.

The EnergySolutions’ disposal facility was used as the destination for the majority of the waste volume generated by decommissioning (98%). EnergySolutions does not have a license to dispose of the more highly radioactive waste (Class B and C) generated in the dismantling of the reactor. As such, the disposal costs for this material (representing approximately 1.8% of the waste volume) were based upon Barnwell disposal rates as a proxy.

Material exceeding Class C limits (limited to material closest to the reactor core and comprising approximately 0.2% of the total waste volume) is generally not suitable for shallow-land disposal. This

¹⁸ “Low-Level Radioactive Waste Policy Act of 1980,” Public Law 96-573, 1980

¹⁹ “Low-Level Radioactive Waste Policy Amendments Act of 1985,” Public Law 99-240, 1986.

²⁰ U.S. Code of Federal Regulations, Title 10, Part 61, “Licensing Requirements for Land Disposal of Radioactive Waste”

material is packaged in the same multipurpose canisters used for spent fuel storage/transport and designated for geologic disposal.^[21]

A significant portion of the waste material generated during decommissioning may only be potentially contaminated by radioactive materials. This waste can be analyzed on site or shipped off site to licensed facilities for further analysis, for processing and/or for conditioning/recovery. Reduction in the volume of low-level radioactive waste requiring disposal in a licensed low-level radioactive waste disposal facility can be accomplished through a variety of methods, including analyses and surveys or decontamination to eliminate the portion of waste that does not require disposal as radioactive waste, compaction, incineration or metal melt. The estimate reflects the savings from waste recovery/volume reduction. Costs for waste processing/reduction were also based upon existing agreements.

Disposition of the low-level radioactive waste generated from decommissioning operations (and cost basis) is summarized in Table 1.

1.7.8 Site Conditions Following Decommissioning

The NRC will terminate (or amend) the site license if it determines that site remediation has been performed in accordance with the license termination plan, and that the terminal radiation survey and associated documentation demonstrate that the facility is suitable for release. The NRC's involvement in the decommissioning process ends at this point. Building codes and state environmental regulations dictate the next step in the decommissioning process, as well as the owner's own future plans and commitments for the site.

Only existing site structures were considered in the dismantling cost. The electrical switchyard was assumed to remain after Pilgrim was decommissioned in support of the regional transmission and distribution system. The intake and discharge canals were abandoned. The large underground tunnels between the cooling water intake and turbine building and discharge structure were assumed to be isolated, backfilled, and abandoned in place. Site utility and service piping were also abandoned. Electrical manholes were backfilled with suitable earthen material. Asphalt surfaces in the immediate vicinity of site buildings

²¹ Pursuant to the Low-Level Radioactive Waste Policy Act Amendments of 1985, Congress clarified that the Federal Government remains responsible for the disposal of Greater-Than-Class C waste.

were broken up and the material used for fill, as required. The site access road remained in place.

1.8 ASSUMPTIONS

The following assumptions were made in the development of the estimate for decommissioning the Pilgrim nuclear unit.

1.8.1 Estimating Basis

Decommissioning costs are reported in the year of projected expenditure; however, the values were provided in 2007 dollars. Costs were not inflated, escalated, or discounted over the periods of performance.

The estimate relied upon the physical plant inventory that was the basis for the 2002 analysis. There were no physical changes to the station since 2002 that would measurably impact decommissioning.

The study followed the principles of ALARA through the use of work duration adjustment factors. These factors address the impact of activities such as radiological protection instruction, mock-up training, and the use of respiratory protection and protective clothing. The factors lengthen a task's duration, increasing costs and lengthening the overall schedule. ALARA planning is considered in the costs for engineering and planning, and in the development of activity specifications and detailed procedures. Changes to worker exposure limits may impact the decommissioning cost and project schedule.

1.8.2 Site Contamination

Plant personnel reviewed the records of information important to the safe decommissioning of the facility (as maintained under 10 CFR 50.75(g)). The records did not indicate any areas of significant site contamination (specifically soil, groundwater and surface water) that needed to be addressed in the financial planning for decommissioning, at this time.

1.8.3 Release Criteria

The estimate assumed that the site would be remediated to the levels specified by the Nuclear Regulatory Commission for terminating the operating license. As such, levels of radioactivity would not exceed 25 mrem/yr total effective dose equivalent (TEDE) and would be as low as

reasonably achievable (ALARA).^[22] Regulatory criteria established by the Massachusetts State Department of Public Health (10 mrem/yr) would also be met before the property would be transferred.

1.8.4 Labor Costs

Entergy was assumed to manage the decontamination and dismantling of the nuclear unit in addition to maintaining site security, radiological health and safety, quality assurance and overall site administration during the decommissioning. Entergy would provide the supervisory staff needed to oversee the labor subcontractors, consultants, and specialty contractors engaged to perform the field work associated with the decontamination and dismantling efforts.

Personnel costs were based upon average salary information made available by Entergy. Overhead costs were included for site and corporate support, reduced commensurate with the staffing levels envisioned for the project.

Severance and retention costs were not included in the estimate. Reduction in the operating organization is assumed to be handled through normal staffing processes (e.g., reassignment and outplacement).

The craft labor required to decontaminate and dismantle the nuclear unit is acquired through standard site contracting practices. The current cost of site labor is used as an estimating basis.

Security, while reduced from operating levels, was maintained throughout the decommissioning for access control, material control, and to safeguard the spent fuel.

1.8.5 Design Conditions

Activation levels in the vessel and internal components were modeled using NUREG/CR-3474.^[23] Estimates are derived from the curie/gram values contained therein and adjusted for the different mass of the Pilgrim components, projected operating life(s), and different periods of

²² Code of Federal Regulations, Title 10, Section 20.1402, "Radiological Criteria for Unrestricted Use"

²³ J.C. Evans et al., "Long-Lived Activation Products in Reactor Materials" NUREG/CR-3474, Pacific Northwest Laboratory for the Nuclear Regulatory Commission, August 1984

decay. Additional short-lived isotopes were derived from CR-0130^[24] and CR-0672,^[25] and benchmarked to the long-lived values from CR-3474.

The disposal cost for the control blades removed from the vessel with the final core load is included within the estimate. Disposition of any blades stored in the pools from operations were considered an operating expense and therefore not accounted for in the decommissioning estimate.

For purposes of the estimate, activation of the reactor building structures was assumed to be confined to the area around the sacrificial shield.

1.8.6 General

Transition Activities

Existing warehouses are assumed to be cleared of non-essential material and remain for use by Entergy and its subcontractors. The plant's operating staff performs the following activities during the transition period.

- Drain and collect fuel oils, lubricating oils, and transformer oils for recycle and/or sale.
- Drain and collect acids, caustics, and other chemical stores for recycle and/or sale.
- Process operating waste inventories. Disposal of operating wastes during this initial period is not considered a decommissioning expense.

Scrap and Salvage

The existing plant equipment is considered obsolete and suitable for scrap as deadweight quantities only. Entergy will make economically reasonable efforts to salvage equipment following final plant shutdown. However, dismantling techniques assumed by TLG for equipment in this analysis are not consistent with removal techniques required for salvage

²⁴ R.I. Smith, G.J. Konzek, W.E. Kennedy, Jr., "Technology, Safety and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station," NUREG/CR-0130 and addenda, Pacific Northwest Laboratory for the Nuclear Regulatory Commission, June 1978

²⁵ H.D. Oak, et al., "Technology, Safety and Costs of Decommissioning a Reference Boiling Water Reactor Power Station," NUREG/CR-0672 and addenda, Pacific Northwest Laboratory for the Nuclear Regulatory Commission, June 1980

(resale) of equipment. Experience has indicated that buyers prefer equipment stripped down to very specific requirements before they would consider purchase. This can require expensive rework after the equipment had been removed from its installed location. Since placing salvage value on this machinery and equipment would be speculative, and the value would be small in comparison to the overall cost of decommissioning, this analysis does not attempt to quantify the value that an owner may realize based upon those efforts, and does not include any salvage credit.

It is assumed, for purposes of this analysis, that any value received from the sale of clean scrap generated in the dismantling process would be more than offset by the on-site processing costs. The dismantling techniques assumed in the decommissioning estimates do not include the additional cost for size reduction and preparation to meet "furnace ready" conditions. With a volatile market, the potential profit margin in scrap recovery is highly speculative, regardless of the ability to free release this material. Therefore clean scrap is disposed of at no cost or credit to the project.

Furniture, tools, mobile equipment such as forklifts, trucks, bulldozers, and other property is removed at no cost or credit to the decommissioning project. Disposition may include relocation to other facilities. Spare parts are made available for alternative use.

Spent Fuel Pool Isolation

The decommissioning cost estimate for Pilgrim assumes that the reactor building will be used for the interim storage of spent fuel once plant operations cease until the fuel can be relocated to the ISFSI (a minimum of five years based upon the heat load criteria of the dry storage system). Therefore, so that the adjacent power block structures can be de-energized and configured for long-term storage, the reactor building, and in particular the spent fuel storage area, will be isolated, creating a spent fuel island. This process can involve; establishing a local control area, installing in-situ pool cooling and water cleanup systems, establishing and routing independent power and control systems, redesigning the heating and ventilation systems, reconfiguring the area monitoring systems and relocating the security boundary. Costs for these activities are based upon experience at plants that have undergone decommissioning and, in the process, isolated their spent fuel pool operations.

Energy

For estimating purposes, the plant was assumed to be de-energized, with the exception of those facilities associated with spent fuel storage (temporary power is run throughout the plant, as needed). Replacement power costs are used to calculate the cost of energy consumed during decommissioning for tooling, lighting, ventilation, and essential services.

Insurance

Costs for continuing coverage (nuclear liability and property insurance) following cessation of plant operations and during decommissioning are included and based upon current operating premiums. Reductions in premiums, throughout the decommissioning process, are consistent with the guidance and the limits for coverage defined in the NRC's proposed rulemaking "Financial Protection Requirements for Permanently Shutdown Nuclear Power Reactors."²⁶ The NRC's financial protection requirements are based on various reactor (and spent fuel) configurations.

Property Tax

Property taxes or fees in lieu of taxes were not included within the estimate.

Site Modifications

The perimeter fence and in-plant security barriers are moved, as appropriate, to conform to the site security plan in force during the various stages of the project.

²⁶ "Financial Protection Requirements for Permanently Shutdown Nuclear Power Reactors," 10 CFR Parts 50 and 140, Federal Register Notice, Vol. 62, No. 210, October 30, 1997

2. RESULTS

The proposed decommissioning scenario, major cost contributors and schedule of annual expenditures are summarized in Figure 1 and Tables 2 and 3. The summaries are based upon the 2005 detailed cost estimate provided in Appendix A (escalated to 2007 dollars). The cost elements are assigned to one of three subcategories: NRC License Termination, Spent Fuel Management, and Site Restoration. The subcategory "NRC License Termination" is used to accumulate costs that are consistent with "decommissioning" as defined by the NRC in its financial assurance regulations (i.e., 10 CFR §50.75). In situations where the long-term management of spent fuel is not an issue, the cost reported for this subcategory is generally sufficient to terminate the unit's operating license.

The "Spent Fuel Management" subcategory contains costs associated with the construction of an ISFSI, the containerization and transfer of spent fuel to the ISFSI over the first 5½ years of pool operations, and the management of the ISFSI until such time that the transfer of all fuel from this facility to an off-site location (e.g., geologic repository) is complete. It does not include any spent fuel management expenses incurred prior to the cessation of plant operations.

"Site Restoration" is used to capture costs associated with the dismantling and demolition of buildings and facilities demonstrated to be free from contamination. This includes structures never exposed to radioactive materials, as well as those facilities that have been decontaminated to appropriate levels. Structures are removed to a depth of three feet and backfilled to conform to the local grade.

It should be noted that the costs assigned to these subcategories are allocations. Delegation of costs is for the purposes of comparison (e.g., with NRC financial guidelines) or to permit specific financial treatment (e.g., ARO determinations). In reality, there can be considerable interaction between the activities in the three subcategories. For example, an owner may decide to remove non-contaminated structures early in the project to improve access to highly contaminated facilities or plant components. In these instances, the non-contaminated removal costs could be reassigned from Site Restoration to an NRC License Termination support activity. However, in general, the allocations represent a reasonable accounting of those costs that can be expected to be incurred for the specific subcomponents of the total estimated program cost, if executed as described.

For purposes of this study, GTCC is packaged in the same canisters used for spent fuel. The GTCC material is assumed to be shipped directly to a DOE facility as it is generated (since the fuel has been removed from the site prior to the start of decommissioning and the ISFSI deactivated). While designated for disposal at the

geologic repository along with the spent fuel, GTCC waste is still classified herein as low-level radioactive waste and, as such, included as a "License Termination" expense.

