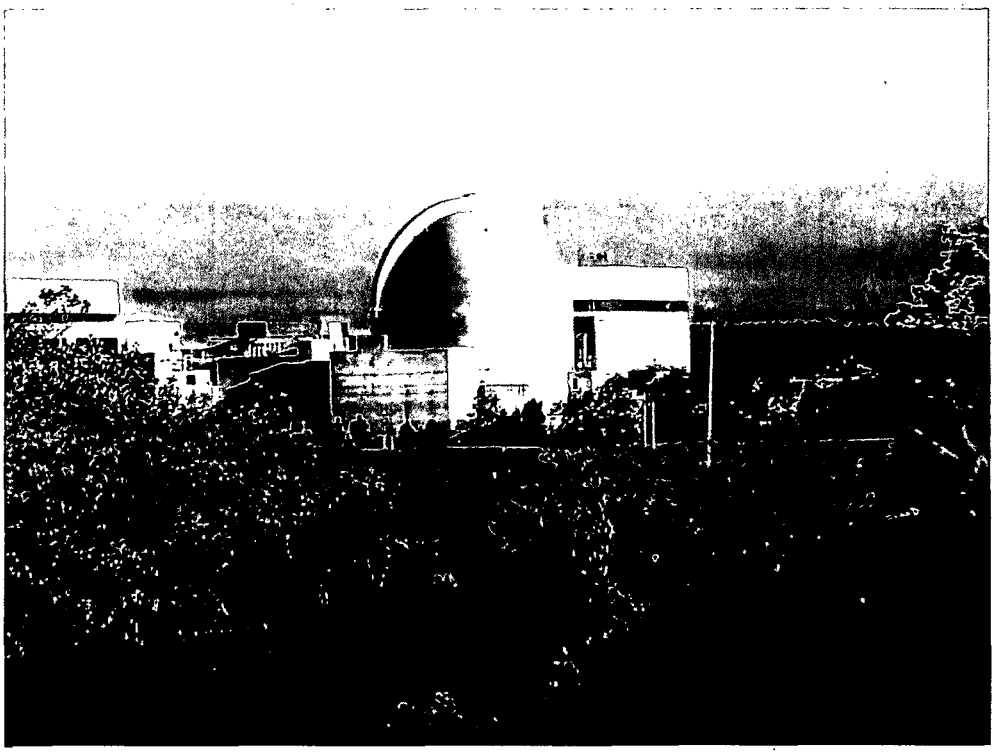
Attachment 5

DECOMMISSIONING COST ANALYSIS

for the

SEABROOK STATION



prepared for

FPL Energy Seabrook, LLC

prepared by

TLG Services, Inc.
Bridgewater, Connecticut

February 2007

APPROVALS

Project Manager	William A. Cloutier, Jr.	02/02/07 Date
Project Engineer	Thomas J. Garrett	2/1/07 Date
Technical Manager	Francis W. Seymore	2/2/07 Date
Quality Assurance Manager	Michael D. Evringham	2/2/07 Date

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

SECTION **PAGE**

TABLES

FIGURES

APPENDICES

TABLE OF CONTENTS
(continued)

SECTION **PAGE**

APPENDICES
(continued)

REVISION LOG

No.	CRA No.	Date	Item Revised	Reason for Revision
0		02-02-2007		Original Issue

EXECUTIVE SUMMARY

This report presents updated estimates of the costs to promptly decommission the Seabrook Station following a scheduled cessation of plant operations in accordance with the New Hampshire Nuclear Decommissioning Financing Committee's ("NDFC") December 6, 2005 Final Report and Order in Docket NDFC 2005-1 and December 19, 2006 Final Report and Order in Docket NDFC 2006-1 ("2006 Order"). The analysis relies upon site-specific, technical information originally developed for an evaluation in 1997-98 and updated in 2003 to incorporate new plant configuration and restoration criteria authorized by New Hampshire statute, *see, e.g.*, RSA 162-F, II(b) (approving site restoration to a "non-nuclear commercial, industrial, or other similar use" rather than to "original condition"), a more complete description of which is set forth in the NDFC's November 5, 2001 Final Report and Order in Docket NDFC 2001-1. The NDFC is authorized to establish the projected cost of decommissioning based on the commercial/industrial standard (RSA 162-F:15). The methodology used in preparing this study is in conformity with all Nuclear Regulatory Commission ("NRC" or "Commission") standards, is substantially the same as that previously approved by the NDFC and is consistent with restoring the site to the commercial/ industrial standard. The updated estimates are designed to provide the Seabrook Station with sufficient information to assess the decommissioning costs and, from that, the plant owners' financial obligations as they pertain to the eventual decommissioning of the nuclear station. This analysis evaluates three decommissioning scenarios that reflect differences in the length of the operating life presumed for the nuclear unit, as well as expectations on when the Department of Energy (DOE) will complete the transfer of spent fuel from the site.

The primary goal of the decommissioning is the removal and disposal of contaminated systems and structures so that the plant's operating license can be terminated in the shortest time possible. The analysis recognizes that spent fuel may be stored at the site beyond this time period in an on-site independent spent fuel storage installation (ISFSI) authorized under the general license for the Seabrook facility. Consequently, the estimates include those costs to manage and subsequently decommission the ISFSI.

The analysis is based on numerous fundamental assumptions, including NRC and NDFC regulatory requirements, project contingencies, low-level radioactive waste disposal practices, high-level radioactive waste management options, and site restoration requirements. The estimates incorporate a minimum cooling period of five and one-half years for the spent fuel that resides in the storage pool when operations cease. Any residual fuel remaining in the pool after the minimum cooling period is relocated to the ISFSI to await transfer to a DOE facility. The analysis also includes

the dismantling of non-essential structures and limited restoration of the site to a commercial-industrial standard.

When estimating the costs to decommission a nuclear plant, spent fuel transfer assumptions typically are based on the DOE's most-recent schedule for completion of the Yucca Mountain repository. In the summer of 2006, the DOE revised its schedule, estimating that the Yucca Mountain facility will be completed and begin accepting spent fuel in 2017, seven years later than the schedule DOE contemplated at the time of TLG's 2003 study. Accordingly, one of the studies prepared in this filing (the "Base Scenario") uses as a starting point the revised DOE schedule. Consistent with prior filings, TLG has included the so-called five-year "Delay Contingency," thereby assuming that the Yucca Mountain facility will begin accepting spent fuel in 2022, with the first transfer from Seabrook in 2032. Based on its experience in the industry, TLG believes that the five-year Delay Contingency is a reasonable assumption for completion of the Yucca Mountain facility and, consistent with the remaining aspects of this study, reflects the best information currently available concerning spent fuel transfer assumptions.

The 2022 start date is one of the latest start dates being used by commercial generators in developing long-term plans for spent fuel management (most rely upon the 2017 date, although dates as late as 2020 have also been used). While conservative, the assumption is not inconsistent with comments made by the director of the Office of Civilian Radioactive Waste Management (OCRWM) on the agency's ability to meet the 2017 deadline.[1]

The NDFC in the 2006 Order set forth certain assumptions that must be included in this comprehensive update as well, namely the assumptions that spent fuel and greater than Class C waste would remain on site until finally removed in 2100, with completion of decommissioning of the ISFSI by 2101 (the "NDFC Scenario"). Based on prior delays, TLG understands the NDFC's discomfort in adopting without modification the DOE's revised schedule and believes that the five-year Delay Contingency provides a reasonable estimate for completion of the Yucca Mountain facility. The assumption that the federal government will delay completion of a repository for spent fuel from the nation's nuclear facilities to the extent that spent fuel will remain on site and dormant at Seabrook for an additional 44 years beyond that assumed in the Base Scenario, with the first transfers from Seabrook beginning in 2076, is highly conservative.

TLG understands that FPLE Seabrook plans to apply to the NRC for approval of renewal of Seabrook's license in or around 2010, which would result in a license termination date of 2050. In order to provide the Committee with the relative cost

[1] Remarks of OCRWM Director Ward Sproat to the National Academy of Science, November 2006.

impacts of a license renewal, FPLE Seabrook requested that TLG produce a third cost scenario using the same assumptions as the NDFC Scenario, but with a 2050 assumed license termination (the "2050 Scenario").

The cost to decommission the Seabrook Station, expressed in December 31, 2006 dollars, for the Base Scenario, NDFC Scenario and 2050 Scenario is estimated to be $675.8 million, $851.1 million, and $778.0 million, respectively. As shown in the tables at the end of this section, the majority of the cost is for the physical decontamination and dismantling of the nuclear unit so that the operating license can be terminated. Another significant contributor is associated with the management, interim storage, and eventual transfer of the spent fuel. The remaining cost is for the demolition of the designated structures and commercial/ industrial restoration of the site.

The previous comprehensive estimate for decommissioning the Seabrook Station was approximately $599.7 million (in 2003 dollars).[2] This estimate was subsequently refined in Docket No. NDFC 2004-1 to $613 million, expressed in December 31, 2003 dollars. Escalated at the 4.5% rate previously approved by the NDFC in Docket No. 2003-1, the $613 million was estimated to grow to $699.7 million by year-end 2006. This compares favorably to the $675.8 million Base Scenario estimate. Put differently, even if the 2003 study and the Base Scenario contemplated precisely the same decommissioning processes (which they do not), the decommissioning cost calculated in the Base Scenario is actually less than the 2003 study, when both are expressed in 2006 dollars.

The nominal dollar increase of approximately $63 million between the 2003 study and the Base Scenario is primarily in the areas of program management and the caretaking of the residual spent fuel inventory. Comparison of the cost components in the 2003 estimate with the comparable elements in the Base and NDFC scenarios is also provided in the tables at the end of this section.

Program management costs increased with a corresponding increase in the size of the organization designated to manage/oversee the decommissioning project and an extended program schedule. The decision to increase the size of the organization was based upon several factors, including current field experience at facilities that have undergone decommissioning and post-911 changes in site security. The longer schedule is due to revised expectations on the DOE's performance.

All three cost scenarios assume a five and one-half year minimum cooling period for the fuel. In addition, the current analysis incorporates more definitive information

---

2 "Decommissioning Cost Analysis for the Seabrook Station," Document No. F08-1466-002, Rev. 1, dated August 2003.

on the design of the supplemental spent fuel storage system envisioned for the Seabrook site, rather than the proxy used in 2003. This allowed a more comprehensive estimate of the costs to be developed.

There are also some cost elements that decreased over the three-year period. For example, the base rate of disposal for the low-level radioactive waste produced by the decontamination and dismantling activities decreased significantly in the current cost model, from the comparable rate in 2003. This decrease is due to FPLE Seabrook having entered into a long-term contract with EnergySolutions for disposal of Class A low-level radioactive waste.

Alternatives and Regulations

The NRC provided initial decommissioning requirements in its rule adopted on June 27, 1988.[3] In this rule, the NRC set forth financial criteria for decommissioning licensed nuclear power 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.
>
> 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

---

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.

> with the SAFSTOR alternative, decommissioning is currently required to be completed within 60 years, although longer time periods will be considered when necessary to protect public health and safety.

The 60-year restriction has limited the practicality of the ENTOMB alternative at commercial reactors that generate significant amounts of long-lived radioactive material. In 1997, the Commission directed its staff to re-evaluate this alternative and identify the technical requirements and regulatory actions that would be necessary for entombment to become a viable option. The resulting evaluation provided several recommendations, however, rulemaking has been deferred pending the completion of additional research studies (e.g., on engineered barriers).

In 1996, the NRC published revisions to the general requirements for decommissioning nuclear power plants to clarify ambiguities and codify procedures and terminology as a means of enhancing efficiency and uniformity in 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 acceptable to the NRC staff for implementing the requirements of the 1996 revised rule relating to the initial activities and major phases of the decommissioning process. The costs and schedules presented in this analysis follow the general guidance and processes described in the amended regulations.

Methodology

The methodology used to develop the estimates described within this document follows the basic approach originally presented in the cost estimating guidelines[8] developed by the Atomic Industrial Forum (now Nuclear Energy Institute). This reference describes a unit factor method for determining decommissioning activity costs. The unit factors used in this analysis incorporate site-specific costs and the latest available information on worker productivity in decommissioning.

The estimates also reflect lessons learned from TLG's involvement in the Shippingport Station decommissioning, completed in 1989, and 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

---

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

regulatory aspects, and technical challenges of decommissioning commercial nuclear units.

An activity duration critical path is used to determine the total decommissioning program schedule. This is required for calculating the carrying costs, which include program management, administration, field engineering, equipment rental, quality assurance, and security. This systematic approach for assembling decommissioning estimates ensures a high degree of confidence in the reliability of the resulting costs.

Scenario	Shutdown	Option	1st Spent Fuel Assembly Pickup	Last Spent Fuel Assembly Pickup
Base Scenario	2030	DECON	2032	2055
NDFC Scenario	2030	DECON	2076	2100
2050 Scenario	2050	DECON	2076	2100

Decommissioning Scenarios

All three scenarios (Base Scenario, NDFC Scenario and 2050 Scenario) evaluate a prompt decommissioning alternative with combinations of shutdown dates and expectations of the DOE's performance in transferring spent fuel from the site to a federal repository.

Contingency

Consistent with standard cost estimating practice, contingencies are applied to the decontamination and dismantling costs developed as "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."[9] The cost elements in the estimates are based on ideal conditions; therefore, the types of unforeseeable events that are almost certain to occur in decommissioning, based on industry experience, are 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.

The use and role of contingency within decommissioning estimates is necessary to provide assurance that sufficient funding will be available to accomplish the intended tasks. Contingency is expected to be refined as decommissioning draws nearer. While there will always be a need to account for unforeseeable elements of cost, detailed

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

engineering and planning can lessen the severity of the impact of these events on the cost of the project. As we gain more experience with actual plant decommissionings in the future, it is reasonable to expect that costs, whether higher or lower, will become more fixed and the necessary contingency levels likely will be reduced.

Escalation

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 station. As we understand it, the NDFC determines the annual percentage by which the decommissioning cost estimate is escalated and approves of funding schedules for the owners of Seabrook Station that incorporate the approved escalation factor. Independent of its cost estimates, TLG has performed analysis to determine the rate by which each of the decommissioning cost components are expected to increase over time, through the operating life of Seabrook Station and its ultimate decommissioning.[10] Because the Base Scenario and NDFC Scenario contemplate different times over which the decommissioning process will be completed, TLG prepared separate escalation analyses for these two cost scenarios. The details of TLG's analysis are set forth in the report itself, but reflect that the costs in the Base Scenario and NDFC Scenario are expected to increase annually by 2.8% and 3.04%, respectively.

Low-Level Radioactive Waste 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 is suitable for "shallow-land" disposal. With the passage of the "Low-Level Radioactive Waste Disposal Act" in 1980,[11] and its Amendments of 1985,[12] the states became ultimately responsible for the disposition of radioactive waste generated within their own borders.

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, metal melt, etc.

---

[10] "Escalation Analysis for the Seabrook Station," Document No. F08-1553-003, Rev. 0, dated February 2007.

[11] "Low-Level Radioactive Waste Policy Act of 1980," Public Law 96-573, 1980.

[12] "Low-Level Radioactive Waste Policy Amendments Act of 1985," Public Law 99-240, 1986.

Based on a recent agreement between FPLE Seabrook and EnergySolutions, LLC Seabrook Station has obtained disposal capacity at EnergySolutions' Clive, Utah facility for its Class A operational and decommissioning low-level radioactive waste. This agreement is effective through the full duration of the decommissioning period. The agreement incorporates pre-established firm pricing for processing and/or disposal for the majority of the waste that will be generated by the Seabrook Station during operations and decommissioning with an indexed escalation rate. The decommissioning cost estimates incorporate the disposal rates provided for in the agreement with EnergySolutions.

Seabrook Station also currently has access to dispose of Class A, B or C low-level radioactive waste 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. After June 30, 2008, access to the Barnwell Low-Level Radioactive Waste Disposal Facility may be available only to generators located in states affiliated with the Atlantic Compact.

Despite the potential near-term loss of Class B and C disposal capacity at the Barnwell Low-Level Radioactive Waste Disposal Facility, it is reasonable to assume that future disposal capacity will be available to support the disposal of Class B and C low-level radioactive waste that will be generated during Seabrook's decommissioning. For purposes of decommissioning cost estimates, the costs for disposal of the Class B and C low-level radioactive waste are based on Barnwell disposal rates as a proxy.

High-Level Radioactive Waste Management

Congress passed the "Nuclear Waste Policy Act"[13] (NWPA) in 1982, assigning the responsibility for disposal of the spent nuclear fuel created by the commercial nuclear generating plants to the DOE. Two permanent disposal facilities were envisioned, as well as an interim storage facility. To recover the cost, the legislation created a Nuclear Waste Fund through which money is collected from the sale of electricity generated by the power plants. NWPA, along with the individual disposal 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 initiate the disposal of spent nuclear fuel and high level waste, as required by the NWPA and the utility contracts.

---

[13] "Nuclear Waste Policy Act of 1982 and Amendments," U.S. Department of Energy's Office of Civilian Radioactive Management, 1982.

Delays continue, and as a result, generators have initiated legal action[14] against the DOE in an attempt to resolve the impasse.

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 and the successful resolution of pending litigation. The latest timetable for submittal of the license application is mid-2008. For purposes of this analysis, the owners of Seabrook Station are assuming that 2022 is the earliest that the DOE can be expected to initiate transfer operations (Base Scenario).

The DOE's generator allocation/receipt schedules are based upon the oldest fuel receiving the highest priority. Assuming a maximum rate of transfer (3,000 metric tons of uranium (MTU)/year), for completion of fuel removal from the site is 2055 (Base Scenario). The latest completion date, evaluated to bound the liability, would be 2100 (NDFC Scenario and 2050 Scenario).

The NRC requires that licensees establish a program to manage and provide funding for the caretaking of all irradiated fuel at the reactor site until title of the fuel is transferred to the DOE.[15] Interim storage of the fuel, until the DOE has completed the transfer, will be in an independent facility located on the Seabrook Station site. This will allow decommissioning to proceed and the operating license terminated in the shortest time possible.

The ISFSI, which will be operated under the Station's general license, will be operational prior to the cessation of plant operations and, hence, the initial construction costs of the facility will be operational, as opposed to decommissioning, costs. The facility will be expanded to accommodate the inventory of spent fuel residing in the plant's storage pool at the conclusion of the five and one-half year cooling period. Once emptied, the fuel storage building can be decontaminated and dismantled.

Site Restoration

The efficient removal of the contaminated materials at the site may result in damage to many of the site structures. Blasting, coring, drilling, and the other decontamination activities will substantially damage power block structures, potentially weakening the footings and structural supports. Prompt demolition once the license is terminated is clearly the most appropriate option. This assumption is

---

14 U.S. Court of Federal Claims awarded Yankee Atomic, Connecticut Yankee and Maine Yankee damages over the federal government's failure to remove spent fuel from the sites in a September 2006 ruling.

15 "Domestic Licensing of Production and Utilization Facilities," U.S. Code of Federal Regulations, Title 10, Part 50.54 (bb).

also consistent with the NH/NDFC prompt decommissioning and dismantlement and commercial/industrial standards. It is unreasonable to anticipate that these structures would be repaired and preserved after the radiological contamination is removed. The cost to dismantle site structures with a work force already mobilized is more efficient and less costly than if the process were deferred. Experience at shutdown generating stations has shown that plant facilities quickly degrade without maintenance, adding additional expense and creating potential hazards to the public and the demolition work force. Consequently, this study assumes that non-essential site structures within the restricted access area are removed to a nominal depth of three feet below the local grade level wherever possible. The site is then graded and stabilized.

Site structures, facilities, and associated system components deemed to have ongoing value to future site development are excluded from the scope of the decommissioning estimate, along with any Unit 2 facilities, in accordance with the State of New Hampshire's revised definition of decommissioning.[16]

Summary

The costs to decommission Seabrook Station are evaluated for multiple scenarios. Regardless of the timing of the decommissioning activities, the estimates assume the eventual removal of the contaminated and activated plant components and structural materials, such that the facility operator may then have unrestricted use of the site with no further requirement for an operating license. In the interim, the spent fuel remains in storage at the site until such time that the transfer to a DOE facility is complete. Once emptied, the storage facilities are also decommissioned.

The alternatives evaluated in this analysis are described in Section 2. The assumptions are presented in Section 3, along with schedules of annual expenditures. The major cost contributors are identified in Section 6, with detailed activity costs, waste volumes, and associated manpower requirements delineated in Appendix C. The major cost components are also identified in the cost summaries provided at the end of this section.

The cost elements in the estimates for the DECON alternative 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

[16] "Decommissioning of Nuclear Electric Generating Facilities," RSA-F:14, as revised by House Bill 740, 2001.

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 that will not already have been incurred as operational expenses prior to the plant shutdown date, the containerization and transfer of spent fuel to the ISFSI that is not transferred directly to the DOE over the first five and one-half 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 local grade.

It should be noted that the costs assigned to these subcategories are allocations. Delegation of cost elements 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.

The Seabrook unit is part of a large fleet of nuclear generating units. Assuming that the decommissioning of Seabrook Station will benefit from the decontamination and dismantling of its predecessors, certain economies and synergies may be available to reduce cost. In particular, lessons-learned can yield savings in activities such as engineering and planning, licensing and program management (in addition to fuel management and waste disposition). The magnitude of the savings will depend upon the degree of coordination, similarities in the environment (e.g., regulatory) under with the decommissioning is conducted and the consistency in approach to site-specific issues, however, we would expect cost savings of approximately 5% in program management from the synergies of decommissioning a fleet of nuclear units.

Another area of potential savings is in the long-term management of the spent fuel (once decommissioning has been completed). At times when fuel is not being actively transferred to the DOE, caretaking activities are generally minimal. As part of a larger fleet with similar caretaking requirements, a consolidated, centralized service organization (e.g., providing radiological, environmental and licensing support) could be a more economical alternative than a full compliment of personnel at each site. This approach is particularly effective if fuel is expected to reside at each site for an extended period of time; less so for abbreviated storage and/or staggered periods.

COST SUMMARY
DECOMMISSIONING SCENARIOS
(thousands of $2006)

Scenarios	Base Scenario	NDFC Scenario	2050 Scenario
Cessation of Operations (year)	2030	2030	2050
Spent Fuel Pick Up (year)	2032	2076	2076
Spent Fuel Off Site (year)	2055	2100	2100
Decontamination	12,547	12,547	12,547
Removal	75,250	75,336	75,696
Packaging	14,748	14,748	14,749
Transportation	17,137	17,184	17,381
Waste Disposal	62,797	62,918	63,533
Off-site Waste Processing	37,683	37,683	37,683
Program Management	314,747	432,423	380,169
ISFSI Related	76,711	105,520	96,141
Insurance and Regulatory Fees	20,447	46,163	34,744
Energy	14,022	16,927	15,637
Characterization and Surveys	23,275	23,275	23,275
Property Taxes	0	0	0
Miscellaneous Equipment	6,409	6,409	6,409
Total	675,774	851,133	777,965

Scenarios	Base Scenario	NDFC Scenario	2050 Scenario
License Termination	508,677	508,677	508,782
Spent Fuel Management	135,648	311,007	237,733
Site Restoration	31,450	31,450	31,450
Total	675,774	851,133	777,965

Note: Columns may not add due to rounding

COST COMPARISON
2003 vs. BASE SCENARIO
(thousands of $)

Scenarios	2003	Base Scenario	Change
Cessation of Operations (year)	2026	2030	
Spent Fuel Pick Up (year)	2025	2032	
Spent Fuel Off Site (year)	2045	2055	
Decontamination	11,233	12,547	1,313
Removal	78,988	75,250	-3,738
Packaging	15,123	14,748	-375
Transportation	12,057	17,137	5,080
Waste Disposal [1]	84,234	62,797	-21,437
Off-site Waste Processing	37,532	37,683	152
Program Management [2]	236,856	314,747	77,891
ISFSI Related [3]	64,087	76,711	12,624
Insurance and Regulatory Fees [4]	31,472	20,447	-11,026
Energy	15,240	14,022	-1,219
Characterization and Surveys	18,325	23,275	4,950
Property Taxes	0	0	0
Miscellaneous Equipment	8,014	6,409	-1,605
Total	613,163	675,774	62,611

Scenarios	2003	Base Scenario	Change
License Termination	475,521	508,677	33,156
Spent Fuel Management	104,320	135,648	31,328
Site Restoration	33,322	31,450	-1,872
Total	613,163	675,774	62,611

Note: Columns may not add due to rounding.

Explanation of Nominal Dollar Differences in Cost Components

1. Reduction in containerized and bulk disposal rates.
2. Increase in staffing levels, salaries, benefits & overheads, and fuel storage duration (6 yrs).
3. Increase in total assemblies discharged, transfer costs, and EP fees.
4. Includes shutdown credit per NRC proposed rule on Financial Protection for Permanently Shutdown Plants.

COST COMPARISON
2003 vs. NDFC SCENARIO
(thousands of $)

Scenarios	2003	NDFC	Change
Cessation of Operations (year)	2026	2030	
Spent Fuel Pick Up (year)	2025	2076	
Spent Fuel Off Site (year)	2045	2100	
Decontamination	11,233	12,547	1,313
Removal	78,988	75,336	-3,652
Packaging	15,123	14,748	-375
Transportation	12,057	17,184	5,127
Waste Disposal [1]	84,234	62,918	-21,317
Off-site Waste Processing	37,532	37,683	152
Program Management [2]	236,856	432,423	195,567
ISFSI Related [3]	64,087	105,520	41,433
Insurance and Regulatory Fees [4]	31,472	46,163	14,691
Energy	15,240	16,927	1,686
Characterization and Surveys	18,325	23,275	4,950
Property Taxes	0	0	0
Miscellaneous Equipment	8,014	6,409	-1,605
Total	613,163	851,133	237,970

Scenarios	2003	NDFC	Change
License Termination	475,521	508,677	33,155
Spent Fuel Management	104,320	311,007	206,687
Site Restoration	33,322	31,450	-1,872
Total	613,163	851,133	237,970

Note: Columns may not add due to rounding.

Explanation of Nominal Dollar Differences in Cost Components

1. Reduction in containerized and bulk disposal rates.
2. Increase in staffing levels, salaries, benefits & overheads, and fuel storage duration (51 yrs).
3. Increase in total assemblies discharged, transfer costs, and EP fees.
4. Insurance shutdown credit offset by increase of fuel storage duration.

1. INTRODUCTION

This report presents estimates of the costs to promptly decommission the Seabrook Station following a scheduled cessation of plant operations. The analysis is designed to provide Seabrook Station with sufficient information to assess the plant owners' financial obligations, as they pertain to the eventual decommissioning of the nuclear station. It is not a detailed engineering document, but a financial analysis prepared in advance of the detailed engineering that will be required to carry out the decommissioning.

1.1 OBJECTIVES OF STUDY

The objective of the analysis is to prepare comprehensive estimates of the costs, detailed schedules of the associated activities, and projections of the low-level radioactive waste generated in decommissioning Seabrook Station.

Under the terms of its current operating license, Seabrook Station will cease operations in 2030. License renewal could extend this date to 2050. As such, this analysis evaluates a combination of decommissioning scenarios as described in Sections 2 and 3.

1.2 SITE DESCRIPTION

The Seabrook Station is located on the western shore of Hampton Harbor in Rockingham County, in the town of Seabrook, New Hampshire. It is approximately 11 miles south of Portsmouth, New Hampshire, and two miles west of the Atlantic Ocean. Site structures, facilities, and associated system components deemed to have ongoing value to future site development are excluded from the scope of the decommissioning estimate, along with any Unit 2 facilities, in accordance with the State of New Hampshire's revised definition of decommissioning.[1]*

The nuclear steam supply system (NSSS) consists of a pressurized water reactor and a four-loop reactor coolant system, supplied by Westinghouse. The owners have received approval to increase the original power rating (in two separate applications) to the current 1,240 megawatts (electric). The reactor coolant system is comprised of the reactor vessel and four heat transfer loops, each containing a vertical U-tube type steam generator and a single stage centrifugal reactor coolant pump. In addition, the system includes an electrically heated pressurizer, a pressurizer relief tank, and

* Annotated references for citations in Sections 1-6 are provided in Section 7.

interconnected piping. The system is housed within a "containment structure," a seismic Category I reinforced-concrete dry structure that is designed to function at atmospheric pressure. It consists of an upright cylinder topped with a hemispherical dome, supported on a reinforced concrete foundation mat that is keyed into the bedrock. A welded steel liner plate, anchored to the inside face of the containment, serves as a leak-tight membrane. A four-foot thick concrete mat forms the floor of the containment. Located outside the containment building, and having a similar geometry, is the containment enclosure building. This structure provides leak protection for the containment and protection from certain external loads.

Heat produced in the reactor is converted to electrical energy by the steam and power conversion system. A turbine-generator system converts the thermal energy of steam produced in the steam generators into mechanical shaft power and then into electrical energy. The plant's turbine-generator consists of a tandem compound, six flow, single reheat unit. The high-pressure turbine element includes one double-flow, high-pressure turbine. The low-pressure turbine elements include three double-flow, low-pressure turbines and four external moisture separator/reheaters driving a direct-coupled generator at 1800 rpm. The turbine is operated in a closed feedwater cycle, which condenses the steam; the heated feedwater is returned to the steam generators. Heat rejected in the main condensers is removed by the circulating water system. In the circulating water system, cooling of the main condenser system is via water taken from the Atlantic Ocean through one of the 19-foot diameter tunnels and is pumped through the three condenser shells in the turbine building. The heated water is then returned by way of diffusers to the ocean through the other tunnel.

The Atlantic Ocean serves as the normal ultimate heat sink. However, in the unlikely event that the normal supply of cooling water from the Atlantic Ocean is unavailable, heat can be discharged to the atmosphere through the use of a mechanical draft evaporative cooling tower.

1.3 REGULATORY GUIDANCE

The Nuclear Regulatory Commission (NRC or Commission) provided initial decommissioning requirements in its rule "General Requirements for Decommissioning Nuclear Facilities," issued in June 1988.[2] This rule set forth financial criteria for decommissioning licensed nuclear power facilities. The regulation addressed decommissioning planning needs, timing, funding methods, and environmental review requirements. The intent of the rule was to ensure that decommissioning would be accomplished in a safe and timely manner and that adequate funds would be available for this purpose.

Subsequent to the rule, the NRC issued Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors,"[3] which provided additional guidance to the licensees of nuclear facilities on the financial methods acceptable to the NRC staff for complying with the requirements of the rule. The regulatory guide addressed the funding requirements and provided guidance on the content and form of the financial assurance mechanisms indicated in the rule.

The rule defined three decommissioning alternatives as being acceptable to the NRC: DECON, SAFSTOR, and ENTOMB. The DECON alternative assumes that any contaminated or activated portion of the plant's systems, structures and facilities are removed or decontaminated to levels that permit the site to be released for unrestricted use shortly after the cessation of plant operations, while the SAFSTOR and ENTOMB alternatives defer the process. The DECON alternative is also consistent with the requirements of New Hampshire law. See, e.g., RSA 162-F:14, II(a).

The rule also placed limits on the time allowed to complete the decommissioning process. For SAFSTOR, the process is restricted in overall duration to 60 years, unless it can be shown that a longer duration is necessary to protect public health and safety. The guidelines for ENTOMB are similar, providing the NRC with both sufficient leverage and flexibility to ensure that these deferred options are only used in situations where it is reasonable and consistent with the definition of decommissioning. At the conclusion of a dormancy period, the site would still require significant remediation to meet the unrestricted release limits for license termination.

The ENTOMB alternative has not been viewed as a viable option for power reactors due to the significant time required to isolate the long-lived radionuclides for decay to permissible levels. However, with recent rulemaking permitting the controlled release of a site,[4] the NRC has re-evaluated this alternative. The resulting feasibility study, based upon an assessment by Pacific Northwest National Laboratory, concluded that the method did have conditional merit for some, if not most reactors. However, the staff also found that additional rulemaking would be needed before this option could be treated as a generic alternative. The NRC had considered rulemaking to alter the 60-year time for completing decommissioning and to clarify the use of engineered barriers for reactor entombments.[5] However, the NRC's staff has recommended that rulemaking be deferred, based upon several factors (e.g., no licensee has committed to pursuing the entombment option, the unresolved issues associated with the disposition of greater-than-Class C material (GTCC), and the NRC's current priorities), at least until

after the additional research studies are complete. The Commission concurred with the staff's recommendation.

In 1996, the NRC published revisions to the general requirements for decommissioning nuclear power plants.[6] When the decommissioning regulations were adopted in 1988, it was assumed that the majority of licensees would decommission at the end of the facility's operating licensed life. Since that time, several licensees permanently and prematurely ceased operations. Exemptions from certain operating requirements were required once the reactor was defueled to facilitate the decommissioning. Each case was handled individually, without clearly defined generic requirements. The NRC amended the decommissioning regulations in 1996 to clarify ambiguities and codify procedures and terminology as a means of enhancing efficiency and uniformity in the decommissioning process. The amendments allow for greater public participation and better define the transition process from operations to decommissioning.

Under the revised regulations, licensees will submit written certification to the NRC within 30 days after the decision to cease operations. Certification will also be required once the fuel is permanently removed from the reactor vessel. Submittal of these notices entitle the licensee to a fee reduction and eliminate the obligation to follow certain requirements needed only during operation of the reactor. Within two years of submitting notice of permanent cessation of operations, the licensee is required to submit a Post-Shutdown Decommissioning Activities Report (PSDAR) to the NRC. The PSDAR describes the planned decommissioning activities, the associated sequence and schedule, and an estimate of expected costs. Prior to completing decommissioning, the licensee is required to submit an application to the NRC to terminate the license, which includes a license termination plan (LTP).

While Seabrook Station was under construction in 1981 the New Hampshire Legislature enacted RSA 162-F which, among other things, called for the creation of a fund into which the Seabrook Station owners would make payments for the purpose of decommissioning the station at the end of its expected operating life, as well as creation of the NDFC. RSA-162 grants to the NDFC the authority to establish the projected cost of decommissioning and the schedule of payments necessary for the Seabrook Station owners to meet those projected costs by the funding date, *See* RSA 162-F:15, I; RSA 162-F:14, II.

When RSA 162-F was initially enacted, the Seabrook Station site was to be returned to its original pre-construction condition following the end of its

operating life. NDFC Final Report and Order, Docket No. NDFC 2001-1 (Nov. 5, 2001) ("2001 Order") at 11. In 2001, however, the statute was amended, requiring instead that the site be returned to a "non-nuclear commercial, industrial, or other similar use" condition after Seabrook Station ceases operation. RSA 162-F:14, II(b). The amendment also made clear that the NDFC is charged with determining what decommissioning activities are required for the Station, the projected cost of those activities using the new commercial/industrial "C/I" decommissioning standard, and for controlling withdrawals from the decommissioning trust fund to ensure that the funds are spent for legitimate decommissioning activities. RSA 162-F:15, I; 162-F:14, II & 162-F:23; see also 2001 Order at 7-8.

In its 2001 Order, the NDFC adopted more specific guidance on the parameters of the C/I standard for determining the projected cost of decommissioning. See 2001 Order at 14, 42 and Attachment 1. The NDFC also addressed Seabrook Station's expected operating life in the order.

The NDFC in prior orders determined that the assumed plant shutdown date should correspond to the date on which the NRC license is terminated. In December, 2005, the NRC granted FPLE Seabrook's application for recapture of the zero- and low-power testing periods for the plant, thereby extending the plant's operating license 3.4 years, to March 2030. Consistent with this new license date, in its 2006 Order, the NDFC determined that this 2007 comprehensive update should assume a 2030 shutdown. Accordingly, this study evaluates a 2030 shutdown date (*see* Base Scenario and NDFC Scenario), as well as costs that would be incurred in the event that the plant's license is renewed to 2050 (*see* 2050 Scenario).

1.3.1 Nuclear Waste Policy Act

Congress passed the Nuclear Waste Policy Act[7] (NWPA) in 1982, assigning the responsibility for disposal of the spent nuclear fuel created by the commercial nuclear generating plants to the U.S. Department of Energy (DOE). Two permanent disposal facilities were envisioned, as well as an interim storage facility. In order to pay for such facilities, the legislation created a Nuclear Waste Fund through which money is collected from the sale of electricity generated by nuclear power plants. NWPA, along with the individual disposal contracts that nuclear utilities were required to sign, 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

initiate the disposal of spent nuclear fuel and high level waste, as required by the NWPA and the utility contracts. Delays continue, and as a result, generators have initiated legal action against the DOE in an attempt to resolve the impasse.[8]

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 and the successful resolution of pending litigation. The latest projection for submittal of the license application by the DOE is mid-2008.[9] For purposes of this analysis, the owners of Seabrook Station are assuming that 2022 is the earliest that the DOE can be expected to initiate transfer operations, with the earliest transfers from Seabrook in 2032 (Base Scenario).

The DOE's generator allocation/receipt schedules are based upon the oldest fuel receiving the highest priority. Assuming a maximum rate of transfer (3,000 metric tons of uranium (MTU)/year), the earliest date for completion of fuel removal from the site is 2055 (Base Scenario). The latest completion date, evaluated to bound the liability, would be 2100 (NDFC Scenario and 2050 Scenario).

The NRC requires that licensees establish a program to manage and provide funding for the caretaking of all irradiated fuel at the reactor site until title of the fuel is transferred to the DOE.[10] Interim storage of the fuel, until the DOE has completed the transfer, will be in an independent facility located on the Seabrook Station site. This will allow decommissioning to proceed and the operating license terminated in the shortest time possible.

The independent spent fuel storage facility (ISFSI), which is licensed under the plant's general license and operated independently, will be operational prior to the cessation of plant operations. In the 2050 Scenario, the facility will be expanded to accommodate the inventory of spent fuel residing in the plant's storage pool at the conclusion of the five and one-half year cooling period (the facility is also expanded in the NDFC Scenario to accommodate the GTCC canisters). Once emptied, the fuel storage building can be decontaminated and dismantled.

1.3.2 Low-Level Radioactive Waste Acts

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 is suitable for "shallow-land" disposal. Congress passed the "Low-Level Radioactive Waste Disposal Act" in 1980,[11] declaring the states as being 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,"[12] extended the implementation schedule, with specific milestones and stiff sanctions (subsequently struck down by the courts) for non-compliance. However, to date, no new compact facilities have been successfully sited, licensed, and constructed.

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, metal melt, etc.

Based on a recent agreement between FPLE Seabrook and EnergySolutions, LLC Seabrook Station has obtained disposal capacity at EnergySolutions' Clive, Utah facility for its Class A operational and decommissioning low-level radioactive waste. This agreement is effective through the full duration of the decommissioning period. The agreement incorporates pre-established firm pricing for processing and/or disposal for the majority of the waste that will be generated by the Seabrook Station during operations and decommissioning with an indexed escalation rate. The decommissioning cost estimates incorporate the disposal rates provided for in the agreement with EnergySolutions.

Seabrook Station also currently has access to dispose of Class A, B or C low-level radioactive waste 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. After June 30, 2008, access to the Barnwell Low-Level Radioactive Waste Disposal Facility may be

available only to generators located in states affiliated with the Atlantic Compact.

Despite the potential near-term loss of Class B and C disposal capacity at the Barnwell Low-Level Radioactive Waste Disposal Facility, it is reasonable to assume that future disposal capacity will be available to support the disposal of Class B and C low-level radioactive waste that will be generated during Seabrook's decommissioning. For purposes of decommissioning cost estimates, the costs for disposal of the Class B and C low-level radioactive waste are based on Barnwell disposal rates as a proxy.

1.3.3 Radiological Criteria for License Termination

In 1997, the NRC published Subpart E, "Radiological Criteria for License Termination,"[13] amending 10 CFR §20. This subpart provides radiological criteria for releasing a facility for unrestricted use. The regulation states that the site can be released for unrestricted use if radioactivity levels are such that the average member of a critical group would not receive a Total Effective Dose Equivalent (TEDE) in excess of 25 millirem per year, and provided that residual radioactivity has been reduced to levels that are As Low As Reasonably Achievable (ALARA). The decommissioning estimates for Seabrook Station assume that the site will be remediated to a residual level consistent with the NRC-prescribed level and the State of New Hampshire's revised definition of decommissioning.

It should be noted that the NRC and the Environmental Protection Agency (EPA) differ on the amount of residual radioactivity considered acceptable in site remediation. The EPA has two limits that apply to radioactive materials. An EPA limit of 15 millirem per year is derived from criteria established by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund).[14] An additional and separate limit of 4 millirem per year, as defined in 40 CFR §141.16, is applied to drinking water.[15]

On October 9, 2002, the NRC signed an agreement with the EPA on the radiological decommissioning and decontamination of NRC-licensed sites. The Memorandum of Understanding (MOU)[16] provides that EPA will defer exercise of authority under CERCLA for the majority of facilities decommissioned under NRC authority. The MOU also includes provisions for NRC and EPA consultation for certain sites when, at the time of license termination, (1) groundwater

contamination exceeds EPA-permitted levels; (2) NRC contemplates restricted release of the site; and/or (3) residual radioactive soil concentrations exceed levels defined in the MOU.

The MOU does not impose any new requirements on NRC licensees and should reduce the involvement of the EPA with NRC licensees who are decommissioning. Most sites are expected to meet the NRC criteria for unrestricted use, and the NRC believes that only a few sites will have groundwater or soil contamination in excess of the levels specified in the MOU that trigger consultation with the EPA. However, if there are other hazardous materials on the site, the EPA may be involved in the cleanup. As such, the possibility of dual regulation remains for certain licensees. The present study does not include any costs for this occurrence.

2. DECOMMISSIONING ALTERNATIVES

Detailed cost estimates were developed to promptly decommission Seabrook Station, (i.e., the DECON decommissioning alternative). The DECON alternative, as defined by the NRC, is "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." Application of this standard is mandated by New Hampshire law, as interpreted by the NDFC.

Three scenarios were identified for evaluation. As shown below, the three scenarios evaluate a combination of shutdown dates (scheduled and anticipated), and expectations of the DOE's performance in transferring spent fuel from the site to a federal repository

Scenario	Shutdown Date	Decommissioning Alternative	Spent Fuel Off Site
Base Scenario	2030	DECON	2055
NDFC Scenario	2030	DECON	2100
2050 Scenario	2050	DECON	2100

The following sections describe the basic activities associated with the DECON alternative. Although detailed procedures for each activity identified are not provided, and the actual sequence of work may vary, the activity descriptions provide a basis not only for estimating but also for the expected scope of work (i.e., engineering and planning at the time of decommissioning).

The conceptual approach that the NRC has described in its regulations divides decommissioning into three phases. The initial phase commences with the effective date of permanent cessation of operations and involves the transition of both plant and licensee from reactor operations (i.e., power production) to facility de-activation and closure. During the first phase, notification is provided to the NRC certifying the permanent cessation of operations and the removal of fuel from the reactor vessel. The licensee is then prohibited from reactor operation.

The second phase encompasses activities during the storage period or during major decommissioning activities, or a combination of the two. The third phase pertains to the activities involved in license termination. The decommissioning estimates

developed for the Seabrook Station are also divided into phases or periods; however, demarcation of the phases is based upon major milestones within the project or significant changes in the projected expenditures.

2.1 PERIOD 1 - PREPARATIONS

In anticipation of the cessation of plant operations, detailed preparations are undertaken to provide a smooth transition from plant operations to site decommissioning. Through implementation of a staffing transition plan, the organization required to manage the intended decommissioning activities is assembled from available plant staff and outside resources. Preparations include the planning for permanent defueling of the reactor, revision of technical specifications applicable to the operating conditions and requirements, a characterization of the facility and major components, and the development of the PSDAR.