2.1 Escalation of the 2005 Costs to 2007 Dollars

For purposes of escalation, TLG allocates its costs for decommissioning into categories (similar to the NRC, except that the NRC's labor category is further subdivided into "labor" and "equipment and materials," and an "other" category added for miscellaneous fees, taxes and other unique or one-time expenditures).

The 2005 cash flows were escalated to year-end 2007 dollars using indices provided by Global Insight (Global Insight is a privately held company formed from the two leading economic and financial information companies, DRI (Data Resources, Inc.) and WEFA (Wharton Econometric Forecasting Associates)). The results are shown in Tables 3 through 6. The following table identifies the Global Insight forecast data sets used for the five cost categories.

Global Insight Forecast Database	Total Escalation (%) (2005 to 2007)	TLG Cost Category
ECI Total Compensation (ECIPCTNS)	6.1	Labor
Producer Price Index, Machinery & Equipment (WPIP11)	2.9	Equipment/Material
Producer Price Index, Fuels and Related Products and Power (WPIP05)	13.6	Energy
Consumer Price Index, Services (CUSASNS)	7.3	Other
Consumer Price Index, Services (CUSASNS)	7.3	Burial and Recycling

2.2 Financial Assurance

It is the current plan, based on the growth of the funds in the Pilgrim decommissioning trust, to fund the expenditures for license termination and spent fuel management from the currently existing decommissioning trust fund and from proceeds from spent fuel litigation against the DOE.

Table 7 combines the projected expenditures for license termination and spent fuel management (from Tables 4 and 5). As shown in Table 8, based on a 3%

annual inflation, the real rate of return required to fund the evaluated scenario, placing Pilgrim into safe-storage at the conclusion of its current licensed operating life in 2012 until the spent fuel could be removed from the site (estimated to be in the year 2042 based upon a 2017 startup of DOE's geologic repository) with subsequent decommissioning of the nuclear unit, is approximately 1.471%. This is less than the 2% real rate of return identified in 10 CFR 50.75. With these criteria, the scenario of funding both license termination and spent fuel management from the existing trust fund is financially viable.

Pursuant to 10 CFR 50.75(f)(4), the licensee states that it plans to review the adequacy of decommissioning funds on an annual basis throughout the decommissioning process. If costs have exceeded estimates, or if fund performance has not met the assumptions used in financial adequacy calculations, the licensee will either extend the period of SAFSTOR (not to exceed 10 CFR 50.82(a)(3) limits without Commission approval) to allow for more fund growth, or will supplement the fund (or otherwise directly pay decommissioning-related expenses) as necessary.

FIGURE 1
DECOMMISSIONING TIMELINE
(not to scale)

Shutdown: June 8, 2012

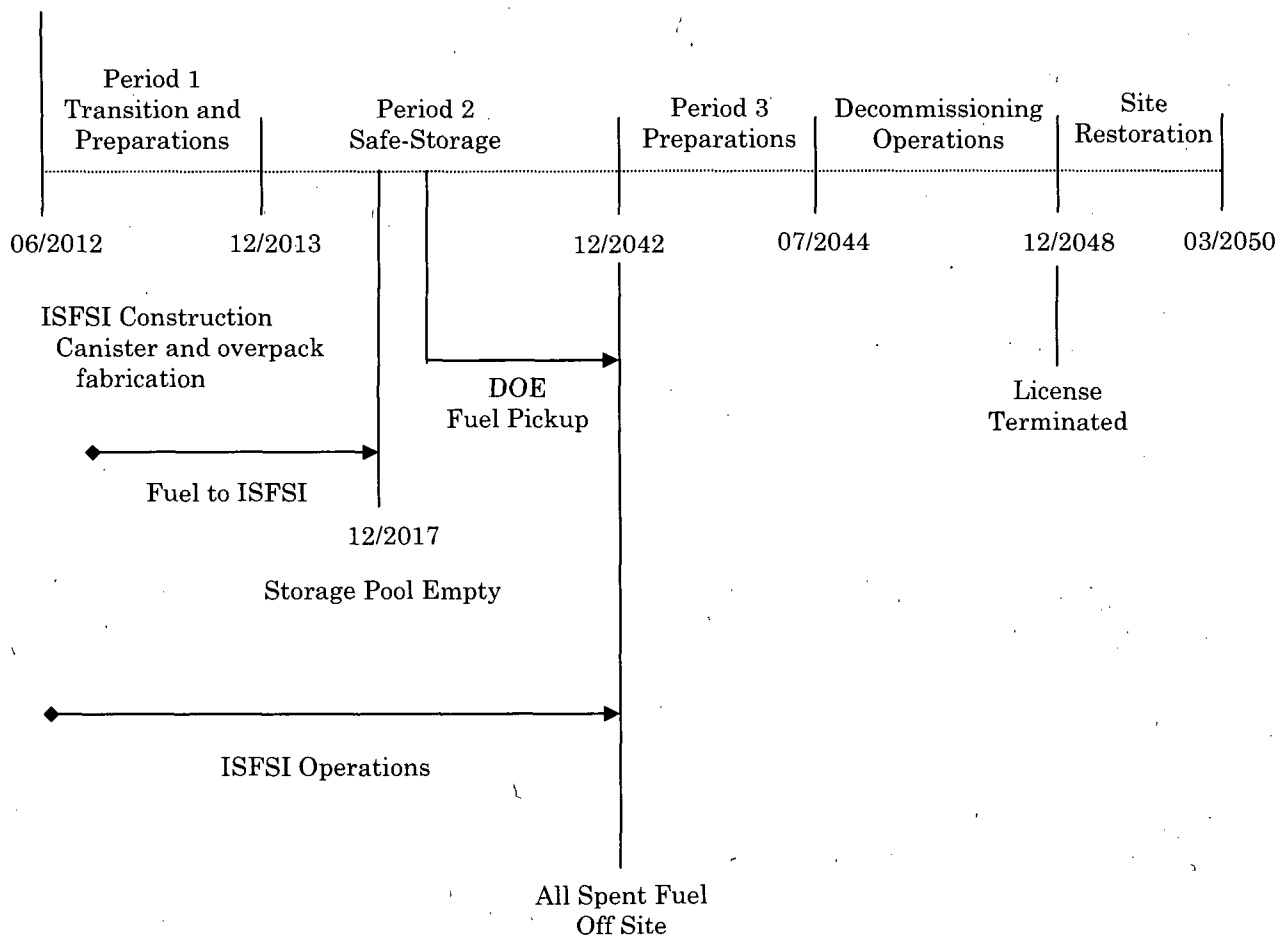


TABLE 1
Pilgrim Nuclear Power Station
Low-Level Radioactive Waste Disposition

Waste	Cost Basis	Class ^[1]	Waste Volume (cubic feet)	Mass (pounds)
Low-Level Radioactive Waste (near-surface disposal)	EnergySolutions	A	194,998	12,864,971
	Barnwell	B	3,313	402,190
	Barnwell	C	287	36,625
Greater than Class C (geologic repository)	Spent Fuel Equivalent	GTCC	480	82,000
Processed/Conditioned (off-site recycling center)	Recycling Vendors	A	408,531	17,934,830
Total ^[2]			607,609	31,320,616

^[1] Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

^[2] Columns may not add due to rounding

TABLE 2
Pilgrim Nuclear Power Station
Summary of Major Cost Contributors
(thousands, 2007 dollars)

	License Termination	Spent Fuel Management	Site Restoration	Total
Decontamination	20,831	0	0	20,831
Removal	76,730	2,783	17,969	97,482
Waste Packaging	10,069	12	0	10,081
Transportation	9,732	338	0	10,071
Waste Disposal	61,331	1,377	0	62,708
Waste Conditioning (Off-Site)	48,678	0	0	48,678
Program Management ^[1]	225,787	164,840	15,357	405,984
Property Taxes	0	0	0	0
Insurance	4,853	16,977	0	21,831
Spent Fuel Management ^[2]	0	125,401	0	125,401
Regulatory Fees	10,704	0	0	10,704
Energy	13,227	3,356	271	16,853
Other	67,858	13,615	2,322	83,796
Total	549,800	328,701	35,918	914,419

^[1] Includes security and engineering

^[2] Includes capital costs for ISFSI construction, multi-purpose storage containers, packaging and handling (transfer pool to ISFSI or DOE and ISFSI to DOE)

TABLE 3
Pilgrim Nuclear Power Station
Schedule of Annual Expenditures
Total Decommissioning Cost
(thousands, 2007 dollars)

Year	Labor	Equip & Materials	Energy	Burial	Other	Yearly Totals
2012	22,596	474	1,226	20	11,007	35,323
2013	54,427	11,881	2,058	932	18,605	87,903
2014	11,340	2,936	433	35	21,619	36,361
2015	11,340	2,936	433	35	21,619	36,361
2016	11,371	2,944	434	35	21,678	36,461
2017	10,924	2,769	408	35	20,302	34,438
2018	5,023	399	65	35	1,589	7,111
2019	5,023	399	65	35	1,589	7,111
2020	5,036	401	65	35	1,594	7,130
2021	5,023	399	65	35	1,589	7,111
2022	5,023	399	65	35	1,589	7,111
2023	5,023	399	65	35	1,589	7,111
2024	5,036	401	65	35	1,594	7,130
2025	5,023	399	65	35	1,589	7,111
2026	5,023	399	65	35	1,589	7,111
2027	5,023	399	65	35	1,589	7,111
2028	5,036	401	65	35	1,594	7,130
2029	5,023	399	65	35	1,589	7,111
2030	5,023	399	65	35	1,589	7,111
2031	5,023	399	65	35	1,589	7,111
2032	5,036	401	65	35	1,594	7,130
2033	5,023	399	65	35	1,589	7,111
2034	5,023	399	65	35	1,589	7,111
2035	5,023	399	65	35	1,589	7,111
2036	5,036	401	65	35	1,594	7,130
2037	5,023	399	65	35	1,589	7,111
2038	5,023	399	65	35	1,589	7,111
2039	5,023	399	65	35	1,589	7,111
2040	5,036	401	65	35	1,594	7,130
2041	5,023	399	65	35	1,589	7,111
2042	5,103	402	71	35	1,596	7,206
2043	34,380	1,273	2,163	35	4,062	41,913

TABLE 3 (continued)
Pilgrim Nuclear Power Station
Schedule of Annual Expenditures
Total Decommissioning Cost
(thousands, 2007 dollars)

Year	Labor	Equip & Materials	Energy	Burial	Other	Yearly Totals
2044	44,036	12,801	2,115	28,981	14,559	102,492
2045	44,818	9,903	1,734	28,859	11,723	97,036
2046	42,636	6,038	1,622	18,575	7,240	76,110
2047	42,636	6,038	1,622	18,575	7,240	76,110
2048	27,473	3,101	712	4,453	4,610	40,349
2049	18,798	7,469	216	0	2,503	28,987
2050	4,275	1,698	49	0	569	6,591
Total	506,777	82,255	16,853	101,436	207,098	914,419

TABLE 4
Pilgrim Nuclear Power Station
Schedule of Annual Expenditures
License Termination Allocation
(thousands, 2007 dollars)

Year	Labor	Equip & Materials	Energy	Burial	Other	Yearly Totals
2012	22,596	474	1,226	20	3,804	28,119
2013	53,747	11,720	2,032	932	6,747	75,178
2014	57	269	0	35	294	655
2015	57	269	0	35	294	655
2016	57	270	0	35	295	657
2017	57	269	0	35	294	655
2018	57	269	0	35	294	655
2019	57	269	0	35	294	655
2020	57	270	0	35	295	657
2021	57	269	0	35	294	655
2022	57	269	0	35	294	655
2023	57	269	0	35	294	655
2024	57	270	0	35	295	657
2025	57	269	0	35	294	655
2026	57	269	0	35	294	655
2027	57	269	0	35	294	655
2028	57	270	0	35	295	657
2029	57	269	0	35	294	655
2030	57	269	0	35	294	655
2031	57	269	0	35	294	655
2032	57	270	0	35	295	657
2033	57	269	0	35	294	655
2034	57	269	0	35	294	655
2035	57	269	0	35	294	655
2036	57	270	0	35	295	657
2037	57	269	0	35	294	655
2038	57	269	0	35	294	655
2039	57	269	0	35	294	655
2040	57	270	0	35	295	657
2041	57	269	0	35	294	655
2042	150	272	6	35	304	767
2043	33,920	1,273	2,163	35	4,062	41,452