2.1.1 Engineering and Planning

The PSDAR, required within two years of the notice to cease operations, provides a description of the licensee's planned decommissioning activities, a timetable, and the associated financial requirements of the intended decommissioning program. Upon receipt of the PSDAR, the NRC will make the document available to the public for comment in a local hearing to be held in the vicinity of the reactor site. Ninety days following submittal and NRC receipt of the PSDAR, the licensee may begin to perform major decommissioning activities under a modified 10 CFR §50.59 procedure (i.e., without specific NRC approval). Major activities are defined as any activity that results in permanent removal of major radioactive components, permanently modifies the structure of the containment, or results in dismantling components (for shipment) containing GTCC, as defined by 10 CFR §61. Major components are further defined as comprising the reactor vessel and internals, steam generators, large bore reactor coolant system piping, and other large components that are radioactive. The NRC includes the following additional criteria for use of the §50.59 process in decommissioning. The proposed activity must not:

- foreclose release of the site for possible unrestricted use,
- significantly increase decommissioning costs,
- cause any significant environmental impact, or
- violate the terms of the licensee's existing license.

Existing operational technical specifications are reviewed and modified to reflect plant conditions and the safety concerns associated with permanent cessation of operations. The environmental impact associated with the planned decommissioning activities is also considered. Typically, a licensee is not allowed to proceed if the consequences of a particular decommissioning activity are greater than that bounded by previously evaluated environmental assessments or impact statements. In this instance, the licensee must submit a license amendment for the specific activity and update the environmental report.

The decommissioning program outlined in the PSDAR is designed to accomplish the required tasks within the ALARA guidelines (as defined in 10 CFR §20) for protection of personnel from exposure to radiation hazards. It also addresses the continued protection of the health and safety of the public and the environment during the dismantling activity. Consequently, with the development of the PSDAR, activity specifications, cost-benefit and safety analyses, work packages, and procedures are assembled to support the proposed decontamination and dismantling activities.

2.1.2 Site Preparations

Following final plant shutdown, and in preparation for actual decommissioning activities, the following activities are initiated:

- Characterization of the site and surrounding environs. This includes radiation surveys and sampling of the work areas, major components (including the reactor vessel and its internals), internal piping, and biological shield.
- Isolation of the spent fuel storage pool and fuel handling systems, such that decommissioning operations can commence on the balance of the plant. Decommissioning operations are scheduled around the fuel handling area to optimize the overall project schedule. The fuel will be transferred from the pool once it decays to the point that it meets the heat load criteria of the storage/transport containers. Consequently, it is assumed that the fuel pool will remain operational for approximately five years following the cessation of plant operations.
- Specification of transport and disposal requirements for activated materials and/or hazardous materials, including shielding and waste stabilization.

- Development of procedures for occupational exposure control, control and release of liquid and gaseous effluent, processing of radwaste (including dry-active waste, resins, filter media, metallic and non-metallic components generated in decommissioning), site security and emergency programs, and industrial safety.

2.2 PERIOD 2 - DECOMMISSIONING OPERATIONS

This period includes the physical decommissioning activities associated with the removal and disposal of contaminated and activated components and structures, including the successful termination of the 10 CFR §50 operating license. Significant decommissioning activities in this phase include:

- Construction of temporary facilities and/or modification of existing facilities to support dismantling activities. This may include a centralized processing area to facilitate equipment removal and component preparations for off-site disposal.
- Reconfiguration and modification of site structures and facilities as needed to support decommissioning operations. This may include the upgrading of roads (on- and off-site) to facilitate hauling and transport. Modifications may be required to the containment structure to facilitate access of large/heavy equipment. Modifications may also be required to the refueling area of the building to support the segmentation of the reactor vessel internals and component extraction.
- Design and fabrication of temporary and permanent shielding to support removal and transportation activities, construction of contamination control envelopes, and the procurement of specialty tooling.
- Procurement (lease or purchase) of shipping canisters, cask liners, and industrial packages.
- Decontamination of components and piping systems as required to control (minimize) worker exposure.
- Removal of piping and components no longer essential to support decommissioning operations.
- Removal of control rod drive housings and the head service structure from reactor vessel head. Segmentation of the vessel closure head.
- Removal and segmentation of the upper internals assemblies. Segmentation will maximize the loading of the shielded transport casks (i.e., by weight and activity). The operations are conducted under water using remotely operated tooling and contamination controls.

- Disassembly and segmentation of the remaining reactor internals, including the core former and lower core support assembly. Some material is expected to exceed Class C disposal requirements. That material will be packaged in a modified fuel canister for geologic disposal.
- Segmentation of the reactor vessel. A shielded platform is installed for segmentation as cutting operations are performed in air using remotely operated equipment within a contamination control envelope. The water level is maintained just below the cut to minimize the working area dose rates. Segments are transferred in-air to containers that are stored under water, for example, in an isolated area of the refueling canal.
- Removal of the activated portions of the concrete biological shield and accessible contaminated concrete surfaces. If dictated by the steam generator and pressurizer removal scenarios, those portions of the associated cubicles necessary for access and component extraction are removed.
- Removal of the steam generators and pressurizer for controlled disposal. The steam domes are removed for off-site processing. The lower shell is sealed and the nozzles and other openings welded closed. These components can serve as their own burial containers provided that all penetrations are properly sealed and the internal contaminants are stabilized. Steel shielding is added, as necessary, to those external areas of the steam generators to meet transportation limits and regulations.
- Transfer of the spent fuel from the storage pool to the DOE and ISFSI pad and, in the 2050 Scenario and NDFC Scenario, expansion of the ISFSI.

At least two years prior to the anticipated date of license termination, a LTP is required. Submitted as a supplement to the FSAR, or equivalent, the plan must include: a site characterization, description of the remaining dismantling activities, plans for site remediation, in conformity with New Hampshire's commercial/industrial standard, procedures for the final radiation survey, designation of the end use of the site, an updated cost estimate to complete the decommissioning, and any associated environmental concerns. The NRC will notice the receipt of the plan, make the plan available for public comment, and schedule a local hearing. LTP approval will be subject to any conditions and limitations as deemed appropriate by the Commission. The licensee may then commence with the final remediation of site facilities and services, including:

- Removal of remaining plant systems and associated components as they become nonessential to the decommissioning program or worker health and

safety (e.g., waste collection and treatment systems, electrical power and ventilation systems).

- Removal of the steel liners from refueling canal, disposing of the activated and contaminated sections as radioactive waste. Removal of any remaining activated/ contaminated concrete.
- Surveys of the decontaminated areas of the containment structure.
- Remediation and removal of the contaminated equipment and material from the auxiliary and fuel buildings and any other contaminated facility. Radiation and contamination controls are utilized until residual levels indicate that the structures and equipment can be released for unrestricted access and conventional demolition. This activity may necessitate the dismantling and disposition of most of the systems and components (both clean and contaminated) located within these buildings. This activity facilitates surface decontamination and subsequent verification surveys required prior to obtaining release for demolition.
- Removal of the remaining components, equipment, and plant services in support of the area release survey(s).
- Routing of material removed in the decontamination and dismantling to a central processing area. Material certified to be free of contamination is released for unrestricted disposition (e.g., as scrap, recycle, or general disposal). Contaminated material is characterized and segregated for additional off-site processing (disassembly, chemical cleaning, volume reduction, and waste treatment), and/or packaged for controlled disposal at a low-level radioactive waste disposal facility.

Incorporated into the LTP is the Final Survey Plan. This plan identifies the radiological surveys to be performed once the decontamination activities are completed and is developed using the guidance provided in the "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)."[17] This document incorporates the statistical approaches to survey design and data interpretation used by the EPA. It also identifies commercially available instrumentation and procedures for conducting radiological surveys. Use of this guidance ensures that the surveys are conducted in a manner that provides a high degree of confidence that applicable NRC criteria are satisfied. Once the survey is complete, the results are provided to the NRC in a format that can be verified. The NRC then reviews and evaluates the information, performs an independent confirmation of radiological site conditions, and makes a determination on final termination of the license.

The NRC will terminate the operating license if it determines that site remediation has been performed in accordance with the LTP, and that the

terminal radiation survey and associated documentation demonstrate that the facility is suitable for release.

2.3 PERIOD 3 - SITE RESTORATION

Following completion of decommissioning operations, site restoration activities toward the commercial/industrial standard may begin. Efficient removal of the contaminated materials and verification that residual radionuclide concentrations are below the NRC limits may result in substantial damage to many of the structures. Although performed in a controlled, safe manner, blasting, coring, drilling, scarification (surface removal), and the other decontamination activities will substantially degrade power block structures including the reactor and auxiliary buildings. Verifying that subsurface radionuclide concentrations meet NRC site release requirements may require removal of grade slabs and lower floors, potentially weakening footings and structural supports. This removal activity will be necessary for those facilities and plant areas where historical records, when available, indicate the potential for radionuclides having been present in the soil, where system failures have been recorded, or where it is required to confirm that subsurface process and drain lines were not breached over the operating life of the station.

Prompt dismantling of site structures is clearly the most appropriate option. It is unreasonable to anticipate that these structures would be repaired and preserved after the radiological contamination is removed. The cost to dismantle site structures with a work force already mobilized on site is more efficient than if the process were deferred. Site facilities quickly degrade without maintenance, adding additional expense and creating potential hazards to the public as well as to future workers. Abandonment creates a breeding ground for vermin infestation as well as other biological hazards.

This cost study presumes that non-essential structures and site facilities are dismantled as a continuation of the decommissioning activity. Foundations and exterior walls are removed to a nominal depth of three feet below grade. The three-foot depth allows for the placement of gravel for drainage, as well as topsoil, so that vegetation can be established for erosion control. Site areas affected by the dismantling activities are restored and the plant area graded as required to prevent ponding and inhibit the refloating of subsurface materials.

Concrete rubble produced by demolition activities is processed to remove rebar and miscellaneous embedments. The processed material is then used

on site to backfill voids. Excess materials are trucked to an off-site area for disposal as construction debris.

2.4 ISFSI OPERATIONS AND DECOMMISSIONING

The ISFSI will continue to operate under a general license as authorized by 10 CFR §72, Subpart K following the termination of the 10 CFR §50 operating license. Assuming the DOE starts accepting fuel in 2022, transfer of spent fuel from Seabrook Station is anticipated to begin in 2032, at the earliest (Base Scenario). Any delay in the transfer process, for example, due to a delay in the scheduled opening of the geologic repository, a slower acceptance rate, or a combination of a delayed start date and lower transfer rate, can result in a longer on-site residence time for the fuel discharge from the reactor, as well as additional caretaking expenses. Pursuant to the NDFC's directive in the 2006 Order, fuel transfer from Seabrook Station is anticipated to begin in 2076 at the latest (NDFC Scenario and 2050 Scenario). Particularly given the large numbers of nuclear units that are scheduled for decommissioning in advance of the Seabrook Station, this assumption is highly conservative.

At the conclusion of the spent fuel transfer process, the ISFSI will be decommissioned. The Commission will terminate the 10 CFR §72 license if it determines that the remediation of the ISFSI has been performed in accordance with an ISFSI license termination plan and that the final radiation survey and associated documentation demonstrate that the facility is suitable for release. Once the requirements are satisfied, the NRC can terminate the license for the ISFSI.

The assumed design for the ISFSI is based upon the use of a NUHOMS® HD system (multi-purpose canister and a horizontal concrete storage module). The NRC approved this system for use as a device for storing spent fuel, effective January 10, 2007. For purposes of this cost analysis, it is assumed that once the inner canisters containing the spent fuel assemblies have been removed, any required decontamination performed, and the license for the facility terminated, the modules can be dismantled using conventional techniques for the demolition of reinforced concrete.

3. COST ESTIMATES

The analysis prepared for decommissioning Seabrook Station considers the unique features of the site, including the nuclear steam supply system, power generation systems, support services, site buildings, and ancillary facilities. The basis of the estimates, including the sources of information relied upon, the estimating methodology employed, site-specific considerations, and other pertinent assumptions, is described in this section.

3.1 BASIS OF ESTIMATES

The current estimates are developed using the basic design information originally generated for the decommissioning analysis prepared in 1997-98 and updated in 2003.[18] The site-specific considerations and assumptions used in the previous estimate were revisited. Modifications were incorporated where new information was available or experience from ongoing decommissioning programs provided viable alternatives or improved processes.

3.2 METHODOLOGY

The methodology used to develop the estimates follows the basic approach originally presented in the AIF/NESP-036 study report, "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates,"[19] and the DOE "Decommissioning Handbook."[20] 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.[21]

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. Appendix A presents the detailed development of a typical unit factor. Appendix B provides the values contained within one set of factors developed for this analysis.

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

- Access Factor 10% to 20%
- Respiratory Protection Factor 10% to 50%
- Radiation/ALARA Factor 10% to 37%
- Protective Clothing Factor 10% to 30%
- Work Break Factor 8.33%

The factors and their associated range of values were developed in conjunction with the AIF/NESP-036 study. The application of the factors is discussed in more detail in that publication.

Scheduling Program Durations

The unit factors, adjusted by the WDFs as described above, are applied against the inventory of materials to be removed in the radiological controlled areas. The resulting man-hours, or crew-hours, are used in the development of the decommissioning program schedule, using resource loading and event sequencing considerations. The scheduling of conventional removal and dismantling activities are based upon productivity information available from the "Building Construction Cost Data" publication.

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

3.3 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.

3.3.1 Contingency

The activity- and period-dependent costs are combined to develop the total decommissioning cost. A contingency is then applied on a line-item basis, using one or more of the contingency types listed in the AIF/NESP-036 study. "Contingencies" are defined in the American Association of Cost Engineers "Project and Cost Engineers' Handbook"[22] as "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." The cost elements in this estimate are based upon ideal conditions and maximum efficiency; therefore, consistent with industry practice, a contingency factor has been applied. In the AIF/NESP-036 study, the types of unforeseeable events that are likely to occur in decommissioning are discussed and guidelines are provided for percentage contingency in each category. 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 station.

The use and role of contingency within decommissioning estimates provides assurance that sufficient funding is available to accomplish the intended tasks. An estimate without contingency, or from which contingency has been removed, can disrupt the orderly progression of events and jeopardize a successful conclusion to the decommissioning process.

For example, the most technologically challenging task in decommissioning a commercial nuclear station will be the disposition of the reactor vessel and internal components, which have become highly radioactive after a lifetime of exposure to radiation produced in the core. The disposition of these highly radioactive components forms the basis for the critical path (schedule) for decommissioning operations. Cost and schedule are interdependent, and any deviation in schedule has a significant impact on cost for performing a specific activity.

Disposition of the reactor vessel internals involves the underwater cutting of complex components that are highly radioactive. Costs are based upon optimum segmentation, handling, and packaging scenarios. The schedule is primarily dependent upon the turnaround time for the heavily shielded shipping casks, including preparation, loading, and decontamination of the containers for transport. The number of casks required is a function of the pieces generated in the segmentation activity, a value calculated on optimum performance of the tooling employed in cutting the various subassemblies. The expected optimization, however, may not be achieved, resulting in delays and additional program costs. For this reason, contingency must be included to mitigate the consequences of the expected inefficiencies inherent in this complex activity, along with related concerns associated with the operation of highly specialized tooling, field conditions, and water clarity.

Contingency funds are an integral part of the total cost to complete the decommissioning process. Exclusion of this component puts at risk a successful completion of the intended tasks and, potentially, subsequent related activities. For this study, TLG examined the major activity-related problems (decontamination, segmentation, equipment handling, packaging, transport, and waste disposal) that necessitate a contingency. Individual activity contingencies ranged from 10% to 75%, depending on the degree of difficulty judged to be appropriate from TLG's actual decommissioning experience. The contingency values used in this study are consistent with those developed in the AIF/NESP-036 study and are as follows:

Decontamination	50%
Contaminated Component Removal	25%
Contaminated Component Packaging	10%
Contaminated Component Transport	15%
Low-Level Radioactive Waste Disposal	25%

Reactor Segmentation	75%
NSSS Component Removal	25%
Reactor Waste Packaging	25%
Reactor Waste Transport	25%
Reactor Vessel Component Disposal	50%
GTCC Disposal	15%
Non-Radioactive Component Removal	15%
Heavy Equipment and Tooling	15%
Supplies	25%
Engineering	15%
Energy	15%
Characterization and Termination Surveys	30%
Construction	15%
Taxes and Fees	10%
Insurance	10%
Staffing	15%

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 each detailed estimate as provided in Appendix C.

3.3.2 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:

- 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).
- Pricing changes for basic inputs, such as labor, energy, and materials.

There are also components of the cost estimates that are conservative and produce overall estimates that may exceed the actual cost to decommission Seabrook Station. For example, the estimates make no adjustments for:

- Future advances in decommissioning technology or processes which, while presently unknown, are likely to occur;
- Best practices that Seabrook Station will take advantage of as one of the last of 103 operating nuclear plants to decommission;
- The decommissioning economies resulting from FPL decommissioning a fleet of nuclear units, as distinct from decommissioning a single nuclear unit; and
- The conservatism of the assumed delay in transfer of spent fuel incorporated into the NDFC Scenario and 2050 Scenario.

Although cost estimates do not add any additional costs to the estimates for financial risk, the areas of uncertainty or risk are revisited periodically and addressed through repeated revisions or updates of the base estimate.

3.4 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 impact of the considerations identified below is included in this cost study.

3.4.1 Spent Fuel Management

The cost to dispose of the spent fuel generated from plant operations is not reflected within the estimates to decommission the Seabrook Station. Ultimate disposition of the spent fuel is within the province of the DOE's Waste Management System, as defined by the NWPA. As such, the disposal cost is financed by a 1 mill/kWhr surcharge paid into the DOE's

waste fund during operations. However, the NRC requires licensees to 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 Secretary of Energy. This funding requirement is fulfilled through inclusion of certain high-level waste cost elements within the estimate, as described below.

The total inventory of assemblies that will require handling during decommissioning is based upon several assumptions. The pickup of commercial fuel is assumed to begin in the year 2022 (Base Scenario) and will proceed on an oldest fuel first basis, with the first fuel from Seabrook transferred to DOE in 2032. The maximum rate at which the fuel is removed from the commercial sites is based upon an annual capacity at the geologic repository of 3,000 metric tons. Any delay in the startup of the repository or decrease in the rate of acceptance will correspondingly prolong the transfer process and result in the fuel remaining at the site longer.

The ISFSI will continue to operate throughout decommissioning, and beyond the termination of the operating license, until such time that the transfer of spent fuel to the DOE can be completed. Assuming that the DOE commences repository operation in 2022, fuel is projected to be removed from the site by the year 2055 in the Base Scenario. The NDFC Scenario and 2050 Scenario assume that fuel is removed from the site by the year 2100.

Operation and maintenance costs for the ISFSI are included within the estimates and address the cost for staffing the facility, as well as security, insurance, and licensing fees. The estimates include the costs to purchase, load, and transfer the fuel storage canisters. Costs are also provided for the final disposition of the facility once the transfer is complete.

Repository Startup

Operation of the DOE's yet-to-be constructed geologic repository is contingent upon the review and approval of the facility's license application by the NRC and the successful resolution of pending litigation. The timetable issued by the DOE in 2006 contemplates that the site will commence accepting fuel in 2017 and is based upon submittal of the license application in mid-2008. Assuming a timely review (the application for the Private Fuel Storage's facility on the Goshute reservation took 8½ years). With the 5-year Delay Contingency,

the Base Scenario analysis assumes that the DOE could begin to receive fuel as early as 2022

Spent Fuel Management Model

The ability to complete the decommissioning is highly dependent upon when the DOE is assumed to remove spent fuel from the site. DOE's repository program assumes that spent fuel will be accepted for disposal from the nation's commercial nuclear plants in the order (the "queue") in which it was removed from service ("oldest fuel first").[23] The site residence schedule for the spent fuel is based upon the DOE's most recently published annual acceptance rates of 400 MTU/year for year 1, 600 MTU/year for year 2, 1200 MTU/year for year 3, 2000 MTU/year for year 4, and 3000 MTU/year for year 5 and beyond.[24]

In the current cost analysis, three scenarios were identified for evaluation. As shown below, the three scenarios evaluate a prompt decommissioning alternative with a combination of shutdown dates and expectations of the DOE's performance in transferring spent fuel from the site to a federal repository.

Scenario	Shutdown	Option	1st Spent Fuel Assembly Pickup	Last Assembly Pickup
Base Scenario	2030	DECON	2032	2055
NDFC Scenario	2030	DECON	2076	2100
2050 Scenario	2050	DECON	2076	2100

Canister Design

A NUHOMS® transportable multi-purpose dry shielded storage canister, with a 32-fuel assembly capacity, is assumed for future cask acquisitions. For fuel transferred directly from the pool to the DOE, the DOE was assumed to provide the MPC at no additional cost to the owner.

Canister Loading and Transfer

An average cost of $255,000 was used for the labor to load/transport the spent fuel from the pool to the ISFSI pad, direct transfer from the pool to

the DOE was estimated at $225,000. A cost of $145,000 was used to estimate the cost to transfer the fuel from the ISFSI to the DOE.

Operations and Maintenance

An annual cost (excluding labor) of approximately $630,700 and $77,600 was used for operation and maintenance of the spent fuel pool and the ISFSI, respectively.

At shutdown, the spent fuel pool is expected to contain freshly discharged assemblies (from the most recent refueling cycles). Over the next five and one-half years the assemblies are packaged into MPCs for transfer to the ISFSI or to the DOE's geologic repository. It is assumed that the five and one-half years also provides the necessary cooling period for the final core to meet DOE's transport system requirements for decay heat and/or the dry cask storage vendor's system. Once the pool is emptied, the spent fuel storage and handling facilities are available for decommissioning.

ISFSI operating durations are based upon the previously stated assumptions on fuel transfer expectations for the various scenarios.

ISFSI Design Considerations

A NUHOMS® dry shielded horizontal storage module was used as a basis for the cost analyses. Once emptied, the internal canister support structure is assumed to be removed from the storage module for controlled disposal. The cost to dispose of this material, as well as the demolition of the ISFSI facility, is included in the estimate.