TABLE 4 (continued)
Pilgrim Nuclear Power Station
Schedule of Annual Expenditures
License Termination Cost
(thousands, 2007 dollars)

Year	Labor	Equip & Materials	Energy	Burial	Other	Yearly Totals
2044	43,603	12,790	2,115	28,981	14,559	102,047
2045	43,929	9,694	1,734	28,517	11,639	95,513
2046	41,485	5,764	1,622	18,112	7,126	74,110
2047	41,485	5,764	1,622	18,112	7,126	74,110
2048	26,739	2,852	707	4,343	4,537	39,177
2049	144	0	0	0	654	798
2050	33	0	0	0	149	182
Total	309,433	58,139	13,227	100,058	68,942	549,800

TABLE 5
Pilgrim Nuclear Power Station
Schedule of Annual Expenditures
Spent Fuel Management Allocation
(thousands, 2007 dollars)

Year	Labor	Equip & Materials	Energy	Burial	Other	Yearly Totals
2012	0	0	0	0	7,203	7,203
2013	680	161	26	0	11,858	12,725
2014	11,283	2,667	433	0	21,325	35,706
2015	11,283	2,667	433	0	21,325	35,706
2016	11,314	2,674	434	0	21,383	35,804
2017	10,867	2,500	408	0	20,008	33,783
2018	4,965	130	65	0	1,295	6,456
2019	4,965	130	65	0	1,295	6,456
2020	4,979	131	65	0	1,299	6,474
2021	4,965	130	65	0	1,295	6,456
2022	4,965	130	65	0	1,295	6,456
2023	4,965	130	65	0	1,295	6,456
2024	4,979	131	65	0	1,299	6,474
2025	4,965	130	65	0	1,295	6,456
2026	4,965	130	65	0	1,295	6,456
2027	4,965	130	65	0	1,295	6,456
2028	4,979	131	65	0	1,299	6,474
2029	4,965	130	65	0	1,295	6,456
2030	4,965	130	65	0	1,295	6,456
2031	4,965	130	65	0	1,295	6,456
2032	4,979	131	65	0	1,299	6,474
2033	4,965	130	65	0	1,295	6,456
2034	4,965	130	65	0	1,295	6,456
2035	4,965	130	65	0	1,295	6,456
2036	4,979	131	65	0	1,299	6,474
2037	4,965	130	65	0	1,295	6,456
2038	4,965	130	65	0	1,295	6,456
2039	4,965	130	65	0	1,295	6,456
2040	4,979	131	65	0	1,299	6,474
2041	4,965	130	65	0	1,295	6,456
2042	4,952	130	65	0	1,292	6,438
2043	0	0	0	0	0	0

TABLE 5 (continued)
Pilgrim Nuclear Power Station
Schedule of Annual Expenditures
Spent Fuel Management Allocation
(thousands, 2007 dollars).

Year	Labor	Equip & Materials	Energy	Burial	Other	Yearly Totals
2044	0	0	0	0	0	0
2045	618	201	0	342	84	1,246
2046	836	272	0	462	114	1,684
2047	836	272	0	462	114	1,684
2048	204	85	0	110	27	426
2049	182	831	0	0	0	1,013
2050	41	189	0	0	0	230
Total	172,346	15,782	3,356	1,377	135,841	328,701

TABLE 6
Pilgrim Nuclear Power Station
Schedule of Annual Expenditures
Site Restoration Allocation
(thousands, 2007 dollars)

Year	Labor	Equip & Materials	Energy	Burial	Other	Yearly Totals
2012	0	0	0	0	0	0
2013	0	0	0	0	0	0
2014	0	0	0	0	0	0
2015	0	0	0	0	0	0
2016	0	0	0	0	0	0
2017	0	0	0	0	0	0
2018	0	0	0	0	0	0
2019	0	0	0	0	0	0
2020	0	0	0	0	0	0
2021	0	0	0	0	0	0
2022	0	0	0	0	0	0
2023	0	0	0	0	0	0
2024	0	0	0	0	0	0
2025	0	0	0	0	0	0
2026	0	0	0	0	0	0
2027	0	0	0	0	0	0
2028	0	0	0	0	0	0
2029	0	0	0	0	0	0
2030	0	0	0	0	0	0
2031	0	0	0	0	0	0
2032	0	0	0	0	0	0
2033	0	0	0	0	0	0
2034	0	0	0	0	0	0
2035	0	0	0	0	0	0
2036	0	0	0	0	0	0
2037	0	0	0	0	0	0
2038	0	0	0	0	0	0
2039	0	0	0	0	0	0
2040	0	0	0	0	0	0
2041	0	0	0	0	0	0
2042	1	0	0	0	0	1
2043	460	0	0	0	0	460

TABLE 6 (continued)
Pilgrim Nuclear Power Station
Schedule of Annual Expenditures
Site Restoration Allocation
(thousands, 2007 dollars)

Year	Labor	Equip & Materials	Energy	Burial	Other	Yearly Totals
2044	433	12	0	0	0	445
2045	271	7	0	0	0	278
2046	315	2	0	0	0	317
2047	315	2	0	0	0	317
2048	531	164	5	0	46	746
2049	18,472	6,638	216	0	1,849	27,175
2050	4,200	1,509	49	0	421	6,180
Total	24,998	8,334	271	0	2,315	35,918

TABLE 7
Pilgrim Nuclear Power Station
Schedule of Annual Expenditures
License Termination and Spent Fuel Management Allocations
(from Tables 4 and 5)
(thousands, 2007 dollars)

Year	Labor	Equip & Materials	Energy	Burial	Other	Yearly Totals
2012	22,596	474	1,226	20	11,007	35,323
2013	54,427	11,881	2,058	932	18,605	87,903
2014	11,340	2,936	433	35	21,619	36,361
2015	11,340	2,936	433	35	21,619	36,361
2016	11,371	2,944	434	35	21,678	36,461
2017	10,924	2,769	408	35	20,302	34,438
2018	5,023	399	65	35	1,589	7,111
2019	5,023	399	65	35	1,589	7,111
2020	5,036	401	65	35	1,594	7,130
2021	5,023	399	65	35	1,589	7,111
2022	5,023	399	65	35	1,589	7,111
2023	5,023	399	65	35	1,589	7,111
2024	5,036	401	65	35	1,594	7,130
2025	5,023	399	65	35	1,589	7,111
2026	5,023	399	65	35	1,589	7,111
2027	5,023	399	65	35	1,589	7,111
2028	5,036	401	65	35	1,594	7,130
2029	5,023	399	65	35	1,589	7,111
2030	5,023	399	65	35	1,589	7,111
2031	5,023	399	65	35	1,589	7,111
2032	5,036	401	65	35	1,594	7,130
2033	5,023	399	65	35	1,589	7,111
2034	5,023	399	65	35	1,589	7,111
2035	5,023	399	65	35	1,589	7,111
2036	5,036	401	65	35	1,594	7,130
2037	5,023	399	65	35	1,589	7,111
2038	5,023	399	65	35	1,589	7,111
2039	5,023	399	65	35	1,589	7,111
2040	5,036	401	65	35	1,594	7,130
2041	5,023	399	65	35	1,589	7,111
2042	5,102	402	71	35	1,596	7,205
2043	33,920	1,273	2,163	35	4,062	41,452

TABLE 7 (continued)
Pilgrim Nuclear Power Station
Schedule of Annual Expenditures
License Termination and Spent Fuel Management Allocations
(from Tables 4 and 5)
(thousands, 2007 dollars)

Year	Labor	Equip & Materials	Energy	Burial	Other	Yearly Totals
2044	43,603	12,790	2,115	28,981	14,559	102,047
2045	44,547	9,895	1,734	28,859	11,723	96,758
2046	42,321	6,036	1,622	18,575	7,240	75,794
2047	42,321	6,036	1,622	18,575	7,240	75,794
2048	26,943	2,937	707	4,453	4,564	39,604
2049	327	831	0	0	654	1,812
2050	174	189	0	0	149	412
Total	481,779	73,921	16,583	101,436	204,783	878,501

TABLE 8
Pilgrim Nuclear Power Station
Funding Requirements to Equal Expected Expenditures
(millions, dollars)

Basis Year	2007			
Fund Balance	\$621.74	(millions)		
Annual Escalation	3.00%			
Annual Earnings	4.471%			
		License Termination and Spent Fuel Costs		
Year	Projected Fund Balance (2007 \$'s)	(2007 \$'s)	(Nominal \$)	(2007 Present Value \$)
2007	621.74	-	-	-
2008	649.54	-	-	-
2009	678.58	-	-	-
2010	708.92	-	-	-
2011	740.62	-	-	-
2012	732.79	35.32	40.95	32.91
2013	660.59	87.90	104.96	80.73
2014	645.41	36.36	44.72	32.92
2015	628.21	36.36	46.06	32.46
2016	608.72	36.46	47.57	32.09
2017	589.66	34.44	46.28	29.88
2018	606.18	7.11	9.84	6.08
2019	623.15	7.11	10.14	6.00
2020	640.54	7.13	10.47	5.93
2021	658.42	7.11	10.76	5.83
2022	676.78	7.11	11.08	5.75
2023	695.63	7.11	11.41	5.67
2024	714.95	7.13	11.79	5.60
2025	734.81	7.11	12.11	5.51
2026	755.20	7.11	12.47	5.43
2027	776.12	7.11	12.84	5.36
2028	797.56	7.13	13.26	5.29
2029	819.60	7.11	13.63	5.21
2030	842.21	7.11	14.03	5.13
2031	865.41	7.11	14.46	5.06
2032	889.18	7.13	14.93	5.00
2033	913.60	7.11	15.34	4.92
2034	938.65	7.11	15.80	4.85
2035	964.35	7.11	16.27	4.78
2036	990.67	7.13	16.80	4.73

TABLE 8 (continued)
Pilgrim Nuclear Power Station
Funding Requirements to Equal Expected Expenditures
(millions, dollars)

Basis Year	2007			
Fund Balance	\$621.74	(millions)		
Annual Escalation	3.00%			
Annual Earnings	4.471%			
		License Termination and Spent Fuel Costs		
Year	Projected Fund Balance (2007 \$'s)	(2007 \$'s)	(Nominal \$)	(2007 Present Value \$)
2037	1,017.70	7.11	17.26	4.65
2038	1,045.43	7.11	17.78	4.58
2039	1,073.86	7.11	18.31	4.52
2040	1,102.96	7.13	18.91	4.47
2041	1,132.85	7.11	19.43	4.39
2042	1,163.23	7.21	20.27	4.39
2043	1,095.10	41.45	120.14	24.88
2044	839.44	102.05	304.63	60.38
2045	579.46	96.76	297.51	56.45
2046	365.33	75.79	240.04	43.59
2047	134.42	75.79	247.24	42.98
2048	7.36	39.60	133.07	22.14
2049	1.42	1.81	6.27	1.00
2050	0.02	0.41	1.47	0.22
		878.50		621.74