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.

It is not anticipated that the DOE would accept this waste prior to completing the transfer of spent fuel. Therefore, until such time the DOE

is ready to accept GTCC waste, it is reasonable to assume that this material would remain in storage with the spent fuel in the ISFSI at the Seabrook Station site.

3.4.2 Reactor Vessel and Internal Components

The reactor pressure vessel and internal components are segmented for disposal in shielded, reusable transportation casks. Segmentation is performed in the refueling canal, 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 cavity. Transportation cask specifications and transportation regulations dictate the segmentation and packaging methodology.

As stated previously, the dismantling of reactor internals at Seabrook Station will generate radioactive waste considered unsuitable for shallow land disposal (i.e., GTCC). Although the material is not classified as high-level waste, DOE has indicated it will accept title to this waste for disposal at the future high-level waste repository.[25] However, the DOE has not been forthcoming with an acceptance criteria or disposition schedule for this material, and numerous questions remain as to the ultimate disposal cost and waste form requirements. As such, for purposes of this study, the GTCC radioactive waste has been 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, its location on the Columbia River simplified the transportation analysis since:

- the reactor package could be secured to the transport vehicle for the entire journey, i.e., the package was not lifted during transport,
- there were no man-made or natural terrain features between the plant site and the disposal location that could produce a large drop, and

- transport speeds were very low, limited by the overland transport vehicle and the river barge.

As a member of the Northwest Compact, PGE had a site available for disposal of the package - the US Ecology facility in Washington State. The characteristics of this arid site proved favorable in demonstrating compliance with land disposal regulations.

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

3.4.3 Primary System Components

The reactor and reactor coolant system components are assumed to be decontaminated using chemical agents prior to the start of cutting operations. Decontamination can be expected to have a significant ALARA impact, since the removal work is done within the first few years of shutdown. A decontamination factor (average reduction) of 10 is assumed for the process. Disposal of the decontamination solution effluent is included within the estimates as a "process liquid waste" charge.

The following discussion deals with the removal and disposition of the steam generators, but the techniques involved are also applicable to other large components, such as heat exchangers, component coolers, and the pressurizer. The steam generators' size and weight, as well as their location within the reactor building, will ultimately determine the removal strategy.

A trolley crane will be set up for the removal of the generators. It can also be used to move portions of the steam generator cubicle walls and floor slabs from the reactor building to a location where they can be decontaminated and transported to the material handling area. Interferences within the work area, such as grating, piping and other components, will be removed to create sufficient laydown space for processing these large components.

The generators will be rigged for removal, disconnected from the surrounding piping and supports, and maneuvered into the open area where they will be lowered onto a dolly. Once each steam generator has been placed in the horizontal position, the steam domes and internal moisture separator equipment will be removed for off-site processing. The lower shell will be sealed and the nozzles and other openings will be welded closed. Shielding will be added if required for transport. The interior volume will be filled with low-density cellular concrete for stabilization of the internal contamination. When this stage has been completed, each generator will be moved out of containment and lowered onto a multi-wheeled transporter to be staged at an on-site storage area and await transport to the disposal facility. The pressurizer will be removed using the same technique.

Reactor coolant 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) is dropped below the nozzle zone. The piping is boxed and transported by shielded van. The reactor coolant pumps and motors are lifted out intact, packaged, and transported for disposal.

3.4.4 Main Turbine and Condenser

The main turbine will be dismantled using conventional maintenance procedures. The turbine rotors and shafts will be removed to a laydown area. The lower turbine casings will be removed from their anchors by controlled demolition. The main condensers will also be 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 will be packaged and readied for transport in accordance with the intended disposition.

3.4.5 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.[26] The contaminated material is packaged in Industrial Packages (IP-1, IP-2, or 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 transportation regulations and disposal 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.

The transport of large intact components (e.g., large heat exchangers and other oversized components), will be by a combination of truck, rail, and/or multi-wheeled transporter.

Transportation costs for material requiring controlled disposal are based upon the mileage to the EnergySolutions facility in Clive, Utah. Memphis, Tennessee, is used as the destination for off-site processing. Truck transport costs were developed from published tariffs from Tri-State Motor Transit.[27]

3.4.6 Low-Level Radioactive Waste Disposal

To the greatest extent practical, metallic material generated in the decontamination and dismantling processes is processed to reduce the total cost of controlled disposal. Material meeting the regulatory and/or site release criterion, is released as scrap, requiring no further cost consideration. Conditioning (preparing the material to meet the waste acceptance criteria at the disposal site) and recovery of the waste stream is performed at an off site facility.

The mass of radioactive waste generated during the various decommissioning activities is reported by line-item in Appendix C and summarized in Section 5. The Section 5 waste summaries are consistent with 10 CFR §61 classifications. Commercially available steel containers are used for the disposal of piping, small components, and concrete. Larger components can serve as their own containers, with proper closure of all openings, access ways, and penetrations. The waste volumes are calculated on the exterior package dimensions for containerized material or a dimensional calculation for components serving as their own waste containers.

The more highly activated reactor components are transported in reusable, shielded truck casks with disposable liners. In calculating disposal costs, the burial fees are applied against the liner volume, with surcharges added for the special handling requirements and the radiological characteristics of the payload. Packaging efficiencies are lower for the highly activated materials (greater than Type A quantity waste), where high concentrations of gamma-emitting radionuclides limit the capacity of the shipping canisters.

Disposal fees are calculated using current disposal agreements, with surcharges added for the highly activated components, for example, generated in the segmentation of the reactor vessel. The cost to dispose of the majority of the material generated from the decontamination and dismantling activities is based upon Seabrook Station's current cost for disposal at the EnergySolutions facility in Clive, Utah. Rates and surcharges published for the Barnwell facility in South Carolina are used as a proxy for the higher activity waste (Class B and C), not currently accepted at EnergySolutions.

The State of New Hampshire has imposed a fee of $15 per cubic foot, to be paid by the waste generator, on each cubic foot of radioactive waste shipped from the state. For purposes of this estimate, this fee is applied to the volume of waste designated for direct disposal.

The estimates also include the disposition of 348 cubic feet of resin generated during plant operations and in storage at the time of decommissioning. During plant operation, the two plant resin tanks cannot be emptied below 174 cubic feet each without rendering the installed resin transfer system inoperable.

3.4.7 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 will end at this point. Building codes and environmental regulations will dictate the next step in the decommissioning process, as well as the owners of Seabrook Station future plans for the site.

Non-essential structures or buildings severely damaged in decontamination process are removed to a nominal depth of three feet below grade. With restoration based upon a commercial-industrial standard, dismantling is limited to the Unit 1 containment, fuel storage, main steam and feedwater pipe chase, emergency feedwater pumphouse, residual heat removal/safety injection equipment vault, primary auxiliary, refueling waste storage tank area, waste processing buildings, and other minor structures. The disposition of specific site structures is identified in Table 3.1. Concrete rubble generated from demolition activities is processed and made available as clean fill. The excavations will be regraded such that the power block area will have a final contour consistent with adjacent surroundings.

Site structures, facilities and associated system components, deemed to have ongoing value to future site development, have been excluded from the scope of the decommissioning estimate, along with any Unit 2 facilities. However, the estimate does not include any additional cost to protect these facilities during the decommissioning process, nor any impact that the preservation of these facilities may have on the dismantling of adjacent, non-essential structures. The remaining structures are abandoned or made available for alternative use, including the existing electrical switchyard, intake and discharge structures, circulating water tunnels, and site access roads, in accordance with the State of New Hampshire revised definition of decommissioning.

The estimates do not assume the remediation of any significant volume of contaminated soil. This assumption may be affected by continued plant operations and/or future regulatory actions, such as the development of site-specific release criteria.

3.5 ASSUMPTIONS

The following are the major assumptions made in the development of the estimates for decommissioning the site.

3.5.1 Estimating Basis

Decommissioning costs are reported in the year of projected expenditure; however, the values are provided in December 31, 2006 dollars. Costs are not inflated, escalated, or discounted over the periods of performance. TLG performed a cost escalation analysis for the Base Scenario and NDFC Scenario, determining that the current estimated costs will increase annually by 2.8% and 3.04%, respectively.

The study follows 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.

3.5.2 Labor Costs

The owners of Seabrook Station will hire a Decommissioning Operations Contractor (DOC) to manage the decommissioning. The owner will provide site security, radiological health and safety, quality assurance and overall site administration during the decommissioning and demolition phases. Contract personnel will provide engineering services, (e.g., for preparing the activity specifications, work procedures, activation, and structural analyses), under the direction of the owners.

Personnel costs are based upon average salary information provided by Seabrook Station for the site. Overhead costs are included for site and corporate support, reduced commensurate with the staffing levels envisioned for the project.

Severance and retention costs are not included in the estimates. 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, is maintained throughout the decommissioning for access control, material control, and to safeguard the spent fuel.

3.5.3 Design Conditions

Activation levels in the vessel and internal components are modeled using NUREG/CR-3474.[28] Estimates are derived from the curie/gram values contained therein and adjusted for the different mass of the Seabrook Station components, projected operating life(s), and different periods of decay. Additional short-lived isotopes were derived from CR-0130[29] and CR-0672,[30] and benchmarked to the long-lived values from CR-3474.

The control elements are disposed of along with the spent fuel (i.e., there is no additional cost provided for their disposal). Disposition of any control elements stored in the pool from operations is considered an operating expense and therefore not accounted for in the decommissioning estimates.

Activation of the reactor building structures is confined to the area around the biological shield. More extensive activation (at very low levels) of the interior structures within containment has been detected at several reactors and the owners have elected to dispose of the affected material at a controlled facility rather than reuse the material as fill on site or sending it to a landfill. The ultimate disposition of the material removed from the reactor building will depend upon the site release criteria applied, as well as the designated end use for the site.

3.5.4 General

Transition Activities

Existing warehouses will be cleared of non-essential material and remain for use by the owners of Seabrook Station and its subcontractors. The plant's operating staff will perform the following activities at no additional cost or credit to the project 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 (i.e., this estimate does not address the disposition of any legacy wastes (other than the resins)); the 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. The owners of Seabrook Station will make economically reasonable efforts to salvage equipment following final plant shutdown. However, dismantling techniques assumed by TLG for equipment in this estimate are not consistent with removal techniques required for salvage (resale) of equipment. Experience has indicated that some buyers wanted equipment stripped down to very specific requirements before they would consider purchase. This required expensive rework after the equipment had been removed from its installed location. Since placing a salvage value on this machinery and equipment would be speculative, and the value would be small in comparison to the overall decommissioning expenses, this estimate does not attempt to quantify the value that the owners of Seabrook Station may realize based upon those efforts.

It is assumed, for purposes of this analysis, that any value received from the sale of 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. This assumption is an implicit recognition of scrap value in the disposal of clean metallic waste at no additional cost to the project.

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

Energy

For estimating purposes, the plant is 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."[31] The NRC's financial protection requirements are based on various reactor (and spent fuel) configurations.

Taxes

Property taxes are not included within the decommissioning estimates and are assumed to be borne by future site enterprises.

Site Modifications

The perimeter fence and in-plant security barriers will be moved, as appropriate, to conform to the Site Security Plan in force during the various stages of the project.

3.6 COST ESTIMATE SUMMARY

The disposition of site structures is identified in Table 3.1. Summaries of the decommissioning costs and annual expenditures are provided in Tables 3.1 through 3.7. The schedules are based upon the costs reported in Appendix C.

As discussed in Section 3.4.1, it is not anticipated that the DOE would accept the GTCC waste prior to completing the transfer of spent fuel. Therefore, the cost of GTCC disposal is shown in the final year of ISFSI operation. While designated for disposal at the geologic repository along with the spent fuel, GTCC waste is still classified as low-level radioactive waste and, as such, included as a "License Termination" expense.

TABLE 3.1
DISPOSITION OF SITE STRUCTURES

Remediated/Dismantled	Retained for Future Use
Containment	345KV Switching Station
Administration [1]	Calibration
Containment Enclosure Ventilation	Carpentry Shop
Emergency Feedwater Pump Building	Chlorination
Equipment Vault	Control
Fuel Storage	Cooling Tower
Main Steam and Feedwater Pipe Chase	Diesel Generator
Miscellaneous Structures [2]	Equipment Maintenance
Primary Auxiliary	Fabrication Facility
Rad Material Storage	Fire Department
Steam Generator Blowdown Recovery	Fire Pumphouse
Waste Processing	Fitness Facility
	General Office
	Guard House
	Guardhouse & Brass Alley
	High Rise Building
	Intake and Discharge
	ISFSI Pad
	Mechanical Maintenance Storage
	Miscellaneous Support Structures
	New Maintenance Storage
	Non-Essential Switchgear
	Operational Support
	SF-6 Test Facility
	Science & Nature Center
	Service/Circulating Water Pumphouse
	Service Water Access Vault
	Siren Maintenance
	Support Warehouse
	Switching Station/Transformer Yard
	Training Simulator
	Turbine
	U2 Equipment/Valve Storage

[1] Remediation of affected areas only, including condensate polisher area

[2] RCA tunnels run under/through Radwaste Tank Farm, Control Building, Non-Essential Switchgear Room, Main Steam and Feedwater pipe chase, up to the Administration, Emergency Feedwater Pump House, Turbine and around the Equipment Vault

TABLE 3.2
SCHEDULE OF ANNUAL EXPENDITURES
BASE SCENARIO, DECON 2030, SPENT FUEL 2032
(thousands, 2006 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2030	37,794	1,657	1,719	19	6,164	47,352
2031	55,445	15,341	3,200	16,916	19,676	110,578
2032	52,703	24,505	2,047	34,699	9,720	123,673
2033	43,959	9,997	1,652	10,899	4,384	70,890
2034	43,075	8,514	1,612	8,464	3,838	65,503
2035	38,822	7,592	1,387	7,224	4,748	59,772
2036	24,252	4,007	673	2,442	14,956	46,330
2037	17,224	3,734	282	6	8,583	29,828
2038	16,779	4,451	215	0	1,011	22,455
2039	5,527	1,243	94	0	1,008	7,872
2040	2,770	456	65	0	1,010	4,300
2041	2,762	455	64	0	1,007	4,289
2042	2,762	455	64	0	1,007	4,289
2043	2,762	455	64	0	1,007	4,289
2044	2,770	456	65	0	1,010	4,300
2045	2,762	455	64	0	1,007	4,289
2046	2,762	455	64	0	1,007	4,289
2047	2,762	455	64	0	1,007	4,289
2048	2,770	456	65	0	1,010	4,300
2049	2,762	455	64	0	1,007	4,289
2050	2,762	455	64	0	1,007	4,289
2051	2,762	455	64	0	1,007	4,289
2052	2,770	456	65	0	1,010	4,300
2053	2,762	455	64	0	1,007	4,289
2054	2,762	455	64	0	1,007	4,289
2055	2,757	1,076	65	7	17,820	21,726
2056	1,378	502	109	867	2,561	5,415
	381,182	89,446	14,022	81,542	109,583	675,774

Note: Columns may not add due to rounding

TABLE 3.3
SCHEDULE OF ANNUAL EXPENDITURES
NDFC SCENARIO, DECON 2030, SPENT FUEL 2076
(thousands, 2006 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2030	38,481	3,718	1,719	19	6,164	50,100
2031	55,782	16,639	3,200	16,916	19,676	112,214
2032	52,804	24,805	2,047	34,699	9,720	124,074
2033	44,427	11,401	1,652	10,899	4,384	72,762
2034	43,581	10,031	1,612	8,464	3,838	67,526
2035	38,938	7,940	1,387	7,224	4,748	60,237
2036	23,754	2,513	673	2,442	14,956	44,338
2037	17,139	3,479	282	6	8,583	29,488
2038	16,704	4,227	215	0	1,011	22,156
2039	5,391	834	94	0	1,008	7,326
2040	2,618	0	65	0	1,010	3,692
2041	2,611	0	64	0	1,007	3,682
2042	2,611	0	64	0	1,007	3,682
2043	2,611	0	64	0	1,007	3,682
2044	2,618	0	65	0	1,010	3,692
2045	2,611	0	64	0	1,007	3,682
2046	2,611	0	64	0	1,007	3,682
2047	2,611	0	64	0	1,007	3,682
2048	2,618	0	65	0	1,010	3,692
2049	2,611	0	64	0	1,007	3,682
2050	2,611	0	64	0	1,007	3,682
2051	2,611	0	64	0	1,007	3,682
2052	2,618	0	65	0	1,010	3,692
2053	2,611	0	64	0	1,007	3,682
2054	2,611	0	64	0	1,007	3,682
2055	2,611	0	64	0	1,007	3,682
2056	2,618	0	65	0	1,010	3,692
2057	2,611	0	64	0	1,007	3,682
2058	2,611	0	64	0	1,007	3,682
2059	2,611	0	64	0	1,007	3,682
2060	2,618	0	65	0	1,010	3,692
2061	2,611	0	64	0	1,007	3,682

TABLE 3.3 (continued)
SCHEDULE OF ANNUAL EXPENDITURES
NDFC SCENARIO, DECON 2030, SPENT FUEL 2076
(thousands, 2006 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2062	2,611	0	64	0	1,007	3,682
2063	2,611	0	64	0	1,007	3,682
2064	2,618	0	65	0	1,010	3,692
2065	2,611	0	64	0	1,007	3,682
2066	2,611	0	64	0	1,007	3,682
2067	2,611	0	64	0	1,007	3,682
2068	2,618	0	65	0	1,010	3,692
2069	2,611	0	64	0	1,007	3,682
2070	2,611	0	64	0	1,007	3,682
2071	2,611	0	64	0	1,007	3,682
2072	2,618	0	65	0	1,010	3,692
2073	2,611	0	64	0	1,007	3,682
2074	2,611	0	64	0	1,007	3,682
2075	2,611	0	64	0	1,007	3,682
2076	2,785	500	65	0	1,010	4,359
2077	2,611	0	64	0	1,007	3,682
2078	2,694	250	64	0	1,007	4,016
2079	2,736	375	64	0	1,007	4,182
2080	2,743	375	65	0	1,010	4,193
2081	2,694	250	64	0	1,007	4,016
2082	2,694	250	64	0	1,007	4,016
2083	2,611	0	64	0	1,007	3,682
2084	2,868	750	65	0	1,010	4,693
2085	2,611	0	64	0	1,007	3,682
2086	2,819	625	64	0	1,007	4,516
2087	2,611	0	64	0	1,007	3,682
2088	2,826	625	65	0	1,010	4,526
2089	2,736	375	64	0	1,007	4,182
2090	2,694	250	64	0	1,007	4,016
2091	2,611	0	64	0	1,007	3,682
2092	2,868	750	65	0	1,010	4,693

TABLE 3.3 (continued)
SCHEDULE OF ANNUAL EXPENDITURES
NDFC SCENARIO, DECON 2030, SPENT FUEL 2076
(thousands, 2006 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2093	2,819	625	64	0	1,007	4,516
2094	2,819	625	64	0	1,007	4,516
2095	2,778	500	64	0	1,007	4,349
2096	2,868	750	65	0	1,010	4,693
2097	2,819	625	64	0	1,007	4,516
2098	2,819	625	64	0	1,007	4,516
2099	2,736	375	64	0	1,007	4,182
2100	2,653	125	64	0	1,007	3,849
2101	1,545	1,168	112	982	19,496	23,303
	501,124	96,386	16,927	81,649	155,046	851,133

Note: Columns may not add due to rounding

TABLE 3.4
SCHEDULE OF ANNUAL EXPENDITURES
2050 SCENARIO, DECON 2050, SPENT FUEL 2076
(thousands, 2006 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2050	38,481	3,718	1,719	19	6,164	50,100
2051	55,657	19,927	3,200	16,939	19,676	115,399
2052	52,381	23,537	2,047	34,774	9,720	122,459
2053	43,658	9,096	1,652	10,906	4,384	69,696
2054	42,777	7,619	1,612	8,464	3,838	64,310
2055	38,374	6,249	1,387	7,224	4,748	57,982
2056	23,754	2,513	673	2,442	14,956	44,338
2057	17,139	3,479	282	6	8,583	29,488
2058	16,704	4,227	215	0	1,011	22,156
2059	5,391	834	94	0	1,008	7,326
2060	2,618	0	65	0	1,010	3,692
2061	2,611	0	64	0	1,007	3,682
2062	2,611	0	64	0	1,007	3,682
2063	2,611	0	64	0	1,007	3,682
2064	2,618	0	65	0	1,010	3,692
2065	2,611	0	64	0	1,007	3,682
2066	2,611	0	64	0	1,007	3,682
2067	2,611	0	64	0	1,007	3,682
2068	2,618	0	65	0	1,010	3,692
2069	2,611	0	64	0	1,007	3,682
2070	2,611	0	64	0	1,007	3,682
2071	2,611	0	64	0	1,007	3,682
2072	2,618	0	65	0	1,010	3,692
2073	2,611	0	64	0	1,007	3,682
2074	2,611	0	64	0	1,007	3,682
2075	2,611	0	64	0	1,007	3,682
2076	2,785	500	65	0	1,010	4,359
2077	2,611	0	64	0	1,007	3,682
2078	2,694	250	64	0	1,007	4,016
2079	2,736	375	64	0	1,007	4,182
2080	2,743	375	65	0	1,010	4,193

TABLE 3.4 (continued)
SCHEDULE OF ANNUAL EXPENDITURES
2050 SCENARIO, DECON 2050, SPENT FUEL 2076
(thousands, 2006 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2081	2,694	250	64	0	1,007	4,016
2082	2,694	250	64	0	1,007	4,016
2083	2,611	0	64	0	1,007	3,682
2084	2,868	750	65	0	1,010	4,693
2085	2,861	750	64	0	1,007	4,683
2086	2,861	750	64	0	1,007	4,683
2087	2,861	750	64	0	1,007	4,683
2088	2,868	750	65	0	1,010	4,693
2089	2,861	750	64	0	1,007	4,683
2090	2,861	750	64	0	1,007	4,683
2091	2,861	750	64	0	1,007	4,683
2092	2,868	750	65	0	1,010	4,693
2093	2,861	750	64	0	1,007	4,683
2094	2,861	750	64	0	1,007	4,683
2095	2,861	750	64	0	1,007	4,683
2096	2,868	750	65	0	1,010	4,693
2097	2,861	750	64	0	1,007	4,683
2098	2,861	750	64	0	1,007	4,683
2099	2,861	750	64	0	1,007	4,683
2100	2,736	375	64	0	1,007	4,182
2101	1,794	1,280	112	1,437	19,838	24,460
	448,021	96,862	15,637	82,210	135,235	777,965

Note: Columns may not add due to rounding

4. SCHEDULE ESTIMATE

The schedule for the decommissioning scenario considered in this study follows the sequence presented in the AIF/NESP-036 study, with minor changes to reflect recent experience and site-specific constraints. In addition, the scheduling has been revised to reflect the spent fuel management plan described in Section 3.4.1.