**APPENDIX A
2005 DETAILED COST ANALYSIS**

Table A
Pilgrim Nuclear Power Station
SAFSTOR Decommissioning Cost Estimate
(thousands of 2005 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	SAFSTOR site characterization survey	-	-	-	-	-	-	374	112	487	487	-	-	-	-	-	-	-	-	-	-
1a.1.2	Prepare preliminary decommissioning cost	-	-	-	-	-	-	124	19	142	142	-	-	-	-	-	-	-	-	-	1,235
1a.1.3	Notification of Cessation of Operations	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.4	Remove fuel & source material	-	-	-	-	-	-	-	-	n/a	-	-	-	-	-	-	-	-	-	-	-
1a.1.5	Notification of Permanent Defueling	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.6	Deactivate plant systems & process waste	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.7	Prepare and submit PSDAR	-	-	-	-	-	-	190	29	219	219	-	-	-	-	-	-	-	-	-	1,900
1a.1.8	Review plant dwgs & specs.	-	-	-	-	-	-	124	19	142	142	-	-	-	-	-	-	-	-	-	1,235
1a.1.9	Perform detailed rad survey	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.10	Estimate by-product inventory	-	-	-	-	-	-	95	14	109	109	-	-	-	-	-	-	-	-	-	950
1a.1.11	End product description	-	-	-	-	-	-	95	14	109	109	-	-	-	-	-	-	-	-	-	950
1a.1.12	Detailed by-product inventory	-	-	-	-	-	-	143	21	164	164	-	-	-	-	-	-	-	-	-	1,425
1a.1.13	Define major work sequence	-	-	-	-	-	-	95	14	109	109	-	-	-	-	-	-	-	-	-	950
1a.1.14	Perform SER and EA	-	-	-	-	-	-	295	44	339	339	-	-	-	-	-	-	-	-	-	2,945
1a.1.15	Perform Site-Specific Cost Study	-	-	-	-	-	-	475	71	546	546	-	-	-	-	-	-	-	-	-	4,750
Activity Specifications																					
1a.1.16.1	Prepare plant and facilities for SAFSTOR	-	-	-	-	-	-	467	70	538	538	-	-	-	-	-	-	-	-	-	4,674
1a.1.16.2	Plant systems	-	-	-	-	-	-	396	59	455	455	-	-	-	-	-	-	-	-	-	3,958
1a.1.16.3	Plant structures and buildings	-	-	-	-	-	-	296	44	341	341	-	-	-	-	-	-	-	-	-	2,964
1a.1.16.4	Waste management	-	-	-	-	-	-	190	29	219	219	-	-	-	-	-	-	-	-	-	1,900
1a.1.16.5	Facility and site dormancy	-	-	-	-	-	-	190	29	219	219	-	-	-	-	-	-	-	-	-	1,900
1a.1.16	Total	-	-	-	-	-	-	1,540	231	1,771	1,771	-	-	-	-	-	-	-	-	-	15,396
Detailed Work Procedures																					
1a.1.17.1	Plant systems	-	-	-	-	-	-	112	17	129	129	-	-	-	-	-	-	-	-	-	1,124
1a.1.17.2	Facility closeout & dormancy	-	-	-	-	-	-	114	17	131	131	-	-	-	-	-	-	-	-	-	1,140
1a.1.17	Total	-	-	-	-	-	-	226	34	260	260	-	-	-	-	-	-	-	-	-	2,264
1a.1.18	Procure vacuum drying system	-	-	-	-	-	-	10	1	11	11	-	-	-	-	-	-	-	-	-	95
1a.1.19	Drain/de-energize non-cont. systems	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.20	Drain & dry NSSS	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.21	Drain/de-energize contaminated systems	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.22	Decon/secure contaminated systems	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	3,784	624	4,408	4,408	-	-	-	-	-	-	-	-	-	34,095
Period 1a Collateral Costs																					
1a.3.1	ISFSI Capital Expenditures	-	-	-	-	-	-	7,217	1,083	8,299	-	8,299	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	-	-	-	-	-	7,217	1,083	8,299	-	8,299	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	869	87	956	956	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	257	-	-	-	-	-	64	321	321	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	336	-	-	-	-	-	50	386	386	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	-	6	5	26	-	8	45	45	-	-	-	404	-	-	-	8,103	99	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	1,655	248	1,904	1,904	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	265	27	292	292	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	2,089	209	2,297	-	2,297	-	-	-	-	-	-	-	-	-
1a.4.9	Site O&M	-	-	-	-	-	-	2,847	427	3,275	3,275	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	978	147	1,125	-	1,125	-	-	-	-	-	-	-	-	-
1a.4.11	ISFSI Operating Costs	-	-	-	-	-	-	103	15	118	-	118	-	-	-	-	-	-	-	-	-
1a.4.12	Corporate Overhead	-	-	-	-	-	-	1,499	225	1,724	1,724	-	-	-	-	-	-	-	-	-	-

Table A
Pilgrim Nuclear Power Station
SAFSTOR Decommissioning Cost Estimate
(thousands of 2005 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 1a Period-Dependent Costs (continued)																					
1a.4.13	Security Staff Cost	-	-	-	-	-	-	5,621	843	6,464	6,464	-	-	-	-	-	-	-	-	-	156,429
1a.4.14	Utility Staff Cost	-	-	-	-	-	-	23,276	3,491	26,767	26,767	-	-	-	-	-	-	-	-	-	435,914
1a.4	Subtotal Period 1a Period-Dependent Costs	-	593	6	5	-	26	39,202	5,842	45,674	42,134	3,540	-	-	404	-	-	-	8,103	99	592,343
1a.0	TOTAL PERIOD 1a COST	-	593	6	5	-	26	50,203	7,548	58,382	46,542	11,840	-	-	404	-	-	-	8,103	99	626,438
PERIOD 1b - SAFSTOR Limited DECON Activities																					
Period 1b Direct Decommissioning Activities																					
Decontamination of Site Buildings																					
1b.1.1.1	Reactor	4,057	-	-	-	-	-	-	2,029	6,086	6,086	-	-	-	-	-	-	-	-	80,991	-
1b.1.1.2	AOG Rentention	44	-	-	-	-	-	-	22	66	66	-	-	-	-	-	-	-	-	945	-
1b.1.1.3	Condenser Retube	57	-	-	-	-	-	-	28	85	85	-	-	-	-	-	-	-	-	1,236	-
1b.1.1.4	Main Stack & Filter	12	-	-	-	-	-	-	6	18	18	-	-	-	-	-	-	-	-	268	-
1b.1.1.5	Radwaste	168	-	-	-	-	-	-	84	253	253	-	-	-	-	-	-	-	-	3,655	-
1b.1.1.6	Turbine	428	-	-	-	-	-	-	214	642	642	-	-	-	-	-	-	-	-	9,310	-
1b.1.1.7	Spent Fuel Pool Area	226	-	-	-	-	-	-	113	339	339	-	-	-	-	-	-	-	-	4,471	-
1b.1.1	Totals	4,993	-	-	-	-	-	-	2,496	7,489	7,489	-	-	-	-	-	-	-	-	100,875	-
1b.1	Subtotal Period 1b Activity Costs	4,993	-	-	-	-	-	-	2,496	7,489	7,489	-	-	-	-	-	-	-	-	100,875	-
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	731	-	-	-	-	-	-	110	841	841	-	-	-	-	-	-	-	-	-	-
1b.3.2	Process liquid waste	98	-	37	36	-	248	-	120	539	539	-	-	-	-	675	-	-	85,100	133	-
1b.3.3	Small tool allowance	-	86	-	-	-	-	-	13	99	99	-	-	-	-	-	-	-	-	-	-
1b.3.4	ISFSI Capital Expenditures	-	-	-	-	-	-	1,269	190	1,460	-	1,460	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	830	86	37	36	-	248	1,269	433	2,939	1,479	1,460	-	-	-	675	-	-	85,100	133	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	865	-	-	-	-	-	-	216	1,081	1,081	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	219	22	241	241	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	421	-	-	-	-	-	105	526	526	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	85	-	-	-	-	-	13	97	97	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	8	7	-	33	-	10	57	57	-	-	-	514	-	-	-	10,292	126	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	417	63	480	480	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	67	7	74	74	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	526	53	579	-	579	-	-	-	-	-	-	-	-	-
1b.4.10	Site O&M	-	-	-	-	-	-	718	108	825	825	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	246	37	283	-	283	-	-	-	-	-	-	-	-	-
1b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	26	4	30	-	30	-	-	-	-	-	-	-	-	-
1b.4.13	Corporate Overhead	-	-	-	-	-	-	378	57	434	434	-	-	-	-	-	-	-	-	-	-
1b.4.14	Security Staff Cost	-	-	-	-	-	-	1,417	213	1,629	1,629	-	-	-	-	-	-	-	-	-	39,429
1b.4.15	Utility Staff Cost	-	-	-	-	-	-	5,867	880	6,747	6,747	-	-	-	-	-	-	-	-	-	109,874
1b.4	Subtotal Period 1b Period-Dependent Costs	865	505	8	7	-	33	9,881	1,786	13,084	12,192	892	-	-	514	-	-	-	10,292	126	149,303
1b.0	TOTAL PERIOD 1b COST	6,688	591	45	42	-	281	11,151	4,715	23,512	21,160	2,352	-	-	514	675	-	-	95,392	101,134	149,303
PERIOD 1c - Preparations for SAFSTOR Dormancy																					
Period 1c Direct Decommissioning Activities																					
1c.1.1	Prepare support equipment for storage	-	404	-	-	-	-	-	61	465	465	-	-	-	-	-	-	-	-	3,000	-
1c.1.2	Install containment pressure equal. lines	-	35	-	-	-	-	-	5	41	41	-	-	-	-	-	-	-	-	700	-
1c.1.3	Interim survey prior to dormancy	-	-	-	-	-	-	733	220	953	953	-	-	-	-	-	-	-	-	14,369	-

Table A
Pilgrim Nuclear Power Station
SAFSTOR Decommissioning Cost Estimate
(thousands of 2005 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
1c.1.4	Secure building accesses	-	-	-	-	-	-	55	8	a 64	64	-	-	-	-	-	-	-	-	-	554
1c.1.5	Prepare & submit interim report	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1c.1	Subtotal Period 1c Activity Costs	-	439	-	-	-	-	788	294	1,522	1,522	-	-	-	-	-	-	-	-	18,069	554
Period 1c Additional Costs																					
1c.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	8,609	1,291	9,900	9,900	-	-	-	-	-	-	-	-	-	-
1c.2.2	Site Characterization Survey	-	-	-	-	-	-	1,801	540	2,341	2,341	-	-	-	-	-	-	-	-	-	-
1c.2.3	Asbestos Remediation	-	3,050	39	276	-	122	-	838	4,325	4,325	-	-	-	27,995	-	-	-	42,600	49,870	-
1c.2	Subtotal Period 1c Additional Costs	-	3,050	39	276	-	122	10,410	2,670	16,567	16,567	-	-	-	27,995	-	-	-	42,600	49,870	-
Period 1c Collateral Costs																					
1c.3.1	Process liquid waste	108	-	41	40	-	273	-	132	593	593	-	-	-	-	743	-	-	93,678	146	-
1c.3.2	Small tool allowance	-	42	-	-	-	-	-	6	49	49	-	-	-	-	-	-	-	-	-	-
1c.3.3	ISFSI Capital Expenditures	-	-	-	-	-	-	1,283	192	1,476	-	1,476	-	-	-	-	-	-	-	-	-
1c.3	Subtotal Period 1c Collateral Costs	108	42	41	40	-	273	1,283	331	2,117	641	1,476	-	-	-	743	-	-	93,678	146	-
Period 1c Period-Dependent Costs																					
1c.4.1	Insurance	-	-	-	-	-	-	221	22	244	244	-	-	-	-	-	-	-	-	-	-
1c.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1c.4.3	Health physics supplies	-	305	-	-	-	-	-	76	382	382	-	-	-	-	-	-	-	-	-	-
1c.4.4	Heavy equipment rental	-	86	-	-	-	-	-	13	98	98	-	-	-	-	-	-	-	-	-	-
1c.4.5	Disposal of DAW generated	-	-	2	1	-	7	-	2	11	11	-	-	-	103	-	-	-	2,065	25	-
1c.4.6	Plant energy budget	-	-	-	-	-	-	422	63	485	485	-	-	-	-	-	-	-	-	-	-
1c.4.7	NRC Fees	-	-	-	-	-	-	68	7	74	74	-	-	-	-	-	-	-	-	-	-
1c.4.8	Emergency Planning Fees	-	-	-	-	-	-	532	53	585	-	585	-	-	-	-	-	-	-	-	-
1c.4.9	Site O&M	-	-	-	-	-	-	715	107	822	822	-	-	-	-	-	-	-	-	-	-
1c.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	249	37	287	-	287	-	-	-	-	-	-	-	-	-
1c.4.11	ISFSI Operating Costs	-	-	-	-	-	-	26	4	30	-	30	-	-	-	-	-	-	-	-	-
1c.4.12	Corporate Overhead	-	-	-	-	-	-	382	57	439	439	-	-	-	-	-	-	-	-	-	-
1c.4.13	Security Staff Cost	-	-	-	-	-	-	1,432	215	1,647	1,647	-	-	-	-	-	-	-	-	-	39,857
1c.4.14	Utility Staff Cost	-	-	-	-	-	-	5,827	874	6,701	6,701	-	-	-	-	-	-	-	-	-	109,474
1c.4	Subtotal Period 1c Period-Dependent Costs	-	391	2	1	-	7	9,875	1,531	11,807	10,904	902	-	-	103	-	-	-	2,065	25	149,331
1c.0	TOTAL PERIOD 1c COST	108	3,922	82	316	-	401	22,356	4,826	32,012	29,634	2,378	-	-	28,098	743	-	-	138,342	68,110	149,886
PERIOD 1 TOTALS		6,795	5,107	133	364	-	708	83,710	17,089	113,906	97,337	16,570	-	-	29,016	1,418	-	-	241,837	169,344	925,627
PERIOD 2a - SAFSTOR Dormancy with Wet Spent Fuel Storage																					
Period 2a Direct Decommissioning Activities																					
2a.1.1	Quarterly Inspection	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
2a.1.2	Semi-annual environmental survey	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
2a.1.3	Prepare reports	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
2a.1.4	Bituminous roof replacement	-	-	-	-	-	-	284	43	326	326	-	-	-	-	-	-	-	-	-	-
2a.1.5	Maintenance supplies	-	-	-	-	-	-	502	126	628	628	-	-	-	-	-	-	-	-	-	-
2a.1	Subtotal Period 2a Activity Costs	-	-	-	-	-	-	786	168	954	954	-	-	-	-	-	-	-	-	-	-
Period 2a Collateral Costs																					
2a.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	12,008	1,801	13,810	-	13,810	-	-	-	-	-	-	-	-	-
2a.3.2	ISFSI Capital Expenditures	-	-	-	-	-	-	53,042	7,956	60,999	-	60,999	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	-	-	-	-	-	-	65,051	9,758	74,808	-	74,808	-	-	-	-	-	-	-	-	-
Period 2a Period-Dependent Costs																					
2a.4.1	Insurance	-	-	-	-	-	-	2,010	201	2,212	-	2,212	-	-	-	-	-	-	-	-	-
2a.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.4.3	Health physics supplies	-	257	-	-	-	-	-	64	321	321	-	-	-	-	-	-	-	-	-	-