A schedule or sequence of activities is presented in Figure 4.1. The scheduling sequence assumes that fuel is removed from the spent fuel pool approximately five and one-half years after operations cease. The key activities listed in the schedule do not reflect a one-to-one correspondence with those activities in the cost table, but reflect dividing some activities for clarity and combining others for convenience. The schedule was prepared using the "Microsoft Project Professional 2003" computer software.[32]

4.1 SCHEDULE ESTIMATE ASSUMPTIONS

The schedule reflects the results of a precedence network developed for the site decommissioning activities, i.e., a PERT (Program Evaluation and Review Technique) Software Package. The work activity durations used in the precedence network reflect the actual man-hour estimates from the cost tables, adjusted by stretching certain activities over their slack range and shifting the start and end dates of others. The following assumptions were made in the development of the decommissioning schedule:

- The fuel handling building is isolated until such time that all spent fuel has been discharged from the spent fuel pool to the DOE or to the ISFSI. Decontamination and dismantling of the storage pool is initiated once the transfer of spent fuel to the ISFSI is complete.
- All work (except vessel and internals removal) is performed during an 8-hour workday, 5 days per week, with no overtime.
- Reactor and internals removal activities are performed by using separate crews for different activities working on different shifts, with a corresponding backshift charge for the second shift.
- Multiple crews work parallel activities to the maximum extent possible, consistent with optimum efficiency, adequate access for cutting, removal and laydown space, and with the stringent safety measures necessary during demolition of heavy components and structures.

- For plant systems removal, the systems with the longest removal durations in areas on the critical path are considered to determine the duration of the activity.

4.2 PROJECT SCHEDULE

The period-dependent costs presented in the detailed cost tables are based upon the durations developed in the schedule for decommissioning Seabrook Station. Durations are established between several milestones in each project period; these durations are used to establish a critical path for the entire project. In turn, the critical path duration for each period is used as the basis for determining the period-dependent costs. A second critical path is also shown for the spent fuel cooling period, which determines the release of the fuel storage building for final decontamination.

Scenario timelines are provided as Figure 4.2. Milestone dates are based on either a 2030 or 2050 shutdown. In all cases, the fuel pool is emptied approximately five years after shutdown, with ISFSI operations continuing at the site until the DOE can complete the transfer of assemblies to its geologic repository.

FIGURE 4.1
ACTIVITY SCHEDULE

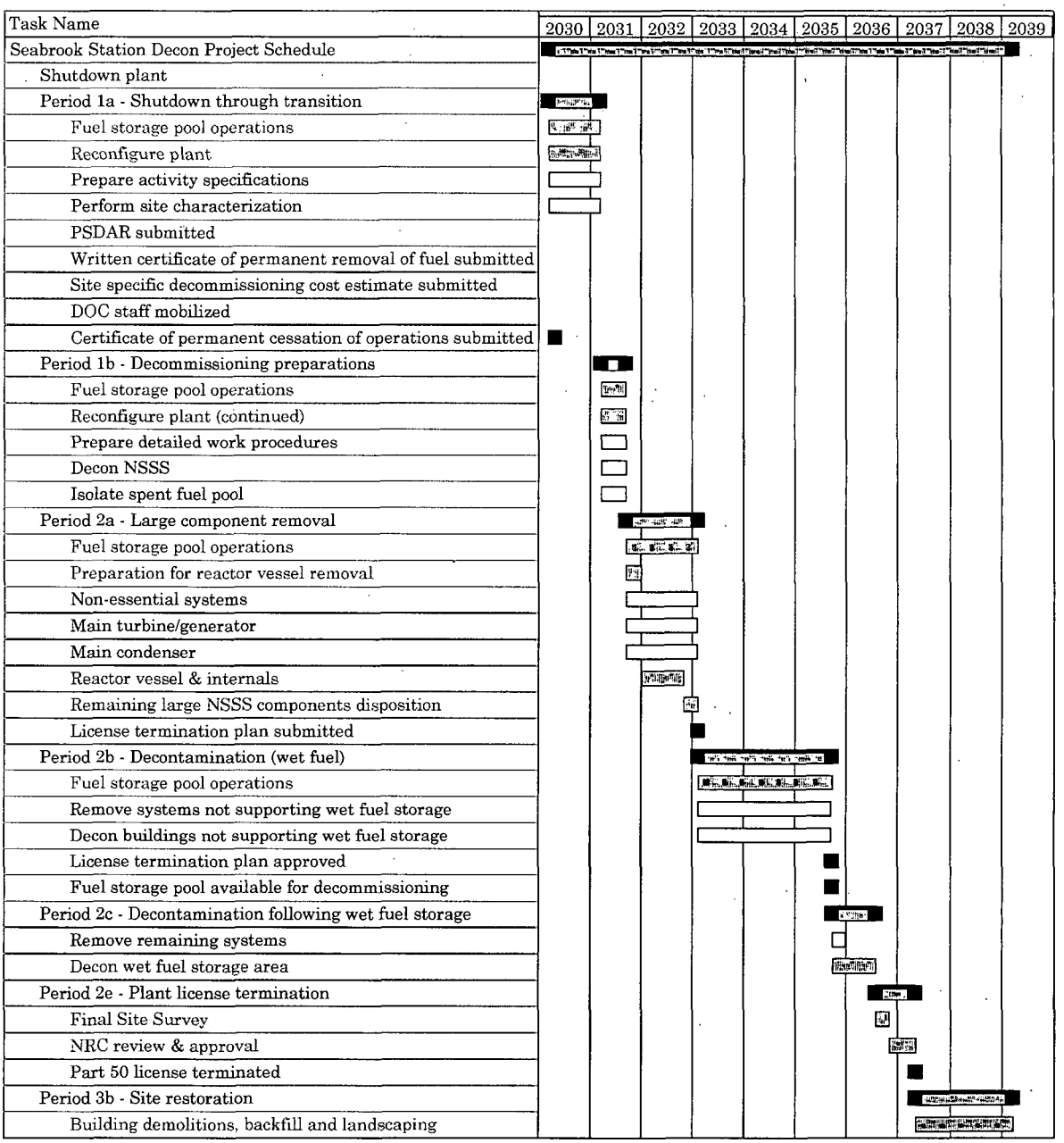


FIGURE 4.2
DECOMMISSIONING TIMELINES
(not to scale)

SCENARIO: **Base**
Shutdown: 2030 **Spent Fuel Pick Up:** 2032 **Spent Fuel Off Site:** 2055

DECON	Transistion/Prep	Decommissioning		Site Rest.	ISFSI Ops	ISFSI D&D
Spent Fuel	Pool and ISFSI Operations			ISFSI Operations		

Sub- Periods	1a	1b	2a	2b	2c	2e	3b	3c	3d	3e	3f	End
Start Date	Mar-30	Mar-31	Sep-31	Feb-33	Sep-35	Jul-36	Apr-37	Mar-39	Dec-55	Dec-55	May-56	Jul-56
Duration-Yrs	1.0	0.5	1.4	2.6	0.9	0.8	1.9	16.8	0.0	0.3	0.2	
Elapsed Time		1.5	2.9	5.5	6.4	7.1	9.0	25.8	25.8	26.2	26.3	

SCENARIO: **NDFC**
Shutdown: 2030 **Spent Fuel Pick Up:** 2076 **Spent Fuel Off Site:** 2100

DECON	Transistion/Prep	Decommissioning		Site Rest.	ISFSI Ops	ISFSI D&D
Spent Fuel	Pool and ISFSI Operations			ISFSI Operations		

Sub- Periods	1a	1b	2a	2b	2c	2e	Site Rest.	ISFSI Ops	3e	3f	End
Start Date	Mar-30	Mar-31	Sep-31	Feb-33	Sep-35	Jul-36	Apr-37	Mar-39	Jan-01	Jan-01	May-01	Jul-01
Duration-Yrs	1.0	0.5	1.4	2.6	0.9	0.8	1.9	61.8	0.0	0.3	0.2	
Elapsed Time		1.5	2.9	5.5	6.4	7.1	9.0	70.8	70.9	71.2	71.4	

SCENARIO: **2050**
Shutdown: 2050 **Spent Fuel Pick Up:** 2076 **Spent Fuel Off Site:** 2100

DECON	Transistion/Prep	Decommissioning		Site Rest.	ISFSI Ops	ISFSI D&D
Spent Fuel	Pool and ISFSI Operations			ISFSI Operations		

Sub- Periods	1a	1b	2a	2b	2c	2e	3b	3c	3d	3e	3f	End
Start Date	Mar-50	Mar-51	Sep-51	Feb-53	Sep-55	Jul-56	Apr-57	Mar-59	Jan-01	Jan-01	May-01	Jul-01
Duration-Yrs	1.0	0.5	1.4	2.6	0.9	0.8	1.9	41.8	0.0	0.3	0.2	
Elapsed Time		1.5	2.9	5.5	6.4	7.1	9.0	50.8	50.9	51.2	51.4	

5. RADIOACTIVE WASTES

The objectives of the decommissioning process are the removal of all radioactive material from the site that would restrict its future use and the termination of the NRC license(s). This currently requires the remediation of all radioactive material at the site in excess of applicable legal limits. Under the Atomic Energy Act,[33] the NRC is responsible for protecting the public from sources of ionizing radiation. Title 10 of the Code of Federal Regulations delineates the production, utilization, and disposal of radioactive materials and processes. In particular, §71 defines radioactive material as it pertains to transportation and §61 specifies its disposition.

Most of the materials being transported for controlled burial are categorized as Low Specific Activity (LSA) or Surface Contaminated Object (SCO) materials containing Type A quantities, as defined in 49 CFR §173-178. Shipping containers are required to be Industrial Packages (IP-1, IP-2 or IP-3, as defined in subpart 173.411). For this study, commercially available steel containers are presumed to be used for the disposal of piping, small components, and concrete. Larger components can serve as their own containers, with proper closure of all openings, access ways, and penetrations.

The volumes of radioactive waste generated during the various decommissioning activities at the site are shown by line-item in Appendix C, and summarized in Table 5.1. The waste summaries are consistent with §61 classifications. Volumes are calculated based on the exterior dimensions for containerized material and on the displaced volume of components serving as their own waste containers.

The reactor vessel and internals are categorized as large quantity shipments and, accordingly, will be shipped in reusable, shielded truck casks with disposable liners. In calculating disposal costs, the burial fees are applied against the liner volume, as well as the special handling requirements of the payload. Packaging efficiencies are lower for the highly activated materials (greater than Type A quantity waste), where high concentrations of gamma-emitting radionuclides limit the capacity of the shipping canisters.

No process system containing/handling radioactive substances at shutdown is presumed to meet material release criteria by decay alone (i.e., systems radioactive at shutdown are still be radioactive over the time period during which the decommissioning is accomplished, due to the presence of long-lived radionuclides). While the dose rates decrease with time, radionuclides such as ^{137}Cs will control the disposition requirements.

The waste material generated in the decontamination and dismantling is primarily generated during Period 2. Material that is considered potentially contaminated when

removed from the radiological controlled area is sent to processing facilities in Tennessee. A majority of this material is expected to be free-released after being surveyed. The remaining material is processed for disposal.

The material requiring controlled disposal is sent to the EnergySolutions facility in Clive, Utah. Seabrook Station's current cost of disposal services at EnergySolutions is used for Class A waste (containerized and bulk). Since EnergySolutions is currently unable to accept the more highly contaminated and activated components (Classes B and C), published rates for the Barnwell facility are used as a proxy (including surcharges and special handling fees).

The disposal volumes reported in the following tables reflect the savings from reprocessing and recycling (i.e., the disposal volumes reflect only that waste sent for direct disposal).

The cost of waste processing/conditioning of potentially contaminated material and/or material designated for recovery appears as an "Off-Site Processing" cost for the systems and plant structures identified in Appendix C.

TABLE 5.1
DECOMMISSIONING WASTE SUMMARY

	Waste Class	Base Scenario	NDFC Scenario	2050 Scenario
Low-Level Radioactive Waste (cubic feet)	A	109,260	109,950	112,863
	B	4,565	4,565	4,565
	C	459	459	459
	GTCC	637	637	637
	Total	114,921	115,611	118,524
Low-Level Radioactive Waste (pounds)	A	10,452,435	10,584,690	11,190,102
	B	649,249	649,249	649,249
	C	48,160	48,160	48,160
	GTCC	129,800	129,800	129,800
	Total	11,279,644	11,411,899	12,017,311
Processed Waste (lbs)		14,284,880	14,284,880	14,284,880
Scrap Metal (tons)		40,591	40,591	40,591

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.

6. RESULTS

The analysis to estimate the costs to decommission Seabrook Station relied upon the site-specific, technical information developed for a previous analysis prepared in 1997-98 and updated in 2003 to incorporate new plant configuration and restoration criteria adopted by the NDFC interpreting the 2001 amendments to RSA 162-F. While not an engineering study, the estimates provide Seabrook Station with sufficient information to assess the plant owner's financial obligations as they pertain to the eventual decommissioning of the nuclear station.

The scenarios include both the currently scheduled shutdown of the nuclear unit in 2030 as well as an anticipated shutdown in 2050 (license renewal). The decommissioning costs include the use of a pre-existing ISFSI at the site.

The costs reflect the site-specific features of the Seabrook Station, the local cost of labor, DOE's rate of acceptance for the spent fuel generated over the operating life of the plant, and disposal of the low-level waste generated during decommissioning.

The major contributors to the cost of decommissioning Seabrook Station are summarized at the end of this section. Staffing represents the largest single contributor to the overall cost. The magnitude of the expense is a function of both the size of the organization, needed to manage the decommissioning, as well as the program duration.

It is assumed, for purposes of this analysis, that Seabrook Station will hire a DOC to provide contract management of the decommissioning labor force and subcontractors. Utility oversight will continue, in a reduced capacity, during site restoration and beyond to ensure proper management of the spent fuel.

Once the operating license has been terminated, a significantly reduced staff provides the oversight of conventional demolition and site restoration. With decommissioning completed, only those individuals required to oversee and support the ongoing transfer of spent fuel to a DOE facility and ultimately, the decommissioning of the storage facility are included.

The availability of an ISFSI at the site was presumed as a pre-condition to the completion of decommissioning. With the storage of spent fuel in the current wet storage pool, dismantling activities are restricted with limited application of destructive processes. Completion of the relocation of the spent fuel to dry storage releases the fuel storage building for decommissioning. Dry storage of the fuel under a general license as authorized by 10CFR72, Subpart K, which provides additional flexibility in the event DOE is not able to meet it current commitments

for completing the transfer of assemblies to an off-site facility and minimizes the associated caretaking expenses incurred by Seabrook Station.

The disposal of low-level radioactive waste is a significant contributor to the total program cost. Waste generated from decontamination and dismantling operations was disposed of at the EnergySolutions facility in Clive, Utah.

A large percentage of the waste material generated during decommissioning is designated for processing/recovery at an off-site facility. The facility is assumed to be located in Tennessee. Treatment of the waste significantly reduces the volume of material ultimately designated for controlled disposal.

Removal costs are primarily driven by the cost of labor (as well as the plant inventory). The costs identified in this analysis reflect composite labor costs for the Seabrook Station, as supplied by the owner. Materials and consumables associated with the removal activities are included using representative costs for the region. Productivity adjustments are based upon the working conditions assumed for the particular plant area or major component.

Contracted security services are identified as separate line item expenditures in the estimates. While the guard force is reduced from operating levels, there remains a need to control personnel and material throughout the decommissioning program, while the plant's operating license remains in effect. Security is also required as long as spent fuel resides at the site. While cross-training, a reduced protected area and revised technical specifications have effectively reduced the size of the security force at other decommissioning sites, a significant number of personnel are still required to process the work force identified in this analysis and ensure public health and safety through the monitoring of material entering and leaving the site.

Non-radiological demolition is a natural extension of the decommissioning process. The methods employed in decontamination and dismantling are generally destructive and indiscriminate in inflicting collateral damage. With a work force mobilized to support decommissioning operations, non-radiological demolition can be an integrated activity and a logical expansion of the work being performed in the process of terminating the operating license. Prompt demolition reduces future liabilities due to the deterioration of the facilities (and therefore the working conditions) with time.

Site structures, facilities, and associated system components deemed to have ongoing value to future site development are excluded from the scope of the decommissioning estimate, along with any Unit 2 facilities, in accordance with the State of New Hampshire's revised definition of decommissioning. However, the estimates do not include any additional cost to protect these facilities during the

decommissioning process, nor any impact that the preservation of these facilities may have on the dismantling of adjacent, non-essential structures.

License termination survey costs are associated with the labor intensive and complex activity of verifying that contamination has been removed from the site to the levels specified by the regulating authorities. This process involves a systematic survey of all remaining plant surface areas and surrounding environs, sampling, isotopic analysis and documentation of the findings. The status of any plant components and materials not removed in the decommissioning process need to be confirmed and add to the expense of surveying the facilities alone.

The remaining costs include allocations for waste packaging, transportation, energy consumption, mandated fees, contingencies, and required insurance premiums and other costs related to maintaining a viable organization. "Operating" costs, while generally reduced over the duration of the program, do need to be maintained either at a basic functional or regulatory level.

This study provides estimates for decommissioning the site under current requirements, based on present-day costs and available technology. It is therefore appropriate that this cost analysis be reviewed periodically and revised as needed.

Comparison with the 2003 Cost Estimate

The previous comprehensive estimate for decommissioning the Seabrook Station completed in 2003 was approximately $599.7 million. That estimate was subsequently modified by order of the NDFC following a determination that the $599.7 million was best-characterized as a mid-year 2003 estimate. As a result, the estimate as of December 31, 2003 was $613 million. Escalated at the 4.5% rate previously approved by the NDFC in Docket No. 2003-1, the $613 million was estimated to grow to $699.7 million by year-end 2006. This compares favorably to the $675.8 million Base Scenario estimate. Put differently, even if the 2003 study and the Base Scenario contemplated precisely the same decommissioning processes (which they do not), the decommissioning cost calculated in the Base Scenario is actually less than the 2003 study, when both are expressed in 2006 dollars.

The nominal dollar increase of approximately $63 million between the 2003 study and the Base Scenario is primarily in the areas of program management and the caretaking of the residual spent fuel inventory. Comparison of the cost components in the 2003 estimate with the comparable elements in the Base and NDFC scenarios is provided in the Tables 6.2 and 6.3, respectively.

Program management costs increased due to a corresponding increase in the size of the organization designated to manage/oversee the decommissioning project. The

decision to increase the size of the organization was based upon several factors, including current field experience at facilities that have undergone decommissioning and post-911 changes in site security.

The current analysis assumes a 2022 start date for the DOE repository, a five and one-half year minimum cooling period for the fuel, and a 23-year transfer campaign (three years longer than that assumed in 2003). More importantly, the current analysis incorporates more definitive information on the design of the supplemental spent fuel storage system envisioned for the Seabrook site, rather than the proxy used in 2003.

There are also some cost elements that decreased over the three-year period. For example, the base rate of disposal for the low-level radioactive waste produced by the decontamination and dismantling activities decreased significantly in the current cost model, from the comparable rate in 2003. This decrease is due to FPLE Seabrook having entered into a long-term contract with EnergySolutions for disposal of Class A low-level radioactive waste.

In the past three years, the process of decommissioning a commercial reactor has continued to evolve and mature with additional experience. As such, the 2006 costs were developed using the best available data and the latest generation software for modeling the decommissioning process.

TABLE 6.1
SUMMARY OF DECOMMISSIONING COST CONTRIBUTORS
(thousands of $2006)

Scenarios	Base Scenario	NDFC Scenario	2050 Scenario
Cessation of Operations (year)	2030	2030	2050
Spent Fuel Pick Up (year)	2032	2076	2076
Spent Fuel Off Site (year)	2055	2100	2100
Decontamination	12,547	12,547	12,547
Removal	75,250	75,336	75,696
Packaging	14,748	14,748	14,749
Transportation	17,137	17,184	17,381
Waste Disposal	62,797	62,918	63,533
Off-site Waste Processing	37,683	37,683	37,683
Program Management	314,747	432,423	380,169
ISFSI Related	76,711	105,520	96,141
Insurance and Regulatory Fees	20,447	46,163	34,744
Energy	14,022	16,927	15,637
Characterization and Surveys	23,275	23,275	23,275
Property Taxes	0	0	0
Miscellaneous Equipment	6,409	6,409	6,409
Total	675,774	851,133	777,965

Scenarios	Base Scenario	NDFC Scenario	2050 Scenario
License Termination	508,677	508,677	508,782
Spent Fuel Management	135,648	311,007	237,733
Site Restoration	31,450	31,450	31,450
Total	675,774	851,133	777,965

Note: Columns may not add due to rounding

TABLE 6.2
COST COMPARISON
2003 vs. BASE SCENARIO
(thousands of $)

Scenarios	2003	Base Scenario	Change
Cessation of Operations (year)	2026	2030	
Spent Fuel Pick Up (year)	2025	2032	
Spent Fuel Off Site (year)	2045	2055	
Decontamination	11,233	12,547	1,313
Removal	78,988	75,250	-3,738
Packaging	15,123	14,748	-375
Transportation	12,057	17,137	5,080
Waste Disposal [1]	84,234	62,797	-21,437
Off-site Waste Processing	37,532	37,683	152
Program Management [2]	236,856	314,747	77,891
ISFSI Related [3]	64,087	76,711	12,624
Insurance and Regulatory Fees [4]	31,472	20,447	-11,026
Energy	15,240	14,022	-1,219
Characterization and Surveys	18,325	23,275	4,950
Property Taxes	0	0	0
Miscellaneous Equipment	8,014	6,409	-1,605
Total	613,163	675,774	62,611

Scenarios	2003	Base Scenario	Change
License Termination	475,521	508,677	33,156
Spent Fuel Management	104,320	135,648	31,328
Site Restoration	33,322	31,450	-1,872
Total	613,163	675,774	62,611

Note: Columns may not add due to rounding.

Explanation of Nominal Dollar Differences in Cost Components

1. Reduction in containerized and bulk disposal rates.
2. Increase in staffing levels, salaries, benefits & overheads, and fuel storage duration (6 yrs).
3. Increase in total assemblies discharged, transfer costs, and EP fees.
4. Includes shutdown credit per NRC proposed rule on Financial Protection for Permanently Shutdown Plants.

TABLE 6.3
COST COMPARISON
2003 vs. NDFC SCENARIO
(thousands of $)

Scenarios	2003	NDFC	Change
Cessation of Operations (year)	2026	2030	
Spent Fuel Pick Up (year)	2025	2076	
Spent Fuel Off Site (year)	2045	2100	
Decontamination	11,233	12,547	1,313
Removal	78,988	75,336	-3,652
Packaging	15,123	14,748	-375
Transportation	12,057	17,184	5,127
Waste Disposal [1]	84,234	62,918	-21,317
Off-site Waste Processing	37,532	37,683	152
Program Management [2]	236,856	432,423	195,567
ISFSI Related [3]	64,087	105,520	41,433
Insurance and Regulatory Fees [4]	31,472	46,163	14,691
Energy	15,240	16,927	1,686
Characterization and Surveys	18,325	23,275	4,950
Property Taxes	0	0	0
Miscellaneous Equipment	8,014	6,409	-1,605
Total	613,163	851,133	237,970

Scenarios	2003	NDFC	Change
License Termination	475,521	508,677	33,155
Spent Fuel Management	104,320	311,007	206,687
Site Restoration	33,322	31,450	-1,872
Total	613,163	851,133	237,970

Note: Columns may not add due to rounding.

Explanation of Nominal Dollar Differences in Cost Components

1. Reduction in containerized and bulk disposal rates.
2. Increase in staffing levels, salaries, benefits & overheads, and fuel storage duration (51 yrs).
3. Increase in total assemblies discharged, transfer costs, and EP fees.
4. Insurance shutdown credit offset by increase of fuel storage duration.

7. REFERENCES

1. "Decommissioning of Nuclear Electric Generating Facilities," RSA-F:14, as revised by New Hampshire House Bill 740, 2001.

2. 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.

3. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors," October 2003

4. U.S. Code of Federal Regulations, Title 10, Part 20, Subpart E, "Radiological Criteria for License Termination."

5. U.S. Code of Federal Regulations, Title 10, Parts 20 and 50, "Entombment Options for Power Reactors," Advanced Notice of Proposed Rulemaking, Federal Register Volume 66, Number 200, October 16, 2001.

6. 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.

7. "Nuclear Waste Policy Act of 1982 and Amendments," U.S. Department of Energy's Office of Civilian Radioactive Management, 1982.

8. U.S. Court of Federal Claims awarded Yankee Atomic, Connecticut Yankee and Maine Yankee damages over the federal government's failure to remove spent fuel from the sites in a September 2006 ruling.

9. "DOE Announces Yucca Mountain License Application Schedule", U.S. Department of Energy's Office of Public Affairs, Press Release July 19, 2006

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

11. "Low Level Radioactive Waste Policy Act of 1980," Public Law 96-573, 1980.

7. REFERENCES
(continued)

12. "Low-Level Radioactive Waste Policy Amendments Act of 1985," Public Law 99-240, January 15, 1986.

13. U.S. Code of Federal Regulations, Title 10, Part 20, Subpart E, "Radiological Criteria for License Termination," Federal Register, Volume 62, Number 139 (p 39058 et seq.), July 21, 1997.

14. "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination," EPA Memorandum OSWER No. 9200.4-18, August 22, 1997.

15. U.S. Code of Federal Regulations, Title 40, Part 141.16, "Maximum contaminant levels for beta particle and photon radioactivity from man-made radionuclides in community water systems."

16. "Memorandum of Understanding Between the Environmental Protection Agency and the Nuclear Regulatory Commission: Consultation and Finality on Decommissioning and Decontamination of Contaminated Sites," OSWER 9295.8-06a, October 9, 2002.

17. "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)," NUREG/CR-1575, Rev. 1, EPA 402-R-97-016, Rev. 1, August 2000.

18. "Decommissioning Cost Analysis for the Seabrook Station," Document No. F08-1466-002, Rev. 1, TLG Services, Inc., August 2003.

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

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

21. "Building Construction Cost Data 2006," Robert Snow Means Company, Inc., Kingston, Massachusetts.

22. Project and Cost Engineers' Handbook, Second Edition, p. 239, American Association of Cost Engineers, Marcel Dekker, Inc., New York, New York, 1984.

7. REFERENCES
(continued)

23. "Civilian Radioactive Waste Management System Total System Description," Revision 02 (TDR-CRW-SE-000002), DOE/RW-0500, September 2001.

24. "Acceptance Priority Ranking & Annual Capacity Report," DOE/RW-0567, July 2004.

25. "Strategy for Management and Disposal of Greater-Than-Class C Low-Level Radioactive Waste," Federal Register Volume 60, Number 48 (p 13424 et seq.), March 1995.

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

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

28. 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.

29. 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.

30. 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.

31. "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.

32. "Microsoft Project Professional 2003," Microsoft Corporation, Redmond, WA.

33. "Atomic Energy Act of 1954," 42 U.S.C 2001 et seq.

APPENDIX A

UNIT COST FACTOR DEVELOPMENT

APPENDIX A
UNIT COST FACTOR DEVELOPMENT

Example: Unit Factor for Removal of Contaminated Heat Exchanger < 3,000 lbs.

1. SCOPE

Heat exchangers weighing < 3,000 lbs. will be removed in one piece using a crane or small hoist. They will be disconnected from the inlet and outlet piping. The heat exchanger will be sent to the waste processing area.

2. CALCULATIONS

Act ID	Activity Description	Activity Duration	Critical Duration
a	Remove insulation	60	(b)
b	Mount pipe cutters	60	60
c	Install contamination controls	20	(b)
d	Disconnect inlet and outlet lines	60	60
e	Cap openings	20	(d)
f	Rig for removal	30	30
g	Unbolt from mounts	30	30
h	Remove contamination controls	15	15
i	Remove, wrap in plastic, send to the waste processing area	60	60
	Totals (Activity/Critical)	355	255

Duration adjustment(s):	
+ Respiratory protection adjustment (50% of critical duration)	128
+ Radiation/ALARA adjustment (37.08% of critical duration)	95
Adjusted work duration	478
+ Protective clothing adjustment (30% of adjusted duration)	143
Productive work duration	621
+ Work break adjustment (8.33 % of productive duration)	52
Total work duration (minutes)	673

***** Total duration = 11.217 hr *****

APPENDIX A
(continued)

3. LABOR REQUIRED

Crew	Number	Duration (hr)	Rate ($/hr)	Cost
Laborers	3.00	11.217	35.16	1183.17
Craftsmen	2.00	11.217	45.25	1015.14
Foreman	1.00	11.217	46.89	525.97
General Foreman	0.25	11.217	49.59	139.06
Fire Watch	0.05	11.217	35.16	19.72
Health Physics Technician	1.00	11.217	49.60	556.36
Total labor cost				$3,439.42

4. EQUIPMENT & CONSUMABLES COSTS

Equipment Costs	none
Consumables/Materials Costs	
-Gas torch consumables 1 @ $6.74/hr x 1 hr {1}	$6.74
-Blotting paper 50 @ $0.41 sq ft {2}	$20.50
-Plastic sheets/bags 50 @ $0.09/sq ft {3}	$4.50
Subtotal cost of equipment and materials	$31.74
Overhead & profit on equipment and materials @ 10.00 %	$3.17
Total costs, equipment & material	$34.91

TOTAL COST:

Removal of contaminated heat exchanger <3000 pounds: $3,474.33

Total labor cost:	$3,439.42
Total equipment/material costs:	$34.91
Total craft labor man-hours required per unit:	81.884

5. NOTES AND REFERENCES

- Work difficulty factors were developed in conjunction with the Atomic Industrial Forum (AIF) (now Nuclear Energy Institute) program to standardize nuclear decommissioning cost estimates and are delineated in Volume 1, Chapter 5 of the "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates," AIF/NESP-036, May 1986.

- References for equipment & consumables costs:

    1. R.S. Means (2006) Division 015433, Section 6360
    2. McMaster-Carr, Item 7193T88, Spill Control
    3. R.S. Means (2006) Division 01540, Section 800-0200

- Material and consumable costs were adjusted using the regional indices for Portsmouth, New Hampshire.

APPENDIX B

UNIT COST FACTOR LISTING
(DECON: Power Block Structures Only)

APPENDIX B

UNIT COST FACTOR LISTING
(Power Block Structures Only)

Unit Cost Factor	Cost/Unit($)
Removal of clean instrument and sampling tubing, $/linear foot	0.38
Removal of clean pipe 0.25 to 2 inches diameter, $/linear foot	4.08
Removal of clean pipe >2 to 4 inches diameter, $/linear foot	5.80
Removal of clean pipe >4 to 8 inches diameter, $/linear foot	11.32
Removal of clean pipe >8 to 14 inches diameter, $/linear foot	21.92
Removal of clean pipe >14 to 20 inches diameter, $/linear foot	28.41
Removal of clean pipe >20 to 36 inches diameter, $/linear foot	41.83
Removal of clean pipe >36 inches diameter, $/linear foot	49.73
Removal of clean valves >2 to 4 inches	74.86
Removal of clean valves >4 to 8 inches	113.22
Removal of clean valves >8 to 14 inches	219.18
Removal of clean valves >14 to 20 inches	284.15
Removal of clean valves >20 to 36 inches	418.26
Removal of clean valves >36 inches	497.31
Removal of clean pipe hangers for small bore piping	24.25
Removal of clean pipe hangers for large bore piping	89.13
Removal of clean pumps, <300 pound	189.30
Removal of clean pumps, 300 to 1000 pound	527.22
Removal of clean pumps, 1000 to 10,000 pound	2,093.77
Removal of clean pumps, >10,000 pound	4,043.46
Removal of clean pump motors, 300 to 1000 pound	222.26
Removal of clean pump motors, 1000 to 10,000 pound	872.75
Removal of clean pump motors, >10,000 pound	1,963.72
Removal of clean heat exchanger <3000 pound	1,121.10
Removal of clean heat exchanger >3000 pound	2,814.01

APPENDIX B
(continued)

Unit Cost Factor	Cost/Unit($)
Removal of clean feedwater heater/deaerator	7,955.31
Removal of clean moisture separator/reheater	16,384.94
Removal of clean tanks, <300 gallons	243.71
Removal of clean tanks, 300 to 3000 gallon	771.65
Removal of clean tanks, >3000 gallons, $/square foot surface area	6.44
Removal of clean electrical equipment, <300 pound	104.11
Removal of clean electrical equipment, 300 to 1000 pound	361.89
Removal of clean electrical equipment, 1000 to 10,000 pound	723.77
Removal of clean electrical equipment, >10,000 pound	1,716.84
Removal of clean electrical transformers < 30 tons	1,192.32
Removal of clean electrical transformers > 30 tons	3,433.67
Removal of clean standby diesel generator, <100 kW	1,217.86
Removal of clean standby diesel generator, 100 kW to 1 MW	2,718.33
Removal of clean standby diesel generator, >1 MW	5,627.49
Removal of clean electrical cable tray, $/linear foot	9.68
Removal of clean electrical conduit, $/linear foot	4.22
Removal of clean mechanical equipment, <300 pound	104.11
Removal of clean mechanical equipment, 300 to 1000 pound	361.89
Removal of clean mechanical equipment, 1000 to 10,000 pound	723.77
Removal of clean mechanical equipment, >10,000 pound	1,716.84
Removal of clean HVAC equipment, <300 pound	104.11
Removal of clean HVAC equipment, 300 to 1000 pound	361.89
Removal of clean HVAC equipment, 1000 to 10,000 pound	723.77
Removal of clean HVAC equipment, >10,000 pound	1,716.84
Removal of clean HVAC ductwork, $/pound	0.40
Removal of contaminated instrument and sampling tubing, $/linear foot	1.28
Removal of contaminated pipe 0.25 to 2 inches diameter, $/linear foot	16.18
Removal of contaminated pipe >2 to 4 inches diameter, $/linear foot	28.51
Removal of contaminated pipe >4 to 8 inches diameter, $/linear foot	45.96
Removal of contaminated pipe >8 to 14 inches diameter, $/linear foot	90.54

APPENDIX B
(continued)

Unit Cost Factor	Cost/Unit($)
Removal of contaminated pipe >14 to 20 inches diameter, $/linear foot	109.20
Removal of contaminated pipe >20 to 36 inches diameter, $/linear foot	152.13
Removal of contaminated pipe >36 inches diameter, $/linear foot	180.31
Removal of contaminated valves >2 to 4 inches	357.96
Removal of contaminated valves >4 to 8 inches	430.38
Removal of contaminated valves >8 to 14 inches	877.88
Removal of contaminated valves >14 to 20 inches	1,118.48
Removal of contaminated valves >20 to 36 inches	1,493.81
Removal of contaminated valves >36 inches	1,775.60
Removal of contaminated pipe hangers for small bore piping	87.62
Removal of contaminated pipe hangers for large bore piping	281.69
Removal of contaminated pumps, <300 pound	764.39
Removal of contaminated pumps, 300 to 1000 pound	1,756.82
Removal of contaminated pumps, 1000 to 10,000 pound	5,700.35
Removal of contaminated pumps, >10,000 pound	13,885.74
Removal of contaminated pump motors, 300 to 1000 pound	735.11
Removal of contaminated pump motors, 1000 to 10,000 pound	2,308.88
Removal of contaminated pump motors, >10,000 pound	5,183.61
Removal of contaminated heat exchanger <3000 pound	3,474.33
Removal of contaminated heat exchanger >3000 pound	10,027.21
Removal of contaminated tanks, <300 gallons	1,267.63
Removal of contaminated tanks, >300 gallons, $/square foot	24.87
Removal of contaminated electrical equipment, <300 pound	599.97
Removal of contaminated electrical equipment, 300 to 1000 pound	1,434.21
Removal of contaminated electrical equipment, 1000 to 10,000 pound	2,760.60
Removal of contaminated electrical equipment, >10,000 pound	5,353.83
Removal of contaminated electrical cable tray, $/linear foot	28.92
Removal of contaminated electrical conduit, $/linear foot	13.00
Removal of contaminated mechanical equipment, <300 pound	668.15
Removal of contaminated mechanical equipment, 300 to 1000 pound	1,586.39

APPENDIX B
(continued)

Unit Cost Factor	Cost/Unit($)
Removal of contaminated mechanical equipment, 1000 to 10,000 pound	3,048.69
Removal of contaminated mechanical equipment, >10,000 pound	5,353.83
Removal of contaminated HVAC equipment, <300 pound	668.15
Removal of contaminated HVAC equipment, 300 to 1000 pound	1,586.39
Removal of contaminated HVAC equipment, 1000 to 10,000 pound	3,048.69
Removal of contaminated HVAC equipment, >10,000 pound	5,353.83
Removal of contaminated HVAC ductwork, $/pound	1.75
Removal/plasma arc cut of contaminated thin metal components, $/linear in.	3.13
Additional decontamination of surface by washing, $/square foot	6.40
Additional decontamination of surfaces by hydrolasing, $/square foot	28.25
Decontamination rig hook up and flush	5,685.26
Chemical flush of components/systems, $/gallon	10.37
Removal of clean standard reinforced concrete, $/cubic yard	98.98
Removal of grade slab concrete, $/cubic yard	135.36
Removal of clean concrete floors, $/cubic yard	258.52
Removal of sections of clean concrete floors, $/cubic yard	770.87
Removal of clean heavily rein concrete w/#9 rebar, $/cubic yard	169.10
Removal of contaminated heavily rein concrete w/#9 rebar, $/cubic yard	1,594.27
Removal of clean heavily rein concrete w/#18 rebar, $/cubic yard	213.88
Removal of contaminated heavily rein concrete w/#18 rebar, $/cubic yard	2,111.75
Removal heavily rein concrete w/#18 rebar & steel embedments, $/cy	330.98
Removal of below-grade suspended floors, $/cubic yard	258.52
Removal of clean monolithic concrete structures, $/cubic yard	661.28
Removal of contaminated monolithic concrete structures, $/cubic yard	1,595.13
Removal of clean foundation concrete, $/cubic yard	517.61
Removal of contaminated foundation concrete, $/cubic yard	1,485.64
Explosive demolition of bulk concrete, $/cubic yard	22.33
Removal of clean hollow masonry block wall, $/cubic yard	69.47
Removal of contaminated hollow masonry block wall, $/cubic yard	255.66
Removal of clean solid masonry block wall, $/cubic yard	69.47

APPENDIX B
(continued)

Unit Cost Factor	Cost/Unit($)
Removal of contaminated solid masonry block wall, $/cubic yard	255.66
Backfill of below-grade voids, $/cubic yard	12.97
Removal of subterranean tunnels/voids, $/linear foot	81.53
Placement of concrete for below-grade voids, $/cubic yard	91.80
Excavation of clean material, $/cubic yard	1.91
Excavation of contaminated material, $/cubic yard	30.15
Removal of clean concrete rubble (tipping fee included), $/cubic yard	19.71
Removal of contaminated concrete rubble, $/cubic yard	18.74
Removal of building by volume, $/cubic foot 0.22	
Removal of clean building metal siding, $/square foot	0.89
Removal of contaminated building metal siding, $/square foot	3.36
Removal of standard asphalt roofing, $/square foot	4.86
Removal of transite panels, $/square foot	1.75
Scarifying contaminated concrete surfaces (drill & spall)	10.62
Scabbling contaminated concrete floors, $/square foot	6.20
Scabbling contaminated concrete walls, $/square foot	16.25
Scabbling contaminated ceilings, $/square foot	55.64
Scabbling structural steel, $/square foot	5.36
Removal of clean overhead cranes/monorails < 10 ton capacity	504.74
Removal of contaminated overhead cranes/monorails < 10 ton capacity	1,495.80
Removal of clean overhead cranes/monorails >10 - 50 ton capacity	1,211.37
Removal of contaminated overhead cranes/monorails >10 - 50 ton capacity	3,589.30
Removal of polar cranes > 50 ton capacity, each	5,049.07
Removal of gantry cranes > 50 ton capacity, each	21,460.48
Removal of structural steel, $/pound	0.16
Removal of clean steel floor grating, $/square foot	3.52
Removal of contaminated steel floor grating, $/square foot	10.66
Removal of clean free standing steel liner, $/square foot	9.66
Removal of contaminated free standing steel liner, $/square foot	29.15
Removal of clean concrete-anchored steel liner, $/square foot	4.83

APPENDIX B
(continued)

Unit Cost Factor	Cost/Unit($)
Removal of contaminated concrete-anchored steel liner, $/square foot	33.96
Placement of scaffolding in clean areas, $/square foot	12.14
Placement of scaffolding in contaminated areas, $/square foot	21.15
Landscaping with topsoil, $/acre	15,447.28
Cost of CPC B-88 LSA box & preparation for use	1,274.30
Cost of CPC B-25 LSA box & preparation for use	1,137.02
Cost of CPC B-12V 12 gauge LSA box & preparation for use	934.39
Cost of CPC B-144 LSA box & preparation for use	6,776.15
Cost of LSA drum & preparation for use 101.15	
Cost of cask liner for CNSI 14 195 cask	128.18
Cost of cask liner for CNSI 8 120A cask (resins)	4,871.84
Cost of cask liner for CNSI 8 120A cask (filters)	886.14
Decontamination of surfaces with vacuuming, $/square foot	0.53