Table A
Pilgrim Nuclear Power Station
SAFSTOR Decommissioning Cost Estimate
(thousands of 2005 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 2a Period-Dependent Costs (continued)																					
2a.4.4	Disposal of DAW generated	-	-	25	20	-	103	-	31	180	180	-	-	-	1,616	-	-	-	32,390	397	-
2a.4.5	Plant energy budget	-	-	-	-	-	-	1,323	198	1,522	-	1,522	-	-	-	-	-	-	-	-	-
2a.4.6	NRC Fees	-	-	-	-	-	-	936	94	1,029	1,029	-	-	-	-	-	-	-	-	-	-
2a.4.7	Emergency Planning Fees	-	-	-	-	-	-	8,349	835	9,183	-	9,183	-	-	-	-	-	-	-	-	-
2a.4.8	Site O&M	-	-	-	-	-	-	1,223	183	1,406	-	1,406	-	-	-	-	-	-	-	-	-
2a.4.9	Spent Fuel Pool O&M	-	-	-	-	-	-	3,909	586	4,495	-	4,495	-	-	-	-	-	-	-	-	-
2a.4.10	ISFSI Operating Costs	-	-	-	-	-	-	411	62	473	-	473	-	-	-	-	-	-	-	-	-
2a.4.11	Corporate Overhead	-	-	-	-	-	-	599	90	689	-	689	-	-	-	-	-	-	-	-	-
2a.4.12	Security Staff Cost	-	-	-	-	-	-	14,979	2,247	17,226	-	17,226	-	-	-	-	-	-	-	-	416,857
2a.4.13	Utility Staff Cost	-	-	-	-	-	-	18,971	2,846	21,817	-	21,817	-	-	-	-	-	-	-	-	350,160
2a.4	Subtotal Period 2a Period-Dependent Costs	-	257	25	20	-	103	52,711	7,438	60,554	1,530	59,023	-	-	1,616	-	-	-	32,390	397	767,017
2a.0	TOTAL PERIOD 2a COST	-	257	25	20	-	103	118,548	17,363	136,316	2,485	133,832	-	-	1,616	-	-	-	32,390	397	767,017
PERIOD 2b - SAFSTOR Dormancy with Dry Spent Fuel Storage																					
Period 2b Direct Decommissioning Activities																					
2b.1.1	Quarterly Inspection	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
2b.1.2	Semi-annual environmental survey	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
2b.1.3	Prepare reports	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
2b.1.4	Bituminous roof replacement	-	-	-	-	-	-	1,780	267	2,047	2,047	-	-	-	-	-	-	-	-	-	-
2b.1.5	Maintenance supplies	-	-	-	-	-	-	3,152	788	3,941	3,941	-	-	-	-	-	-	-	-	-	-
2b.1	Subtotal Period 2b Activity Costs	-	-	-	-	-	-	4,932	1,055	5,988	5,988	-	-	-	-	-	-	-	-	-	-
Period 2b Collateral Costs																					
2b.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,686	553	4,239	-	4,239	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	-	-	-	-	-	-	3,686	553	4,239	-	4,239	-	-	-	-	-	-	-	-	-
Period 2b Period-Dependent Costs																					
2b.4.1	Insurance	-	-	-	-	-	-	12,376	1,238	13,614	-	13,614	-	-	-	-	-	-	-	-	-
2b.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2b.4.3	Health physics supplies	-	1,612	-	-	-	-	-	403	2,015	2,015	-	-	-	-	-	-	-	-	-	-
2b.4.4	Disposal of DAW generated	-	-	155	129	-	649	-	197	1,130	1,130	-	-	-	10,141	-	-	-	203,219	2,490	-
2b.4.5	Plant energy budget	-	-	-	-	-	-	1,245	187	1,432	-	1,432	-	-	-	-	-	-	-	-	-
2b.4.6	NRC Fees	-	-	-	-	-	-	5,870	587	6,457	6,457	-	-	-	-	-	-	-	-	-	-
2b.4.7	Emergency Planning Fees	-	-	-	-	-	-	4,323	432	4,756	-	4,756	-	-	-	-	-	-	-	-	-
2b.4.8	Site O&M	-	-	-	-	-	-	4,018	603	4,621	-	4,621	-	-	-	-	-	-	-	-	-
2b.4.9	ISFSI Operating Costs	-	-	-	-	-	-	2,581	387	2,969	-	2,969	-	-	-	-	-	-	-	-	-
2b.4.10	Corporate Overhead	-	-	-	-	-	-	3,759	564	4,323	-	4,323	-	-	-	-	-	-	-	-	-
2b.4.11	Security Staff Cost	-	-	-	-	-	-	37,593	5,639	43,232	-	43,232	-	-	-	-	-	-	-	-	1,046,171
2b.4.12	Utility Staff Cost	-	-	-	-	-	-	63,520	9,528	73,048	-	73,048	-	-	-	-	-	-	-	-	1,150,789
2b.4	Subtotal Period 2b Period-Dependent Costs	-	1,612	155	129	-	649	135,286	19,765	157,596	9,601	147,994	-	-	10,141	-	-	-	203,219	2,490	2,196,960
2b.0	TOTAL PERIOD 2b COST	-	1,612	155	129	-	649	143,905	21,373	167,823	15,589	152,234	-	-	10,141	-	-	-	203,219	2,490	2,196,960
PERIOD 2 TOTALS																					
		-	1,869	180	149	-	752	262,453	38,736	304,139	18,074	286,065	-	-	11,757	-	-	-	235,609	2,887	2,963,977
PERIOD 3a - Reactivate Site Following SAFSTOR Dormancy																					
Period 3a Direct Decommissioning Activities																					
3a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	124	19	142	142	-	-	-	-	-	-	-	-	-	1,235
3a.1.2	Review plant dwgs & specs.	-	-	-	-	-	-	437	66	503	503	-	-	-	-	-	-	-	-	-	4,370
3a.1.3	Perform detailed rad survey	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
3a.1.4	End product description	-	-	-	-	-	-	95	14	109	109	-	-	-	-	-	-	-	-	-	950
3a.1.5	Detailed by-product inventory	-	-	-	-	-	-	124	19	142	142	-	-	-	-	-	-	-	-	-	1,235
3a.1.6	Define major work sequence	-	-	-	-	-	-	713	107	820	820	-	-	-	-	-	-	-	-	-	-7,125

Table A
Pilgrim Nuclear Power Station
SAFSTOR Decommissioning Cost Estimate
(thousands of 2005 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
3a.1.7	Perform SER and EA	-	-	-	-	-	-	295	44	339	339	-	-	-	-	-	-	-	-	-	2,945
3a.1.8	Perform Site-Specific Cost Study	-	-	-	-	-	-	475	71	546	546	-	-	-	-	-	-	-	-	-	4,750
3a.1.9	Prepare/submit License Termination Plan	-	-	-	-	-	-	389	58	448	448	-	-	-	-	-	-	-	-	-	3,891
3a.1.10	Receive NRC approval of termination plan	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
Activity Specifications																					
3a.1.11.1	Re-activate plant & temporary facilities	-	-	-	-	-	-	700	105	805	725	-	81	-	-	-	-	-	-	-	7,002
3a.1.11.2	Plant systems	-	-	-	-	-	-	396	59	455	410	-	46	-	-	-	-	-	-	-	3,958
3a.1.11.3	Reactor internals	-	-	-	-	-	-	675	101	776	776	-	-	-	-	-	-	-	-	-	6,745
3a.1.11.4	Reactor vessel	-	-	-	-	-	-	618	93	710	710	-	-	-	-	-	-	-	-	-	6,175
3a.1.11.5	Sacrificial shield	-	-	-	-	-	-	48	7	55	55	-	-	-	-	-	-	-	-	-	475
3a.1.11.6	Moisture separators/reheaters	-	-	-	-	-	-	95	14	109	109	-	-	-	-	-	-	-	-	-	950
3a.1.11.7	Reinforced concrete	-	-	-	-	-	-	152	23	175	87	-	87	-	-	-	-	-	-	-	1,520
3a.1.11.8	Main Turbine	-	-	-	-	-	-	198	30	228	228	-	-	-	-	-	-	-	-	-	1,984
3a.1.11.9	Main Condensers	-	-	-	-	-	-	198	30	228	228	-	-	-	-	-	-	-	-	-	1,984
3a.1.11.10	Pressure suppression structure	-	-	-	-	-	-	190	29	219	219	-	-	-	-	-	-	-	-	-	1,900
3a.1.11.11	Drywell	-	-	-	-	-	-	152	23	175	175	-	-	-	-	-	-	-	-	-	1,520
3a.1.11.12	Plant structures & buildings	-	-	-	-	-	-	296	44	341	170	-	170	-	-	-	-	-	-	-	2,964
3a.1.11.13	Waste management	-	-	-	-	-	-	437	66	503	503	-	-	-	-	-	-	-	-	-	4,370
3a.1.11.14	Facility & site closeout	-	-	-	-	-	-	86	13	98	49	-	49	-	-	-	-	-	-	-	855
3a.1.11	Total	-	-	-	-	-	-	4,241	636	4,877	4,444	-	433	-	-	-	-	-	-	-	42,401
Planning & Site Preparations																					
3a.1.12	Prepare dismantling sequence	-	-	-	-	-	-	228	34	262	262	-	-	-	-	-	-	-	-	-	2,280
3a.1.13	Plant prep. & temp. svces	-	-	-	-	-	-	2,419	363	2,782	2,782	-	-	-	-	-	-	-	-	-	-
3a.1.14	Design water clean-up system	-	-	-	-	-	-	133	20	153	153	-	-	-	-	-	-	-	-	-	1,330
3a.1.15	Rigging/Cont. Cntrl Envirps/cooling/etc.	-	-	-	-	-	-	2,048	307	2,355	2,355	-	-	-	-	-	-	-	-	-	-
3a.1.16	Procure casks/liners & containers	-	-	-	-	-	-	117	18	134	134	-	-	-	-	-	-	-	-	-	1,169
3a.1	Subtotal Period 3a Activity Costs	-	-	-	-	-	-	11,836	1,775	13,612	13,179	-	433	-	-	-	-	-	-	-	73,681
Period 3a Period-Dependent Costs																					
3a.4.1	Insurance	-	-	-	-	-	-	468	47	515	515	-	-	-	-	-	-	-	-	-	-
3a.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3a.4.3	Health physics supplies	-	257	-	-	-	-	-	64	321	321	-	-	-	-	-	-	-	-	-	-
3a.4.4	Heavy equipment rental	-	336	-	-	-	-	-	50	386	386	-	-	-	-	-	-	-	-	-	-
3a.4.5	Disposal of DAW generated	-	-	6	5	-	26	-	8	45	45	-	-	-	404	-	-	-	8,103	99	-
3a.4.6	Plant energy budget	-	-	-	-	-	-	1,655	248	1,904	1,904	-	-	-	-	-	-	-	-	-	-
3a.4.7	NRC Fees	-	-	-	-	-	-	265	27	292	292	-	-	-	-	-	-	-	-	-	-
3a.4.8	Site O&M	-	-	-	-	-	-	1,085	163	1,248	1,248	-	-	-	-	-	-	-	-	-	-
3a.4.9	Corporate Overhead	-	-	-	-	-	-	1,499	225	1,724	1,724	-	-	-	-	-	-	-	-	-	-
3a.4.10	Security Staff Cost	-	-	-	-	-	-	1,874	281	2,155	2,155	-	-	-	-	-	-	-	-	-	52,143
3a.4.11	Utility Staff Cost	-	-	-	-	-	-	14,900	2,235	17,135	17,135	-	-	-	-	-	-	-	-	-	269,579
3a.4	Subtotal Period 3a Period-Dependent Costs	-	593	6	5	-	26	21,747	3,348	25,726	25,726	-	-	-	404	-	-	-	8,103	99	321,721
3a.0	TOTAL PERIOD 3a COST	-	593	6	5	-	26	33,584	5,123	39,337	38,904	-	433	-	404	-	-	-	8,103	99	395,402
PERIOD 3b - Decommissioning Preparations																					
Period 3b Direct Decommissioning Activities																					
Detailed Work Procedures																					
3b.1.1.1	Plant systems	-	-	-	-	-	-	450	67	517	465	-	52	-	-	-	-	-	-	-	4,496
3b.1.1.2	Reactor internals	-	-	-	-	-	-	380	57	437	437	-	-	-	-	-	-	-	-	-	3,800
3b.1.1.3	Remaining buildings	-	-	-	-	-	-	128	19	148	37	-	111	-	-	-	-	-	-	-	1,283
3b.1.1.4	CRD housings & NIs	-	-	-	-	-	-	95	14	109	109	-	-	-	-	-	-	-	-	-	950
3b.1.1.5	Incore instrumentation	-	-	-	-	-	-	95	14	109	109	-	-	-	-	-	-	-	-	-	950

Table A
Pilgrim Nuclear Power Station
SAFSTOR Decommissioning Cost Estimate
(thousands of 2005 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Detailed Work Procedures (continued)																					
3b.1.1.6	Removal primary containment	-	-	-	-	-	-	190	29	219	219	-	-	-	-	-	-	-	-	-	1,900
3b.1.1.7	Reactor vessel	-	-	-	-	-	-	345	52	397	397	-	-	-	-	-	-	-	-	-	3,449
3b.1.1.8	Facility closeout	-	-	-	-	-	-	114	17	131	66	-	66	-	-	-	-	-	-	-	1,140
3b.1.1.9	Sacrificial shield	-	-	-	-	-	-	114	17	131	131	-	-	-	-	-	-	-	-	-	1,140
3b.1.1.10	Reinforced concrete	-	-	-	-	-	-	95	14	109	55	-	55	-	-	-	-	-	-	-	950
3b.1.1.11	Main Turbine	-	-	-	-	-	-	198	30	227	227	-	-	-	-	-	-	-	-	-	1,976
3b.1.1.12	Main Condensers	-	-	-	-	-	-	198	30	228	228	-	-	-	-	-	-	-	-	-	1,984
3b.1.1.13	Moisture separators & reheaters	-	-	-	-	-	-	190	29	219	219	-	-	-	-	-	-	-	-	-	1,900
3b.1.1.14	Radwaste building	-	-	-	-	-	-	259	39	298	268	-	30	-	-	-	-	-	-	-	2,594
3b.1.1.15	Reactor building	-	-	-	-	-	-	259	39	298	268	-	30	-	-	-	-	-	-	-	2,594
3b.1.1	Total	-	-	-	-	-	-	3,111	467	3,578	3,235	-	342	-	-	-	-	-	-	-	31,104
3b.1	Subtotal Period 3b Activity Costs	-	-	-	-	-	-	3,111	467	3,578	3,235	-	342	-	-	-	-	-	-	-	31,104
Period 3b Collateral Costs																					
3b.3.1	Decon equipment	731	-	-	-	-	-	-	110	841	841	-	-	-	-	-	-	-	-	-	-
3b.3.2	Pipe cutting equipment	-	957	-	-	-	-	-	143	1,100	1,100	-	-	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	731	957	-	-	-	-	-	253	1,941	1,941	-	-	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Decon supplies	23	-	-	-	-	-	-	6	28	28	-	-	-	-	-	-	-	-	-	-
3b.4.2	Insurance	-	-	-	-	-	-	237	24	261	261	-	-	-	-	-	-	-	-	-	-
3b.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3b.4.4	Health physics supplies	-	130	-	-	-	-	-	33	163	163	-	-	-	-	-	-	-	-	-	-
3b.4.5	Heavy equipment rental	-	170	-	-	-	-	-	26	196	196	-	-	-	-	-	-	-	-	-	-
3b.4.6	Disposal of DAW generated	-	-	3	3	-	13	-	4	23	23	-	-	-	205	-	-	-	4,107	50	-
3b.4.7	Plant energy budget	-	-	-	-	-	-	839	126	965	965	-	-	-	-	-	-	-	-	-	-
3b.4.8	NRC Fees	-	-	-	-	-	-	134	13	148	148	-	-	-	-	-	-	-	-	-	-
3b.4.9	Site O&M	-	-	-	-	-	-	805	121	926	926	-	-	-	-	-	-	-	-	-	-
3b.4.10	Corporate Overhead	-	-	-	-	-	-	760	114	874	874	-	-	-	-	-	-	-	-	-	-
3b.4.11	Security Staff Cost	-	-	-	-	-	-	950	142	1,092	1,092	-	-	-	-	-	-	-	-	-	26,429
3b.4.12	Utility Staff Cost	-	-	-	-	-	-	11,260	1,689	12,949	12,949	-	-	-	-	-	-	-	-	-	200,064
3b.4	Subtotal Period 3b Period-Dependent Costs	23	301	3	3	-	13	14,986	2,297	17,625	17,625	-	-	-	205	-	-	-	4,107	50	226,493
3b.0	TOTAL PERIOD 3b COST	754	1,257	3	3	-	13	18,097	3,017	23,144	22,802	-	342	-	205	-	-	-	4,107	50	257,597
PERIOD 3 TOTALS		754	1,850	9	8	-	39	51,680	8,140	62,481	61,706	-	775	-	609	-	-	-	12,210	150	652,999
PERIOD 4a - Large Component Removal																					
Period 4a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
4a.1.1.1	Recirculation System Piping & Valves	15	57	10	19	20	259	-	94	474	474	-	-	82	737	-	-	-	98,221	1,585	-
4a.1.1.2	Recirculation Pumps & Motors	8	36	14	39	45	264	-	93	499	499	-	-	360	1,609	-	-	-	111,100	1,082	-
4a.1.1.3	CRDMs & NIs Removal	31	120	243	105	-	321	-	166	986	986	-	-	-	4,306	-	-	-	110,306	3,458	-
4a.1.1.4	Reactor Vessel Internals	84	1,444	3,297	1,032	-	3,332	142	3,894	13,226	13,226	-	-	-	751	1,628	287	-	297,675	17,759	842
4a.1.1.5	Vessel & Internals GTCC Disposal	-	-	300	-	-	8,065	-	1,240	9,605	9,605	-	-	-	-	-	-	480	82,000	-	-
4a.1.1.6	Reactor Vessel	-	3,483	795	496	-	6,490	142	6,202	17,609	17,609	-	-	-	12,390	-	-	-	1,261,718	17,759	842
4a.1.1	Totals	138	5,141	4,659	1,692	65	18,732	285	11,688	42,399	42,399	-	-	441	19,794	1,628	287	480	1,961,021	41,643	1,685
Removal of Major Equipment																					
4a.1.2	Main Turbine/Generator	-	231	860	334	4,875	359	-	1,015	7,675	7,675	-	-	26,071	1,452	-	-	-	2,346,289	4,901	-
4a.1.3	Main Condensers	-	459	459	279	3,683	286	-	826	5,993	5,993	-	-	37,201	1,097	-	-	-	1,772,471	9,789	-

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Pilgrim Nuclear Power Station
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Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet					
Cascading Costs from Clean Building Demolition																						
4a.1.4.1	Reactor	-	478	-	-	-	-	-	72	549	549	-	-	-	-	-	-	-	-	-	7,024	-
4a.1.4.2	AOG Retention	-	24	-	-	-	-	-	4	27	27	-	-	-	-	-	-	-	-	-	304	-
4a.1.4.3	Condenser Retube	-	4	-	-	-	-	-	1	5	5	-	-	-	-	-	-	-	-	-	72	-
4a.1.4.4	Main Stack & Filter	-	4	-	-	-	-	-	1	5	5	-	-	-	-	-	-	-	-	-	61	-
4a.1.4.5	Turbine	-	210	-	-	-	-	-	31	241	241	-	-	-	-	-	-	-	-	-	3,354	-
4a.1.4	Totals	-	719	-	-	-	-	-	108	827	827	-	-	-	-	-	-	-	-	-	10,816	-
Disposal of Plant Systems																						
4a.1.5.1	CIRCULATING WATER	-	72	-	-	-	-	-	11	83	-	-	83	-	-	-	-	-	-	-	1,585	-
4a.1.5.2	CIRCULATING WATER (RCA)	-	58	5	25	361	-	-	73	520	520	-	-	4,035	-	-	-	-	-	-	163,883	1,249
4a.1.5.3	CONDENSATE	-	250	7	37	543	-	-	150	987	987	-	-	6,077	-	-	-	-	-	-	246,780	5,295
4a.1.5.4	CONDENSATE (RCA)	-	414	20	103	1,505	-	-	347	2,389	2,389	-	-	16,843	-	-	-	-	-	-	684,008	8,719
4a.1.5.5	CONDENSATE DEMINERALIZER	-	237	11	31	268	134	-	139	820	820	-	-	2,996	522	-	-	-	-	-	167,700	4,992
4a.1.5.6	DEMINERALIZED WATER & STORAGE	-	19	-	-	-	-	-	3	21	-	-	21	-	-	-	-	-	-	-	409	-
4a.1.5.7	DEMINERALIZED WATER & STORAGE (RCA)	-	162	3	14	210	-	-	74	464	464	-	-	2,348	-	-	-	-	-	-	95,351	3,404
4a.1.5.8	EXTRACTION STEAM	-	161	10	34	298	147	-	128	778	778	-	-	3,332	564	-	-	-	-	-	185,891	3,471
4a.1.5.9	FEEDWATER	-	282	27	93	920	315	-	304	1,940	1,940	-	-	10,295	1,207	-	-	-	-	-	526,325	6,095
4a.1.5.10	FEEDWATER HEATERS	-	233	25	69	330	488	-	243	1,387	1,387	-	-	3,694	1,867	-	-	-	-	-	317,533	5,075
4a.1.5.11	GENERATOR GAS CONTROL	-	16	0	1	11	-	-	6	34	34	-	-	122	-	-	-	-	-	-	4,969	327
4a.1.5.12	HEATER DRAIN	-	193	9	28	232	128	-	120	710	710	-	-	2,598	490	-	-	-	-	-	149,407	4,103
4a.1.5.13	LUBE OIL PURIFICATION & TRANSFER	-	162	4	20	285	-	-	87	557	557	-	-	3,193	-	-	-	-	-	-	129,653	3,421
4a.1.5.14	MAIN STEAM	-	389	20	65	559	281	-	263	1,577	1,577	-	-	6,262	1,075	-	-	-	-	-	350,759	8,301
4a.1.5.15	MAIN STEAM MOISTURE SEPARATORS	-	203	61	165	792	1,170	-	493	2,885	2,885	-	-	8,865	4,481	-	-	-	-	-	762,080	4,588
4a.1.5.16	MECHANICAL VACUUM	-	49	2	9	136	-	-	34	231	231	-	-	1,521	-	-	-	-	-	-	61,779	1,044
4a.1.5.17	NEUTRON MONITORING	-	11	0	1	4	5	-	5	25	25	-	-	40	20	-	-	-	-	-	3,381	244
4a.1.5.18	OFFGAS & AUGMENTED OFFGAS	-	327	27	89	764	383	-	308	1,899	1,899	-	-	8,555	1,468	-	-	-	-	-	479,185	7,093
4a.1.5.19	OFFGAS & AUGMENTED OFFGAS (RCA)	-	469	34	94	742	452	-	359	2,150	2,150	-	-	8,303	1,756	-	-	-	-	-	492,482	9,846
4a.1.5.20	POST ACCIDENT SAMPLING	-	7	0	0	2	2	-	3	13	13	-	-	18	8	-	-	-	-	-	1,441	144
4a.1.5.21	REACTOR CORE ISOLATION COOLING	-	62	4	10	40	72	-	41	229	229	-	-	449	275	-	-	-	-	-	42,890	1,338
4a.1.5.22	SEAL OIL	-	22	0	2	25	-	-	10	59	59	-	-	280	-	-	-	-	-	-	11,370	456
4a.1.5.23	STATOR COOLING	-	40	0	2	31	-	-	15	88	88	-	-	348	-	-	-	-	-	-	14,124	834
4a.1.5.24	TURBINE BUILDING CLOSED COOLING WATER	-	241	3	14	200	-	-	93	550	550	-	-	2,236	-	-	-	-	-	-	90,795	5,066
4a.1.5	Totals	-	4,080	274	904	8,256	3,576	-	3,306	20,396	20,292	-	104	92,409	13,733	-	-	-	-	-	4,981,785	87,098
4a.1.6	Scaffolding in support of decommissioning	-	1,829	14	9	110	4	-	477	2,443	2,443	-	-	1,108	55	-	-	-	-	-	55,391	21,971
4a.1	Subtotal Period 4a Activity Costs	138	12,458	6,266	3,219	16,989	22,958	285	17,422	79,734	79,630	-	104	157,231	36,131	1,628	287	480	11,116,960	176,217	1,685	
Period 4a Additional Costs																						
4a.2.1	Curie Surcharge (excluding RPV)	-	-	-	-	-	146	-	36	182	182	-	-	-	-	-	-	-	-	-	-	-
4a.2	Subtotal Period 4a Additional Costs	-	-	-	-	-	146	-	36	182	182	-	-	-	-	-	-	-	-	-	-	-
Period 4a Collateral Costs																						
4a.3.1	Process liquid waste	4	-	3	3	-	20	-	8	38	38	-	-	-	-	55	-	-	-	6,901	11	-
4a.3.2	Small tool allowance	-	143	-	-	-	-	-	21	164	148	-	16	-	-	-	-	-	-	-	-	-
4a.3	Subtotal Period 4a Collateral Costs	4	143	3	3	-	20	-	29	202	186	-	16	-	-	55	-	-	-	6,901	11	-
Period 4a Period-Dependent Costs																						
4a.4.1	Decon supplies	34	-	-	-	-	-	-	8	42	42	-	-	-	-	-	-	-	-	-	-	-
4a.4.2	Insurance	-	-	-	-	-	-	356	36	391	391	-	-	-	-	-	-	-	-	-	-	-
4a.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4a.4.4	Health physics supplies	-	816	-	-	-	-	-	204	1,020	1,020	-	-	-	-	-	-	-	-	-	-	-
4a.4.5	Heavy equipment rental	-	1,242	-	-	-	-	-	186	1,429	1,429	-	-	-	-	-	-	-	-	-	-	-
4a.4.6	Disposal of DAW generated	-	-	53	44	-	221	-	67	385	385	-	-	-	3,452	-	-	-	-	69,176	848	-
4a.4.7	Plant energy budget	-	-	-	-	-	-	1,193	179	1,372	1,372	-	-	-	-	-	-	-	-	-	-	-
4a.4.8	NRC Fees	-	-	-	-	-	-	249	25	273	273	-	-	-	-	-	-	-	-	-	-	-