APPENDIX C

DETAILED COST TABLES

Table C - Base Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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 - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	131	20	150	150	-	-	-	-	-	-	-	-	-	1,300
1a.1.2	Notification of Cessation of Operations									a											
1a.1.3	Remove fuel & source material									n/a											
1a.1.4	Notification of Permanent Defueling									a											
1a.1.5	Deactivate plant systems & process waste									a											
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	201	30	231	231	-	-	-	-	-	-	-	-	-	2,000
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	463	69	532	532	-	-	-	-	-	-	-	-	-	4,600
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1a.1.10	End product description	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	131	20	150	150	-	-	-	-	-	-	-	-	-	1,300
1a.1.12	Define major work sequence	-	-	-	-	-	-	754	113	868	868	-	-	-	-	-	-	-	-	-	7,500
1a.1.13	Perform SER and EA	-	-	-	-	-	-	312	47	359	359	-	-	-	-	-	-	-	-	-	3,100
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	503	75	578	578	-	-	-	-	-	-	-	-	-	5,000
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	412	62	474	474	-	-	-	-	-	-	-	-	-	4,096
1a.1.16	Receive NRC approval of termination plan									a											
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	495	74	569	512	-	57	-	-	-	-	-	-	-	4,920
1a.1.17.2	Plant systems	-	-	-	-	-	-	419	63	482	434	-	48	-	-	-	-	-	-	-	4,167
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	50	8	58	58	-	-	-	-	-	-	-	-	-	500
1a.1.17.4	Reactor internals	-	-	-	-	-	-	714	107	821	821	-	-	-	-	-	-	-	-	-	7,100
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	654	98	752	752	-	-	-	-	-	-	-	-	-	6,500
1a.1.17.6	Biological shield	-	-	-	-	-	-	50	8	58	58	-	-	-	-	-	-	-	-	-	500
1a.1.17.7	Steam generators	-	-	-	-	-	-	314	47	361	361	-	-	-	-	-	-	-	-	-	3,120
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	161	24	185	93	-	93	-	-	-	-	-	-	-	1,600
1a.1.17.9	Main Turbine	-	-	-	-	-	-	40	6	46	-	-	46	-	-	-	-	-	-	-	400
1a.1.17.10	Main Condensers	-	-	-	-	-	-	40	6	46	-	-	46	-	-	-	-	-	-	-	400
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	314	47	361	180	-	180	-	-	-	-	-	-	-	3,120
1a.1.17.12	Waste management	-	-	-	-	-	-	463	69	532	532	-	-	-	-	-	-	-	-	-	4,600
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	91	14	104	52	-	52	-	-	-	-	-	-	-	900
1a.1.17	Total	-	-	-	-	-	-	3,805	571	4,375	3,853	-	523	-	-	-	-	-	-	-	37,827
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	241	36	278	278	-	-	-	-	-	-	-	-	-	2,400
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	2,419	363	2,782	2,782	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	141	21	162	162	-	-	-	-	-	-	-	-	-	1,400
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,048	307	2,355	2,355	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	124	19	142	142	-	-	-	-	-	-	-	-	-	1,230
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	11,885	1,783	13,668	13,145	-	523	-	-	-	-	-	-	-	73,753
Period 1a Collateral Costs																					
1a.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	1,120	168	1,288	-	1,288	-	-	-	-	-	-	-	-	-
1a.3.2	N.H. Disposal Tax	-	-	-	-	-	-	9	2	12	12	-	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	-	-	-	-	-	1,129	170	1,300	12	1,288	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	1,273	127	1,400	1,400	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	219	-	-	-	-	-	55	274	274	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	268	-	-	-	-	-	40	308	308	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	9	9	-	19	-	7	44	44	-	-	-	618	-	-	-	12,359	168	-

Table C - Base Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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: 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.4.6	Plant energy budget	-	-	-	-	-	-	1,868	280	2,149	2,149	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	258	26	284	284	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	3,861	386	4,247	-	4,247	-	-	-	-	-	-	-	-	-
1a.4.9	Spent Fuel Pool O&M	-	-	-	-	-	-	630	95	725	-	725	-	-	-	-	-	-	-	-	-
1a.4.10	ISFSI Operating Costs	-	-	-	-	-	-	78	12	89	-	89	-	-	-	-	-	-	-	-	-
1a.4.11	INPO Fees	-	-	-	-	-	-	815	122	937	937	-	-	-	-	-	-	-	-	-	-
1a.4.12	Security Staff Cost	-	-	-	-	-	-	3,521	528	4,049	4,049	-	-	-	-	-	-	-	-	-	156,429
1a.4.13	Utility Staff Cost	-	-	-	-	-	-	25,841	3,876	29,717	29,717	-	-	-	-	-	-	-	-	-	438,000
1a.4	Subtotal Period 1a Period-Dependent Costs	-	487	9	9	-	19	38,145	5,554	44,223	39,162	5,061	-	-	618	-	-	-	12,359	168	594,429
1a.0	TOTAL PERIOD 1a COST	-	487	9	9	-	19	51,159	7,507	59,191	52,319	6,349	523	-	618	-	-	-	12,359	168	668,181
PERIOD 1b - Decommissioning Preparations																					
Period 1b Direct Decommissioning Activities																					
Detailed Work Procedures																					
1b.1.1.1	Plant systems	-	-	-	-	-	-	476	71	547	493	-	55	-	-	-	-	-	-	-	4,733
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.3	Reactor internals	-	-	-	-	-	-	251	38	289	289	-	-	-	-	-	-	-	-	-	2,500
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	136	20	156	39	-	117	-	-	-	-	-	-	-	1,350
1b.1.1.5	CRD cooling assembly	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.6	CRD housings & ICI tubes	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.7	Incore instrumentation	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	365	55	420	420	-	-	-	-	-	-	-	-	-	3,630
1b.1.1.9	Facility closeout	-	-	-	-	-	-	121	18	139	69	-	69	-	-	-	-	-	-	-	1,200
1b.1.1.10	Missile shields	-	-	-	-	-	-	45	7	52	52	-	-	-	-	-	-	-	-	-	450
1b.1.1.11	Biological shield	-	-	-	-	-	-	121	18	139	139	-	-	-	-	-	-	-	-	-	1,200
1b.1.1.12	Steam generators	-	-	-	-	-	-	463	69	532	532	-	-	-	-	-	-	-	-	-	4,600
1b.1.1.13	Reinforced concrete	-	-	-	-	-	-	101	15	116	58	-	58	-	-	-	-	-	-	-	1,000
1b.1.1.14	Main Turbine	-	-	-	-	-	-	157	24	180	-	-	180	-	-	-	-	-	-	-	1,560
1b.1.1.15	Main Condensers	-	-	-	-	-	-	157	24	180	-	-	180	-	-	-	-	-	-	-	1,560
1b.1.1.16	Auxiliary building	-	-	-	-	-	-	275	41	316	284	-	32	-	-	-	-	-	-	-	2,730
1b.1.1.17	Reactor building	-	-	-	-	-	-	275	41	316	284	-	32	-	-	-	-	-	-	-	2,730
1b.1.1	Total	-	-	-	-	-	-	3,344	502	3,845	3,122	-	723	-	-	-	-	-	-	-	33,243
1b.1.2	Decon primary loop	367	-	-	-	-	-	-	183	550	550	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	367	-	-	-	-	-	3,344	685	4,395	3,672	-	723	-	-	-	-	-	-	1,067	33,243
Period 1b Additional Costs																					
1b.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	8,867	1,330	10,198	10,198	-	-	-	-	-	-	-	-	-	-
1b.2.2	Site Characterization	-	-	-	-	-	-	2,474	742	3,216	3,216	-	-	-	-	-	-	-	-	-	-
1b.2.3	Misc Waste	-	-	13	7	187	-	-	2	208	208	-	-	348	-	-	-	-	23,316	109	-
1b.2	Subtotal Period 1b Additional Costs	-	-	13	7	187	-	11,342	2,075	13,622	13,622	-	-	348	-	-	-	-	23,316	109	-
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	624	-	-	-	-	-	-	94	718	718	-	-	-	-	-	-	-	-	-	-
1b.3.2	DOC staff relocation expenses	-	-	-	-	-	-	1,163	175	1,338	1,338	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process liquid waste	51	-	88	990	-	5,178	-	1,478	7,785	7,785	-	-	-	334	1,628	-	-	273,827	422	-
1b.3.4	Small tool allowance	-	1	-	-	-	-	-	0	1	1	-	-	-	-	-	-	-	-	-	-
1b.3.5	Pipe cutting equipment	-	957	-	-	-	-	-	143	1,100	1,100	-	-	-	-	-	-	-	-	-	-
1b.3.6	Decon rig	1,243	-	-	-	-	-	-	186	1,430	1,430	-	-	-	-	-	-	-	-	-	-
1b.3.7	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,823	423	3,247	-	3,247	-	-	-	-	-	-	-	-	-
1b.3.8	N.H. Disposal Tax	-	-	-	-	-	-	35	9	44	44	-	-	-	-	-	-	-	-	-	-

Table C - Base Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
1b.3	Subtotal Period 1b Collateral Costs	1,919	957	88	990	-	5,178	4,022	2,508	15,662	12,415	3,247	-	-	334	1,628	-	-	273,827	422	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	19	-	-	-	-	-	-	5	24	24	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	642	64	706	706	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	115	-	-	-	-	-	29	144	144	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	135	-	-	-	-	-	20	155	155	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	5	6	-	11	-	4	26	26	-	-	-	364	-	-	-	7,282	99	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	1,884	283	2,166	2,166	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	130	13	143	143	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	1,946	195	2,141	-	2,141	-	-	-	-	-	-	-	-	-
1b.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	318	48	365	-	365	-	-	-	-	-	-	-	-	-
1b.4.11	ISFSI Operating Costs	-	-	-	-	-	-	39	6	45	-	45	-	-	-	-	-	-	-	-	-
1b.4.12	INPO Fees	-	-	-	-	-	-	411	62	472	472	-	-	-	-	-	-	-	-	-	-
1b.4.13	Security Staff Cost	-	-	-	-	-	-	1,775	266	2,041	2,041	-	-	-	-	-	-	-	-	-	78,857
1b.4.14	DOC Staff Cost	-	-	-	-	-	-	4,399	660	5,059	5,059	-	-	-	-	-	-	-	-	-	64,137
1b.4.15	Utility Staff Cost	-	-	-	-	-	-	13,112	1,967	15,079	15,079	-	-	-	-	-	-	-	-	-	221,851
1b.4	Subtotal Period 1b Period-Dependent Costs	19	251	5	6	-	11	24,655	3,620	28,567	26,016	2,551	-	-	364	-	-	-	7,282	99	364,846
1b.0	TOTAL PERIOD 1b COST	2,305	1,208	106	1,003	187	5,189	43,362	8,888	62,246	55,725	5,798	723	348	698	1,628	-	-	304,424	1,696	398,089
PERIOD 1 TOTALS		2,305	1,695	115	1,012	187	5,207	94,521	16,395	121,437	108,044	12,147	1,246	348	1,316	1,628	-	-	316,783	1,864	1,066,270
PERIOD 2a - Large Component Remova																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	104	92	11	34	-	213	-	134	588	588	-	-	-	879	-	-	-	97,530	4,404	-
2a.1.1.2	Pressurizer Relief Tank	25	22	4	13	-	80	-	41	185	185	-	-	-	330	-	-	-	36,618	1,074	-
2a.1.1.3	Reactor Coolant Pumps & Motors	108	76	34	144	147	1,148	-	407	2,065	2,065	-	-	356	4,594	-	-	-	897,424	4,481	-
2a.1.1.4	Pressurizer	37	45	392	478	-	581	-	286	1,819	1,819	-	-	-	2,326	-	-	-	231,508	2,427	-
2a.1.1.5	Steam Generators	319	4,337	3,407	3,186	2,802	4,317	-	3,562	21,931	21,931	-	-	39,678	17,270	-	-	-	3,499,333	23,227	6,950
2a.1.1.6	CRDMs/ICIs/Service Structure Removal	130	75	127	66	-	167	-	148	713	713	-	-	-	3,198	-	-	-	76,800	4,406	-
2a.1.1.7	Reactor Vessel Internals	87	2,171	4,918	1,159	-	4,670	187	5,553	18,744	18,744	-	-	-	1,252	809	459	-	309,905	24,965	1,131
2a.1.1.8	Reactor Vessel	71	4,645	1,199	1,115	-	6,186	187	7,219	20,622	20,622	-	-	-	6,606	2,128	-	-	961,918	24,965	1,131
2a.1.1	Totals	880	11,464	10,093	6,193	2,948	17,363	375	17,350	66,665	66,665	-	-	40,034	36,455	2,937	459	-	6,111,036	89,928	9,211
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	416	237	71	932	469	-	395	2,520	2,520	-	-	4,809	2,531	-	-	-	623,905	9,663	-
2a.1.3	Main Condensers	-	985	128	124	814	410	-	502	2,963	2,963	-	-	7,933	2,210	-	-	-	544,847	23,200	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Containment	-	715	-	-	-	-	-	107	823	823	-	-	-	-	-	-	-	-	10,927	-
2a.1.4.2	Containment Enclosure Ventilation	-	14	-	-	-	-	-	2	16	16	-	-	-	-	-	-	-	-	228	-
2a.1.4.3	Primary Auxiliary Building	-	131	-	-	-	-	-	20	151	151	-	-	-	-	-	-	-	-	2,090	-
2a.1.4.4	Waste Processing	-	173	-	-	-	-	-	26	199	199	-	-	-	-	-	-	-	-	2,874	-
2a.1.4.5	Fuel Storage	-	75	-	-	-	-	-	11	87	87	-	-	-	-	-	-	-	-	1,107	-
2a.1.4	Totals	-	1,108	-	-	-	-	-	166	1,274	1,274	-	-	-	-	-	-	-	-	17,226	-
Disposal of Plant Systems																					
2a.1.5.1	Aux Steam - Insulated - RCA	-	241	5	31	412	-	-	127	817	817	-	-	4,447	-	-	-	-	180,604	5,209	-
2a.1.5.2	Aux Steam - RCA	-	49	1	5	68	-	-	23	146	146	-	-	737	-	-	-	-	29,928	1,108	-
2a.1.5.3	Aux Steam Cond - Insulated	-	17	-	-	-	-	-	3	19	-	-	19	-	-	-	-	-	-	411	-
2a.1.5.4	Aux Steam Cond - Insulated - RCA	-	47	1	4	58	-	-	21	131	131	-	-	622	-	-	-	-	25,273	997	-

Table C - Base Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
Disposal of Plant Systems (continued)																					
2a.1.5.5	Aux Steam Cond - RCA	-	4	0	0	2	-	-	1	7	7	-	-	18	-	-	-	-	720	86	-
2a.1.5.6	Aux Steam Heating - Insulated - RCA	-	34	0	2	29	-	-	13	79	79	-	-	311	-	-	-	-	12,616	708	-
2a.1.5.7	Condensate	-	626	26	167	2,193	-	-	513	3,527	3,527	-	-	23,687	-	-	-	-	961,954	14,717	-
2a.1.5.8	Condensate - Insulated	-	522	16	104	1,360	-	-	352	2,355	2,355	-	-	14,693	-	-	-	-	596,672	12,154	-
2a.1.5.9	Condensate Polisher	-	211	6	39	514	-	-	136	906	906	-	-	5,547	-	-	-	-	225,286	4,881	-
2a.1.5.10	Condenser Air Evacuation	-	260	5	33	436	-	-	136	871	871	-	-	4,714	-	-	-	-	191,432	5,728	-
2a.1.5.11	Condenser Air Evacuation - Insulated	-	22	0	2	28	-	-	10	62	62	-	-	299	-	-	-	-	12,152	486	-
2a.1.5.12	Condenser Air Evacuation - RCA	-	1	0	0	3	-	-	1	5	5	-	-	30	-	-	-	-	1,220	29	-
2a.1.5.13	Extraction Steam - Insulated	-	326	10	62	811	-	-	214	1,423	1,423	-	-	8,764	-	-	-	-	355,920	7,668	-
2a.1.5.14	Feedwater	-	81	1	4	53	-	-	29	168	168	-	-	574	-	-	-	-	23,303	1,928	-
2a.1.5.15	Feedwater - Insulated	-	530	18	114	1,492	-	-	375	2,529	2,529	-	-	16,110	-	-	-	-	654,236	12,339	-
2a.1.5.16	Feedwater - Insulated - RCA	-	105	5	28	366	-	-	86	590	590	-	-	3,950	-	-	-	-	160,431	2,384	-
2a.1.5.17	Feedwater - RCA	-	28	0	2	22	-	-	11	62	62	-	-	235	-	-	-	-	9,533	656	-
2a.1.5.18	Feedwater- Yard	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	7	-
2a.1.5.19	Feedwater- Yard - Insulated	-	10	-	-	-	-	-	2	12	-	-	12	-	-	-	-	-	-	270	-
2a.1.5.20	Heat Tracing	-	3	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	70	-
2a.1.5.21	Heat Tracing - RCA	-	21	1	5	64	-	-	16	106	106	-	-	688	-	-	-	-	27,938	497	-
2a.1.5.22	Main Steam	-	323	10	62	813	-	-	213	1,422	1,422	-	-	8,786	-	-	-	-	356,793	7,629	-
2a.1.5.23	Main Steam - Insulated	-	380	12	75	986	-	-	255	1,709	1,709	-	-	10,649	-	-	-	-	432,475	8,830	-
2a.1.5.24	Main Steam - Insulated - RCA	-	115	6	33	439	-	-	100	692	692	-	-	4,739	-	-	-	-	192,450	2,607	-
2a.1.5.25	Main Steam - RCA	-	88	4	25	325	-	-	75	516	516	-	-	3,510	-	-	-	-	142,542	2,041	-
2a.1.5.26	Main Steam Drain - Insulated	-	109	1	6	75	-	-	40	230	230	-	-	806	-	-	-	-	32,732	2,362	-
2a.1.5.27	Main Steam Drain - Insulated - RCA	-	27	0	2	25	-	-	11	65	65	-	-	269	-	-	-	-	10,942	553	-
2a.1.5.28	Moist Sep & Rhtr Drains	-	40	0	2	26	-	-	14	83	83	-	-	285	-	-	-	-	11,591	954	-
2a.1.5.29	Moist Sep & Rhtr Drains - Insulated	-	503	26	162	2,127	-	-	472	3,289	3,289	-	-	22,975	-	-	-	-	933,041	11,767	-
2a.1.5.30	Residual Heat Removal	1	17	0	1	5	2	-	6	31	31	-	-	55	9	-	-	-	3,005	393	-
2a.1.5.31	Residual Heat Removal-Insulated	115	132	12	27	67	144	-	142	639	639	-	-	724	777	-	-	-	95,404	4,229	-
2a.1.5.32	Steam Generator Blowdown	-	239	15	47	286	164	-	152	903	903	-	-	3,086	892	-	-	-	200,739	5,560	-
2a.1.5.33	Steam Generator Blowdown - Insulated	-	244	11	24	108	107	-	109	604	604	-	-	1,165	579	-	-	-	96,538	5,491	-
2a.1.5.34	Turbine Steam Seal - Insulated	-	118	3	17	218	-	-	65	421	421	-	-	2,357	-	-	-	-	95,728	2,724	-
2a.1.5	Totals	116	5,476	195	1,086	13,410	417	-	3,722	24,424	24,389	-	35	144,834	2,257	-	-	-	6,073,198	127,474	-
2a.1.6	Scaffolding in support of decommissioning	-	716	11	8	84	2	-	195	1,016	1,016	-	-	820	41	-	-	-	41,007	17,969	-
2a.1	Subtotal Period 2a Activity Costs	996	20,166	10,664	7,481	18,189	18,661	375	22,331	98,863	98,828	-	35	198,429	43,494	2,937	459	-	13,393,990	285,459	9,211
Period 2a Collateral Costs																					
2a.3.1	Process liquid waste	109	-	45	492	-	804	-	334	1,783	1,783	-	-	-	1,072	-	-	-	89,102	218	-
2a.3.2	Small tool allowance	-	167	-	-	-	-	-	25	192	173	-	19	-	-	-	-	-	-	-	-
2a.3.3	Spent Fuel Capital and Transfer	-	-	-	-	-	-	8,592	1,289	9,881	-	9,881	-	-	-	-	-	-	-	-	-
2a.3.4	N.H. Disposal Tax	-	-	-	-	-	-	799	200	999	999	-	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	109	167	45	492	-	804	9,391	1,847	12,855	2,954	9,881	19	-	1,072	-	-	-	89,102	218	-
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	53	-	-	-	-	-	-	13	66	66	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	804	80	885	885	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	1,164	-	-	-	-	-	291	1,456	1,456	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	1,840	-	-	-	-	-	276	2,116	2,116	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	78	81	-	159	-	60	378	378	-	-	-	5,314	-	-	-	106,284	1,445	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	2,470	371	2,841	2,841	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	479	48	527	527	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	139	14	153	-	153	-	-	-	-	-	-	-	-	-
2a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	877	132	1,009	-	1,009	-	-	-	-	-	-	-	-	-
2a.4.11	Radwaste Processing Equipment/Services	-	-	-	-	-	-	266	40	305	305	-	-	-	-	-	-	-	-	-	-