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Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 4a Period-Dependent Costs (continued)																					
4a.4.9	Site O&M	-	-	-	-	-	-	1,589	238	1,828	1,828	-	-	-	-	-	-	-	-	-	-
4a.4.10	Radwaste Processing Equipment/Services	-	-	-	-	-	-	281	42	323	323	-	-	-	-	-	-	-	-	-	-
4a.4.11	Corporate Overhead	-	-	-	-	-	-	1,138	171	1,308	1,308	-	-	-	-	-	-	-	-	-	-
4a.4.12	Security Staff Cost	-	-	-	-	-	-	1,422	213	1,635	1,635	-	-	-	-	-	-	-	-	-	39,571
4a.4.13	Utility Staff Cost	-	-	-	-	-	-	18,722	2,808	21,530	21,530	-	-	-	-	-	-	-	-	-	339,523
4a.4	Subtotal Period 4a Period-Dependent Costs	34	2,058	53	44	-	221	24,949	4,178	31,537	31,537	-	-	-	3,452	-	-	-	69,176	848	379,094
4a.0	TOTAL PERIOD 4a COST	176	14,659	6,321	3,265	16,989	23,344	25,234	21,665	111,655	111,534	-	121	157,231	39,583	1,682	287	480	11,193,030	177,075	380,779
PERIOD 4b - Site Decontamination																					
Period 4b Direct Decommissioning Activities																					
4b.1.1	Remove spent fuel racks	659	67	107	230	-	2,433	-	1,000	4,498	4,498	-	-	-	9,319	-	-	-	836,155	1,563	-
Disposal of Plant Systems																					
4b.1.2.1	CONTAINMENT ATMOSPHERIC CONTROL	-	122	9	29	275	113	-	105	654	654	-	-	3,076	436	-	-	-	163,649	2,622	-
4b.1.2.2	CONTROL ROD DRIVE HYDRAULIC	-	538	32	55	158	463	-	285	1,531	1,531	-	-	1,766	1,775	-	-	-	230,804	10,790	-
4b.1.2.3	CORE SPRAY	-	110	4	13	119	50	-	60	356	356	-	-	1,330	192	-	-	-	71,209	2,361	-
4b.1.2.4	DIESEL FUEL OIL STORAGE & TRANSFER	-	28	-	-	-	-	-	4	32	-	-	32	-	-	-	-	-	603	-	-
4b.1.2.5	DIESEL FUEL OIL STORAGE & TRANSFER (RCA)	-	12	0	1	19	-	-	6	38	38	-	-	208	-	-	-	-	8,428	255	-
4b.1.2.6	DIESEL GENERATOR & AUXILIARIES	-	5	-	-	-	-	-	1	6	-	-	6	-	-	-	-	-	118	-	-
4b.1.2.7	ELECTRICAL CLEAN	-	336	-	-	-	-	-	50	386	-	-	386	-	-	-	-	-	7,450	-	-
4b.1.2.8	ELECTRICAL CONTAMINATED	-	79	2	5	25	37	-	34	183	183	-	-	285	141	-	-	-	24,237	1,706	-
4b.1.2.9	ELECTRICAL RCA	-	2,914	30	160	2,330	-	-	1,105	6,539	6,539	-	-	26,081	-	-	-	-	1,059,160	62,880	-
4b.1.2.10	FIRE PROTECTION	-	16	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	351	-	-
4b.1.2.11	FIRE PROTECTION (RCA)	-	92	1	7	108	-	-	40	250	250	-	-	1,211	-	-	-	-	49,177	1,882	-
4b.1.2.12	FUEL POOL COOLING & DEMINERALIZER	-	604	15	29	91	244	-	231	1,214	1,214	-	-	1,024	934	-	-	-	125,357	13,265	-
4b.1.2.13	HIGH PRESSURE COOLANT INJECTION	-	158	12	38	338	160	-	137	844	844	-	-	3,787	614	-	-	-	208,894	3,408	-
4b.1.2.14	HVAC DIESEL GENERATOR	-	3	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	56	-	-
4b.1.2.15	HVAC OFF GAS RETENTION	-	595	26	72	530	380	-	337	1,940	1,940	-	-	5,930	1,456	-	-	-	371,375	12,580	-
4b.1.2.16	HVAC OTHER	-	337	-	-	-	-	-	51	387	-	-	387	-	-	-	-	-	7,683	-	-
4b.1.2.17	HVAC RADWASTE	-	520	23	48	137	407	-	262	1,396	1,396	-	-	1,528	1,558	-	-	-	201,755	10,896	-
4b.1.2.18	HVAC REACTOR	-	3,561	196	565	4,640	2,616	-	2,345	13,923	13,923	-	-	51,939	10,025	-	-	-	3,008,290	74,852	-
4b.1.2.19	HVAC TURBINE	-	3,214	190	584	5,038	2,522	-	2,296	13,844	13,844	-	-	56,387	9,664	-	-	-	3,156,705	68,040	-
4b.1.2.20	INSTRUMENT AIR	-	140	2	8	121	-	-	55	325	325	-	-	1,356	-	-	-	-	55,067	2,754	-
4b.1.2.21	NUCLEAR BOILER	-	125	33	71	295	535	-	223	1,281	1,281	-	-	3,297	2,049	-	-	-	317,636	2,793	-
4b.1.2.22	POTABLE WATER	-	105	2	9	130	-	-	47	293	293	-	-	1,457	-	-	-	-	59,155	2,153	-
4b.1.2.23	RADWASTE COLLECTION	-	3,677	104	213	497	1,895	-	1,510	7,896	7,896	-	-	5,559	7,780	-	-	-	877,051	80,526	-
4b.1.2.24	REACTOR BUILDING CLOSED COOLING WATER	-	265	15	40	313	198	-	170	1,001	1,001	-	-	3,507	759	-	-	-	210,433	5,570	-
4b.1.2.25	REACTOR WATER CLEAN UP	-	129	11	24	78	200	-	99	541	541	-	-	875	768	-	-	-	104,158	2,739	-
4b.1.2.26	RESIDUAL HEAT REMOVAL	-	394	34	88	433	612	-	333	1,894	1,894	-	-	4,848	2,346	-	-	-	407,296	8,591	-
4b.1.2.27	ROOF DRAINS	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	190	-	-
4b.1.2.28	RX RECIRC MOTOR GENERATOR AUXILIARIES	-	94	3	14	204	-	-	57	372	372	-	-	2,284	-	-	-	-	92,751	2,032	-
4b.1.2.29	SERVICE AIR	-	231	3	15	212	-	-	92	552	552	-	-	2,371	-	-	-	-	96,288	4,801	-
4b.1.2.30	SERVICE WATER	-	41	-	-	-	-	-	6	48	-	-	48	-	-	-	-	-	933	-	-
4b.1.2.31	SERVICE WATER (RCA)	-	527	15	75	1,089	-	-	308	2,013	2,013	-	-	12,187	-	-	-	-	494,923	10,678	-
4b.1.2.32	STANDBY GAS TREATMENT	-	90	4	14	128	56	-	58	351	351	-	-	1,433	214	-	-	-	77,361	1,897	-
4b.1.2.33	STANDBY LIQUID CONTROL	-	47	2	6	70	17	-	28	170	170	-	-	784	66	-	-	-	37,553	1,001	-
4b.1.2	Totals	-	19,118	765	2,184	17,378	10,504	-	10,339	60,289	59,400	-	889	194,507	40,778	-	-	-	11,508,700	408,455	-
4b.1.3	Scaffolding in support of decommissioning	-	2,743	21	14	165	6	-	716	3,685	3,665	-	-	1,662	83	-	-	-	83,086	32,956	-
Decontamination of Site Buildings																					
4b.1.4.1	Reactor	3,594	2,331	126	414	4,582	357	-	3,231	14,634	14,634	-	-	51,283	4,745	-	-	-	2,551,935	120,649	-
4b.1.4.2	AOG Retention	41	33	3	7	22	15	-	37	159	159	-	-	247	208	-	-	-	30,337	1,501	-
4b.1.4.3	Condenser Retube	53	23	4	10	3	24	-	40	157	157	-	-	32	317	-	-	-	32,928	1,518	-

Table A
Pilgrim Nuclear Power Station
SAFSTOR Decommissioning Cost Estimate
(thousands of 2005 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Decontamination of Site Buildings (continued)																					
4b.1.4.4	Main Stack & Filter	12	11	1	3	5	7	-	12	53	53	-	-	60	100	-	-	-	12,256	469	-
4b.1.4.5	Radwaste	157	110	16	36	51	81	-	141	592	592	-	-	567	1,204	-	-	-	130,144	5,373	-
4b.1.4.6	Turbine	397	244	30	81	188	175	-	347	1,463	1,463	-	-	2,102	2,328	-	-	-	315,404	12,839	-
4b.1.4.7	Spent Fuel Pool Area	199	1,198	330	775	75	5,050	-	1,822	9,448	9,448	-	-	840	28,318	-	-	-	2,705,126	26,317	-
4b.1.4	Totals	4,453	3,951	510	1,326	4,926	5,710	-	5,630	26,505	26,505	-	-	55,131	37,219	-	-	-	5,778,131	168,667	-
4b.1	Subtotal Period 4b Activity Costs	5,112	25,881	1,404	3,754	22,468	18,653	-	17,686	94,957	94,068	-	889	251,300	87,399	-	-	-	18,206,070	611,640	-
Period 4b Additional Costs																					
4b.2.1	ISFSI License Termination	-	1,193	11	274	-	1,027	1,417	810	4,732	-	4,732	-	-	11,609	-	-	-	1,136,593	17,786	2,560
4b.2.2	AOG Filter Media Disposal	-	-	50	66	-	140	-	50	305	305	-	-	-	4,080	-	-	-	48,720	380	-
4b.2	Subtotal Period 4b Additional Costs	-	1,193	60	340	-	1,167	1,417	859	5,036	305	4,732	-	-	15,689	-	-	-	1,185,313	18,166	2,560
Period 4b Collateral Costs																					
4b.3.1	Process liquid waste	16	-	12	11	-	78	-	30	147	147	-	-	-	-	213	-	-	26,811	42	-
4b.3.2	Small tool allowance	-	501	-	-	-	-	-	75	576	576	-	-	-	-	-	-	-	-	-	-
4b.3	Subtotal Period 4b Collateral Costs	16	501	12	11	-	78	-	105	723	723	-	-	-	-	213	-	-	26,811	42	-
Period 4b Period-Dependent Costs																					
4b.4.1	Decon supplies	987	-	-	-	-	-	-	247	1,234	1,234	-	-	-	-	-	-	-	-	-	-
4b.4.2	Insurance	-	-	-	-	-	-	1,395	140	1,535	1,535	-	-	-	-	-	-	-	-	-	-
4b.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4b.4.4	Health physics supplies	-	2,984	-	-	-	-	-	746	3,730	3,730	-	-	-	-	-	-	-	-	-	-
4b.4.5	Heavy equipment rental	-	4,905	-	-	-	-	-	736	5,640	5,640	-	-	-	-	-	-	-	-	-	-
4b.4.6	Disposal of DAW generated	-	-	163	135	-	683	-	207	1,188	1,188	-	-	-	10,666	-	-	-	213,733	2,619	-
4b.4.7	Plant energy budget	-	-	-	-	-	-	3,697	555	4,252	4,252	-	-	-	-	-	-	-	-	-	-
4b.4.8	NRC Fees	-	-	-	-	-	-	976	98	1,073	1,073	-	-	-	-	-	-	-	-	-	-
4b.4.9	Site O&M	-	-	-	-	-	-	5,401	810	6,211	6,211	-	-	-	-	-	-	-	-	-	-
4b.4.10	Radwaste Processing Equipment/Services	-	-	-	-	-	-	1,104	166	1,269	1,269	-	-	-	-	-	-	-	-	-	-
4b.4.11	Corporate Overhead	-	-	-	-	-	-	4,464	670	5,134	5,134	-	-	-	-	-	-	-	-	-	-
4b.4.12	Security Staff Cost	-	-	-	-	-	-	5,580	837	6,417	6,417	-	-	-	-	-	-	-	-	-	-
4b.4.13	Utility Staff Cost	-	-	-	-	-	-	64,896	9,734	74,630	74,630	-	-	-	-	-	-	-	-	-	155,286
4b.4	Subtotal Period 4b Period-Dependent Costs	987	7,889	163	135	-	683	87,512	14,944	112,313	112,313	-	-	-	10,666	-	-	-	213,733	2,619	1,309,059
4b.0	TOTAL PERIOD 4b COST	6,115	35,463	1,639	4,240	22,468	20,581	88,929	33,595	213,030	207,409	4,732	889	251,300	113,734	213	-	-	19,631,930	632,466	1,311,619
PERIOD 4e - License Termination																					
Period 4e Direct Decommissioning Activities																					
4e.1.1	ORISE confirmatory survey	-	-	-	-	-	-	123	37	160	160	-	-	-	-	-	-	-	-	-	-
4e.1.2	Terminate license	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
4e.1	Subtotal Period 4e Activity Costs	-	-	-	-	-	-	123	37	160	160	-	-	-	-	-	-	-	-	-	-
Period 4e Additional Costs																					
4e.2.1	License Termination Survey	-	-	-	-	-	-	5,347	1,604	6,951	6,951	-	-	-	-	-	-	-	-	105,930	-
4e.2	Subtotal Period 4e Additional Costs	-	-	-	-	-	-	5,347	1,604	6,951	6,951	-	-	-	-	-	-	-	-	105,930	-
Period 4e Period-Dependent Costs																					
4e.4.1	Insurance	-	-	-	-	-	-	347	35	381	381	-	-	-	-	-	-	-	-	-	-
4e.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4e.4.3	Health physics supplies	-	563	-	-	-	-	-	141	704	704	-	-	-	-	-	-	-	-	-	-
4e.4.4	Disposal of DAW generated	-	-	5	4	-	19	-	6	33	33	-	-	-	299	-	-	-	5,994	73	-
4e.4.5	Plant energy budget	-	-	-	-	-	-	245	37	282	282	-	-	-	-	-	-	-	-	-	-
4e.4.6	NRC Fees	-	-	-	-	-	-	242	24	267	267	-	-	-	-	-	-	-	-	-	-
4e.4.7	Site O&M	-	-	-	-	-	-	612	92	704	704	-	-	-	-	-	-	-	-	-	-
4e.4.8	Corporate Overhead	-	-	-	-	-	-	1,109	166	1,275	1,275	-	-	-	-	-	-	-	-	-	-

Table A
Pilgrim Nuclear Power Station
SAFSTOR Decommissioning Cost Estimate
(thousands of 2005 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 4e Period-Dependent Costs (continued)																					
4e.4.9	Security Staff Cost	-	-	-	-	-	-	499	75	574	574	-	-	-	-	-	-	-	-	-	13,886
4e.4.10	Utility Staff Cost	-	-	-	-	-	-	7,754	1,163	8,917	8,917	-	-	-	-	-	-	-	-	-	130,757
4e.4	Subtotal Period 4e Period-Dependent Costs	-	563	5	4	-	19	10,807	1,738	13,136	13,136	-	-	-	299	-	-	-	5,994	73	144,643
4e.0	TOTAL PERIOD 4e COST	-	563	5	4	-	19	16,277	3,379	20,247	20,247	-	-	-	299	-	-	-	5,994	106,003	144,643
PERIOD 4 TOTALS		6,291	50,686	7,965	7,509	39,457	43,944	130,441	58,639	344,932	339,190	4,732	1,010	408,531	153,616	1,895	287	480	30,830,960	915,545	1,837,040
PERIOD 5b - Site Restoration																					
Period 5b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
5b.1.1.1	Reactor	-	2,785	-	-	-	-	-	418	3,203	-	-	3,203	-	-	-	-	-	-	41,618	-
5b.1.1.2	AOG Retention	-	218	-	-	-	-	-	33	250	-	-	250	-	-	-	-	-	-	2,846	-
5b.1.1.3	Condenser Retube	-	48	-	-	-	-	-	7	55	-	-	55	-	-	-	-	-	-	841	-
5b.1.1.4	Contractor Office - Warehouse	-	113	-	-	-	-	-	17	130	-	-	130	-	-	-	-	-	-	1,661	-
5b.1.1.5	Diesel Generator	-	159	-	-	-	-	-	24	183	-	-	183	-	-	-	-	-	-	2,594	-
5b.1.1.6	Discharge Structure & Channels	-	2	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	18	-
5b.1.1.7	Engineering & Plant Support	-	282	-	-	-	-	-	42	324	-	-	324	-	-	-	-	-	-	4,131	-
5b.1.1.8	Fencing & Pavement	-	801	-	-	-	-	-	120	921	-	-	921	-	-	-	-	-	-	12,411	-
5b.1.1.9	Intake Structure	-	171	-	-	-	-	-	26	197	-	-	197	-	-	-	-	-	-	2,336	-
5b.1.1.10	Main Stack & Filter	-	35	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	550	-
5b.1.1.11	Miscellaneous Site Structures	-	2,029	-	-	-	-	-	304	2,333	-	-	2,333	-	-	-	-	-	-	29,121	-
5b.1.1.12	Radwaste	-	475	-	-	-	-	-	71	546	-	-	546	-	-	-	-	-	-	7,651	-
5b.1.1.13	SSW Pipe Vault	-	5	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	68	-
5b.1.1.14	Switchyard	-	13	-	-	-	-	-	2	15	-	-	15	-	-	-	-	-	-	245	-
5b.1.1.15	Transformer Pads	-	34	-	-	-	-	-	5	39	-	-	39	-	-	-	-	-	-	556	-
5b.1.1.16	Turbine	-	1,976	-	-	-	-	-	296	2,272	-	-	2,272	-	-	-	-	-	-	32,182	-
5b.1.1.17	Turbine Pedestal	-	500	-	-	-	-	-	75	575	-	-	575	-	-	-	-	-	-	6,128	-
5b.1.1	Totals	-	9,647	-	-	-	-	-	1,447	11,094	-	-	11,094	-	-	-	-	-	-	144,957	-
Site Closeout Activities																					
5b.1.2	Backfill Site	-	697	-	-	-	-	-	105	801	-	-	801	-	-	-	-	-	-	2,627	-
5b.1.3	Grade & landscape site	-	53	-	-	-	-	-	8	60	-	-	60	-	-	-	-	-	-	185	-
5b.1.4	Final report to NRC	-	-	-	-	-	-	148	22	170	170	-	-	-	-	-	-	-	-	-	1,482
5b.1	Subtotal Period 5b Activity Costs	-	10,396	-	-	-	-	148	1,582	12,126	170	-	11,955	-	-	-	-	-	-	147,769	1,482
Period 5b Additional Costs																					
5b.2.1	ISFSI Demolition	-	1,025	-	-	-	-	41	160	1,226	-	1,226	-	-	-	-	-	-	-	4,128	160
5b.2.2	Intake and Discharge Cofferdam	-	377	-	-	-	-	-	57	433	-	-	433	-	-	-	-	-	-	4,572	-
5b.2.3	Concrete Crushing	-	330	-	-	-	-	6	50	387	-	-	387	-	-	-	-	-	-	1,952	-
5b.2	Subtotal Period 5b Additional Costs	-	1,732	-	-	-	-	47	267	2,046	-	1,226	820	-	-	-	-	-	-	10,652	160
Period 5b Collateral Costs																					
5b.3.1	Small tool allowance	-	126	-	-	-	-	-	19	145	-	-	145	-	-	-	-	-	-	-	-
5b.3	Subtotal Period 5b Collateral Costs	-	126	-	-	-	-	-	19	145	-	-	145	-	-	-	-	-	-	-	-
Period 5b Period-Dependent Costs																					
5b.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5b.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5b.4.3	Heavy equipment rental	-	2,829	-	-	-	-	-	424	3,253	-	-	3,253	-	-	-	-	-	-	-	-
5b.4.4	Plant energy budget	-	-	-	-	-	-	207	31	238	-	-	238	-	-	-	-	-	-	-	-
5b.4.5	Site O&M	-	-	-	-	-	-	664	100	763	763	-	-	-	-	-	-	-	-	-	-
5b.4.6	Corporate Overhead	-	-	-	-	-	-	1,877	282	2,158	-	-	2,158	-	-	-	-	-	-	-	-
5b.4.7	Security Staff Cost	-	-	-	-	-	-	845	127	971	-	-	971	-	-	-	-	-	-	-	23,503

Table A
Pilgrim Nuclear Power Station
SAFSTOR Decommissioning Cost Estimate
(thousands of 2005 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 5b Period-Dependent Costs (continued)																					
5b.4.8	Utility Staff Cost	-	-	-	-	-	-	11,064	1,660	12,724	-	-	12,724	-	-	-	-	-	-	185,411	
5b.4	Subtotal Period 5b Period-Dependent Costs	-	2,829	-	-	-	-	14,656	2,623	20,108	763	-	19,344	-	-	-	-	-	-	208,914	
5b.0	TOTAL PERIOD 5b COST	-	15,083	-	-	-	-	14,852	4,490	34,424	934	1,226	32,265	-	-	-	-	-	158,421	210,556	
PERIOD 5 TOTALS		-	15,083	-	-	-	-	14,852	4,490	34,424	934	1,226	32,265	-	-	-	-	-	158,421	210,556	
TOTAL COST TO DECOMMISSION		13,841	74,595	8,286	8,030	39,457	45,443	543,135	127,095	859,883	517,240	308,593	34,050	408,531	194,998	3,313	287	480	31,320,610	1,246,346	6,590,199

TOTAL COST TO DECOMMISSION WITH 17.34% CONTINGENCY:	\$859,883	thousands of 2005 dollars
TOTAL NRC LICENSE TERMINATION COST IS 60.15% OR:	\$517,240	thousands of 2005 dollars
SPENT FUEL MANAGEMENT COST IS 35.89% OR:	\$308,593	thousands of 2005 dollars
NON-NUCLEAR DEMOLITION COST IS 3.96% OR:	\$34,050	thousands of 2005 dollars
TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC):	198,599	cubic feet
TOTAL GREATER THAN CLASS C VOLUME GENERATED:	480	cubic feet
TOTAL SCRAP METAL REMOVED:	14,569	tons
TOTAL CRAFT LABOR REQUIREMENTS:	1,246,346	man-hours

End Notes:
n/a - indicates that this activity not charged as decommissioning expense.
a - indicates that this activity performed by decommissioning staff.
0 - indicates that this value is less than 0.5 but is non-zero.
a cell containing "-" indicates a zero value