Table C - Base Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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.4.12	ISFSI Operating Costs	-	-	-	-	-	-	108	16	124	-	124	-	-	-	-	-	-	-	-	-
2a.4.13	Security Staff Cost	-	-	-	-	-	-	3,267	490	3,757	3,757	-	-	-	-	-	-	-	-	-	145,143
2a.4.14	DOC Staff Cost	-	-	-	-	-	-	14,815	2,222	17,038	17,038	-	-	-	-	-	-	-	-	-	220,617
2a.4.15	Utility Staff Cost	-	-	-	-	-	-	25,465	3,820	29,285	29,285	-	-	-	-	-	-	-	-	-	431,074
2a.4	Subtotal Period 2a Period-Dependent Costs	53	3,005	78	81	-	159	48,690	7,873	59,939	58,653	1,286	-	-	5,314	-	-	-	106,284	1,445	796,834
2a.0	TOTAL PERIOD 2a COST	1,158	23,338	10,787	8,054	18,189	19,624	58,456	32,050	171,656	160,435	11,167	54	198,429	49,880	2,937	459	-	13,589,380	287,123	806,045
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	Boron Recovery	19	38	2	4	11	18	-	26	118	118	-	-	114	99	-	-	-	13,044	1,151	-
2b.1.1.2	Boron Recovery - Insulated	725	717	46	115	665	427	-	770	3,465	3,465	-	-	7,179	2,651	-	-	-	487,618	30,466	-
2b.1.1.3	Chem & Volume Control	46	107	4	8	23	41	-	65	292	292	-	-	245	221	-	-	-	28,690	3,252	-
2b.1.1.4	Chem & Volume Control - Insulated	-	611	60	131	459	633	-	405	2,298	2,298	-	-	4,953	3,506	-	-	-	491,331	13,992	-
2b.1.1.5	Cntnmnt Encl Air Handling	-	130	2	13	155	8	-	60	368	368	-	-	1,676	44	-	-	-	71,764	2,981	-
2b.1.1.6	Cntnmnt Encl Air Handling - Insulated	-	15	1	1	3	7	-	6	33	33	-	-	28	40	-	-	-	4,528	317	-
2b.1.1.7	Cntnmnt On-line Purge	-	67	2	8	68	16	-	32	192	192	-	-	734	86	-	-	-	37,092	1,435	-
2b.1.1.8	Combust Gas Control - Insulated - RCA	-	24	0	3	38	-	-	12	78	78	-	-	410	-	-	-	-	16,656	510	-
2b.1.1.9	Combust Gas Control - RCA	-	4	0	1	11	-	-	3	19	19	-	-	121	-	-	-	-	4,897	99	-
2b.1.1.10	Containment Air Handling	-	410	9	43	505	33	-	194	1,194	1,194	-	-	5,455	178	-	-	-	236,621	9,029	-
2b.1.1.11	Containment Air Purge	-	134	4	21	225	25	-	77	486	486	-	-	2,427	135	-	-	-	110,018	2,973	-
2b.1.1.12	Containmnt Bldg Spray	-	95	-	-	-	-	-	14	109	-	-	109	-	-	-	-	-	-	2,309	-
2b.1.1.13	Containmnt Bldg Spray - Insulated	-	56	-	-	-	-	-	8	64	-	-	64	-	-	-	-	-	-	1,405	-
2b.1.1.14	Containmnt Bldg Spray - Insulated - RCA	-	20	1	3	45	-	-	12	81	81	-	-	483	-	-	-	-	19,609	451	-
2b.1.1.15	Containmnt Bldg Spray - RCA	-	5	0	0	3	-	-	2	10	10	-	-	31	-	-	-	-	1,257	120	-
2b.1.1.16	Contaminated Waste	44	37	2	4	3	27	-	40	158	158	-	-	35	148	-	-	-	13,987	1,713	-
2b.1.1.17	Demineralized Water	-	96	1	5	68	-	-	35	205	205	-	-	735	-	-	-	-	29,855	2,105	-
2b.1.1.18	Demineralized Water - Insulated	-	147	2	10	129	-	-	58	344	344	-	-	1,388	-	-	-	-	56,380	3,237	-
2b.1.1.19	Demineralized Water - Insulated - RCA	-	46	1	4	56	-	-	20	127	127	-	-	602	-	-	-	-	24,436	960	-
2b.1.1.20	Demineralized Water - RCA	-	26	0	2	22	-	-	10	60	60	-	-	239	-	-	-	-	9,722	524	-
2b.1.1.21	Diesel Generator - Insulated - RCA	-	3	0	1	7	-	-	2	12	12	-	-	72	-	-	-	-	2,914	58	-
2b.1.1.22	Drains - Floor	-	159	7	15	29	83	-	68	361	361	-	-	315	450	-	-	-	51,069	3,584	-
2b.1.1.23	Drains - Floor - Insulated	-	167	8	18	22	106	-	75	394	394	-	-	233	570	-	-	-	57,891	3,780	-
2b.1.1.24	Elec Distribution/Emer - Clean	-	38	-	-	-	-	-	6	43	-	-	43	-	-	-	-	-	-	930	-
2b.1.1.25	Elec Distribution/Emer - Contaminated	-	60	1	3	39	2	-	22	126	126	-	-	423	11	-	-	-	18,070	1,372	-
2b.1.1.26	Elec Distribution/Emer - RCA	-	362	5	28	371	-	-	151	917	917	-	-	4,009	-	-	-	-	162,811	8,214	-
2b.1.1.27	Elec Tunnel Air Handling	-	7	-	-	-	-	-	1	8	-	-	8	-	-	-	-	-	-	184	-
2b.1.1.28	Electrical Distrib - Clean	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	506	-
2b.1.1.29	Electrical Distrib - Contaminated	-	96	1	6	72	4	-	37	215	215	-	-	776	20	-	-	-	33,188	2,203	-
2b.1.1.30	Electrical Distrib - RCA	-	576	8	51	673	-	-	254	1,562	1,562	-	-	7,266	-	-	-	-	295,072	13,098	-
2b.1.1.31	Emerg FW Pumphouse Air Handling	-	10	-	-	-	-	-	1	11	-	-	11	-	-	-	-	-	-	257	-
2b.1.1.32	Fire Protection	-	18	-	-	-	-	-	3	21	-	-	21	-	-	-	-	-	-	451	-
2b.1.1.33	Fire Protection - Insulated	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	37	-
2b.1.1.34	Fire Protection - Insulated - RCA	-	25	0	2	30	-	-	11	68	68	-	-	326	-	-	-	-	13,228	538	-
2b.1.1.35	Fire Protection - RCA	-	193	4	26	338	-	-	103	664	664	-	-	3,648	-	-	-	-	148,135	4,197	-
2b.1.1.36	Hot Water	-	31	-	-	-	-	-	5	36	-	-	36	-	-	-	-	-	-	786	-
2b.1.1.37	Hot Water - Insulated	-	9	-	-	-	-	-	1	10	-	-	10	-	-	-	-	-	-	240	-
2b.1.1.38	Hot Water - Insulated - RCA	-	23	0	2	23	-	-	10	58	58	-	-	245	-	-	-	-	9,965	483	-
2b.1.1.39	Hot Water - RCA	-	23	0	2	24	-	-	10	59	59	-	-	263	-	-	-	-	10,675	467	-
2b.1.1.40	Hydrogen Gas - RCA	-	9	0	1	9	-	-	4	22	22	-	-	93	-	-	-	-	3,770	185	-
2b.1.1.41	Incore Instrumentation	-	33	3	8	38	35	-	24	142	142	-	-	414	189	-	-	-	32,873	787	-
2b.1.1.42	Instrument Air	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	35	-

Table C - Base Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
Disposal of Plant Systems (continued)																					
2b.1.1.43	Instrument Air - RCA	-	209	2	14	180	-	-	82	486	486	-	-	1,941	-	-	-	-	78,817	4,482	-
2b.1.1.44	Leak Detection - RCA	-	7	0	1	7	-	-	3	17	17	-	-	74	-	-	-	-	3,014	144	-
2b.1.1.45	Mechanical Seal Supply - RCA	-	21	0	2	22	-	-	9	53	53	-	-	232	-	-	-	-	9,441	436	-
2b.1.1.46	Miscellaneous Equipment	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	8	-
2b.1.1.47	Miscellaneous Equipment - RCA	-	51	1	9	112	-	-	31	205	205	-	-	1,213	-	-	-	-	49,265	1,203	-
2b.1.1.48	Nitrogen Gas	-	2	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	53	-
2b.1.1.49	Nitrogen Gas - Insulated - RCA	-	25	0	2	23	-	-	10	61	61	-	-	252	-	-	-	-	10,225	502	-
2b.1.1.50	Nitrogen Gas - RCA	-	18	0	1	17	-	-	7	44	44	-	-	182	-	-	-	-	7,411	364	-
2b.1.1.51	Nuclear Inst	-	11	0	1	6	3	-	4	24	24	-	-	60	14	-	-	-	3,644	250	-
2b.1.1.52	Oil Collin For RC Pumps - RCA	-	74	2	14	185	-	-	49	324	324	-	-	1,998	-	-	-	-	81,142	1,717	-
2b.1.1.53	PAB Air Handling	-	289	6	33	390	20	-	141	880	880	-	-	4,207	110	-	-	-	180,195	6,460	-
2b.1.1.54	PAB Air Handling - Insulated	-	45	2	6	34	25	-	24	136	136	-	-	372	133	-	-	-	26,419	1,006	-
2b.1.1.55	Potable Water	-	66	-	-	-	-	-	10	75	-	-	75	-	-	-	-	-	-	1,688	-
2b.1.1.56	Potable Water - Insulated	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	38	-
2b.1.1.57	Prim Comp Clng Water - Insulated - RCA	-	621	20	118	1,547	-	-	407	2,713	2,713	-	-	16,712	-	-	-	-	678,673	13,804	-
2b.1.1.58	Prim Comp Clng Water - RCA	-	440	20	123	1,610	-	-	372	2,565	2,565	-	-	17,387	-	-	-	-	706,102	10,150	-
2b.1.1.59	RCA Check Point Air Handling	-	3	-	-	-	-	-	0	4	-	-	4	-	-	-	-	-	-	79	-
2b.1.1.60	Radiation Monitoring - RCA	-	57	3	16	213	-	-	49	338	338	-	-	2,299	-	-	-	-	93,383	1,329	-
2b.1.1.61	Reactor Coolant	-	111	5	12	31	63	-	50	272	272	-	-	338	338	-	-	-	42,449	2,610	-
2b.1.1.62	Reactor Coolant - Insulated	60	48	3	5	0	31	-	51	198	198	-	-	2	168	-	-	-	14,325	2,389	-
2b.1.1.63	Reactor Make-up Water	-	155	5	21	199	35	-	81	497	497	-	-	2,152	207	-	-	-	103,637	3,576	-
2b.1.1.64	Reactor Make-up Water - Insulated	-	24	1	2	4	12	-	10	55	55	-	-	46	66	-	-	-	7,495	525	-
2b.1.1.65	Release Recovery	-	34	1	5	46	9	-	18	114	114	-	-	495	54	-	-	-	24,440	769	-
2b.1.1.66	Release Recovery - Insulated	-	5	0	0	1	2	-	2	10	10	-	-	9	12	-	-	-	1,371	102	-
2b.1.1.67	Resin Sluicing	73	89	5	12	59	48	-	82	368	368	-	-	638	289	-	-	-	47,859	3,538	-
2b.1.1.68	Rod Control & Position	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	35	-
2b.1.1.69	Roof Drains - Insulated - RCA	-	18	0	2	23	-	-	8	51	51	-	-	245	-	-	-	-	9,931	389	-
2b.1.1.70	Roof Drains - RCA	-	13	0	1	15	-	-	6	35	35	-	-	157	-	-	-	-	6,370	287	-
2b.1.1.71	Safety Injection	-	163	13	55	549	85	-	154	1,018	1,018	-	-	5,930	469	-	-	-	279,631	3,820	-
2b.1.1.72	Safety Injection - Insulated	-	112	6	13	62	53	-	53	299	299	-	-	672	284	-	-	-	51,404	2,501	-
2b.1.1.73	Sampling - Insulated	-	174	3	7	36	26	-	57	302	302	-	-	387	139	-	-	-	27,566	4,129	-
2b.1.1.74	Service Air	-	2	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	59	-
2b.1.1.75	Service Air - RCA	-	95	1	7	97	-	-	40	241	241	-	-	1,049	-	-	-	-	42,614	1,968	-
2b.1.1.76	Service Water - Insulated - RCA	-	120	8	46	602	-	-	128	903	903	-	-	6,502	-	-	-	-	264,033	2,797	-
2b.1.1.77	Service Water - RCA	-	118	5	33	429	-	-	99	685	685	-	-	4,636	-	-	-	-	188,275	2,675	-
2b.1.1.78	Sta Info & Alarm Comp	-	2	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	62	-
2b.1.1.79	Vents - Insulated - RCA	-	11	0	1	10	-	-	4	26	26	-	-	109	-	-	-	-	4,434	218	-
2b.1.1.80	Vents - RCA	-	80	2	10	131	-	-	41	264	264	-	-	1,417	-	-	-	-	57,545	1,757	-
2b.1.1.81	WP - Liquid Drains	-	383	19	41	84	226	-	173	926	926	-	-	911	1,244	-	-	-	140,526	8,530	-
2b.1.1.82	Waste Gas - Insulated	-	91	7	15	57	72	-	52	293	293	-	-	614	389	-	-	-	57,857	2,023	-
2b.1.1.83	Waste Processing Air Handling	-	488	8	45	535	27	-	217	1,320	1,320	-	-	5,778	148	-	-	-	247,236	10,555	-
2b.1.1.84	Waste Processing Liquid	2	13	0	1	3	4	-	6	31	31	-	-	38	24	-	-	-	3,565	309	-
2b.1.1.85	Waste Processing Liquid - Insulated	285	279	19	46	221	192	-	302	1,344	1,344	-	-	2,389	1,135	-	-	-	185,252	11,380	-
2b.1.1.86	Waste Processing Liquid - Yard	-	22	1	3	2	17	-	11	55	55	-	-	21	91	-	-	-	6,604	483	-
2b.1.1.87	Waste Processing Solid - Insul - RCA	-	285	8	48	626	-	-	173	1,139	1,139	-	-	6,759	-	-	-	-	274,481	6,305	-
2b.1.1.88	Waste Processing Solid - RCA	-	2	0	0	3	-	-	1	7	7	-	-	35	-	-	-	-	1,421	52	-
2b.1.1	Totals	1,255	9,530	355	1,306	12,333	2,416	-	5,659	32,854	32,433	-	421	133,196	13,659	-	-	-	6,517,216	238,975	-
2b.1.2	Scaffolding in support of decommissioning	-	896	14	10	105	3	-	243	1,270	1,270	-	-	1,025	51	-	-	-	51,258	22,461	-
Decontamination of Site Buildings																					
2b.1.3.1	Containment	1,041	841	99	280	372	812	-	1,042	4,487	4,487	-	-	4,016	7,495	-	-	-	861,086	41,985	-
2b.1.3.2	Administration Building-Limited Areas	97	33	6	18	-	24	-	66	244	244	-	-	-	488	-	-	-	48,750	2,873	-
2b.1.3.3	Containment Enclosure Ventilation	24	9	2	5	0	7	-	17	64	64	-	-	5	136	-	-	-	13,736	726	-
2b.1.3.4	Main Steam & Feedwater Pipe Chase	58	2	0	1	2	1	-	30	94	94	-	-	19	12	-	-	-	1,928	1,417	-

Table C - Base Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
Decontamination of Site Buildings (continued)																					
2b.1.3.5	Miscellaneous Structures	7	3	1	1	-	2	-	5	18	18	-	-	-	40	-	-	-	4,014	206	-
2b.1.3.6	Non-Essential Switchgear Room	2	1	0	1	-	1	-	2	7	7	-	-	-	15	-	-	-	1,482	76	-
2b.1.3.7	Primary Auxiliary Building	241	132	19	57	62	75	-	192	778	778	-	-	672	1,458	-	-	-	171,902	8,209	-
2b.1.3.8	RCA Storage Facility	35	0	0	0	-	0	-	18	53	53	-	-	-	3	-	-	-	342	823	-
2b.1.3.9	Waste Processing	357	183	27	81	87	107	-	279	1,121	1,121	-	-	943	2,083	-	-	-	245,080	11,899	-
2b.1.3	Totals	1,862	1,204	155	442	524	1,029	-	1,650	6,865	6,865	-	-	5,655	11,730	-	-	-	1,348,320	68,215	-
2b.1	Subtotal Period 2b Activity Costs	3,117	11,630	524	1,758	12,962	3,447	-	7,551	40,988	40,568	-	421	139,875	25,441	-	-	-	7,916,795	329,652	-
Period 2b Collateral Costs																					
2b.3.1	Process liquid waste	293	-	128	1,392	-	2,102	-	894	4,809	4,809	-	-	-	3,021	-	-	-	259,689	616	-
2b.3.2	Small tool allowance	-	186	-	-	-	-	-	28	214	214	-	-	-	-	-	-	-	-	-	-
2b.3.3	Spent Fuel Capital and Transfer	-	-	-	-	-	-	14,405	2,161	16,566	-	16,566	-	-	-	-	-	-	-	-	-
2b.3.4	N.H. Disposal Tax	-	-	-	-	-	-	521	130	651	651	-	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	293	186	128	1,392	-	2,102	14,926	3,213	22,241	5,675	16,566	-	-	3,021	-	-	-	259,689	616	-
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	746	-	-	-	-	-	-	186	932	932	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	1,508	151	1,658	1,658	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	1,565	-	-	-	-	-	391	1,957	1,957	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	3,469	-	-	-	-	-	520	3,990	3,990	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	92	95	-	188	-	70	445	445	-	-	-	6,261	-	-	-	125,211	1,703	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	3,655	548	4,203	4,203	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	897	90	987	987	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	261	26	287	-	287	-	-	-	-	-	-	-	-	-
2b.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	1,644	247	1,890	-	1,890	-	-	-	-	-	-	-	-	-
2b.4.11	Radwaste Processing Equipment/Services	-	-	-	-	-	-	498	75	572	572	-	-	-	-	-	-	-	-	-	-
2b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	202	30	233	-	233	-	-	-	-	-	-	-	-	-
2b.4.13	Security Staff Cost	-	-	-	-	-	-	6,122	918	7,040	7,040	-	-	-	-	-	-	-	-	-	272,000
2b.4.14	DOC Staff Cost	-	-	-	-	-	-	26,706	4,006	30,712	30,712	-	-	-	-	-	-	-	-	-	397,120
2b.4.15	Utility Staff Cost	-	-	-	-	-	-	45,836	6,875	52,711	52,711	-	-	-	-	-	-	-	-	-	775,200
2b.4	Subtotal Period 2b Period-Dependent Costs	746	5,035	92	95	-	188	87,328	14,134	107,618	105,208	2,410	-	-	6,261	-	-	-	125,211	1,703	1,444,320
2b.0	TOTAL PERIOD 2b COST	4,155	16,851	744	3,246	12,962	5,736	102,254	24,898	170,847	151,450	18,976	421	139,875	34,722	-	-	-	8,301,694	331,971	1,444,320
PERIOD 2c - Decontamination Following Wet Fuel Storage																					
Period 2c Direct Decommissioning Activities																					
2c.1.1	Remove spent fuel racks	331	33	80	61	-	403	-	292	1,201	1,201	-	-	-	2,174	-	-	-	184,800	898	-
Disposal of Plant Systems																					
2c.1.2.1	FSB Air Handling	-	140	4	20	239	12	-	77	493	493	-	-	2,584	67	-	-	-	110,652	2,982	-
2c.1.2.2	Fuel Handling	-	154	8	28	228	72	-	96	585	585	-	-	2,457	389	-	-	-	132,824	3,621	-
2c.1.2.3	Spent Fuel Pool Cooling	-	214	17	41	127	204	-	131	734	734	-	-	1,371	1,103	-	-	-	149,180	4,907	-
2c.1.2	Totals	-	509	28	89	594	288	-	305	1,813	1,813	-	-	6,412	1,558	-	-	-	392,656	11,509	-
Decontamination of Site Buildings																					
2c.1.3.1	Fuel Storage	548	624	8	27	225	26	-	475	1,932	1,932	-	-	2,429	350	-	-	-	132,211	26,386	-
2c.1.3	Totals	548	624	8	27	225	26	-	475	1,932	1,932	-	-	2,429	350	-	-	-	132,211	26,386	-
2c.1.4	Scaffolding in support of decommissioning	-	179	3	2	21	1	-	49	254	254	-	-	205	10	-	-	-	10,252	4,492	-
2c.1	Subtotal Period 2c Activity Costs	879	1,345	119	179	840	717	-	1,120	5,199	5,199	-	-	9,047	4,093	-	-	-	719,919	43,285	-

Table C - Base Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 Class A Cu. Feet	Burial Volumes Class B Cu. Feet	Burial Volumes Class C Cu. Feet	Burial Volumes GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 2c Additional Costs																					
2c.2.1	Fuel Pool Concrete Decon	268	-	90	1,533	-	533	7	507	2,938	2,938	-	-	-	10,667	-	-	-	1,066,740	2,018	-
2c.2.2	Final Site Survey Program Management	-	-	-	-	-	-	1,376	413	1,789	1,789	-	-	-	-	-	-	-	-	-	6,240
2c.2	Subtotal Period 2c Additional Costs	268	-	90	1,533	-	533	1,383	920	4,727	4,727	-	-	-	10,667	-	-	-	1,066,740	2,018	6,240
Period 2c Collateral Costs																					
2c.3.1	Process liquid waste	93	-	26	274	-	273	-	158	825	825	-	-	-	637	-	-	-	31,325	125	-
2c.3.2	Small tool allowance	-	31	-	-	-	-	-	5	36	36	-	-	-	-	-	-	-	-	-	-
2c.3.3	Decommissioning Equipment Disposition	-	-	80	68	616	65	-	127	957	957	-	-	6,000	353	-	-	-	300,000	735	-
2c.3.4	Spent Fuel Transfer	-	-	-	-	-	-	2,398	360	2,757	-	2,757	-	-	-	-	-	-	-	-	-
2c.3.5	N.H. Disposal Tax	-	-	-	-	-	-	261	65	326	326	-	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	93	31	106	343	616	339	2,659	715	4,901	2,144	2,757	-	6,000	990	-	-	-	331,325	860	-
Period 2c Period-Dependent Costs																					
2c.4.1	Decon supplies	95	-	-	-	-	-	-	24	119	119	-	-	-	-	-	-	-	-	-	-
2c.4.2	Insurance	-	-	-	-	-	-	499	50	549	549	-	-	-	-	-	-	-	-	-	-
2c.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2c.4.4	Health physics supplies	-	328	-	-	-	-	-	82	410	410	-	-	-	-	-	-	-	-	-	-
2c.4.5	Heavy equipment rental	-	1,148	-	-	-	-	-	172	1,320	1,320	-	-	-	-	-	-	-	-	-	-
2c.4.6	Disposal of DAW generated	-	-	24	25	-	49	-	18	117	117	-	-	-	1,644	-	-	-	32,885	447	-
2c.4.7	Plant energy budget	-	-	-	-	-	-	645	97	742	742	-	-	-	-	-	-	-	-	-	-
2c.4.8	NRC Fees	-	-	-	-	-	-	297	30	327	327	-	-	-	-	-	-	-	-	-	-
2c.4.9	Emergency Planning Fees	-	-	-	-	-	-	86	9	95	-	95	-	-	-	-	-	-	-	-	-
2c.4.10	Radwaste Processing Equipment/Services	-	-	-	-	-	-	329	49	379	379	-	-	-	-	-	-	-	-	-	-
2c.4.11	ISFSI Operating Costs	-	-	-	-	-	-	67	10	77	-	77	-	-	-	-	-	-	-	-	-
2c.4.12	Security Staff Cost	-	-	-	-	-	-	1,013	152	1,165	1,165	-	-	-	-	-	-	-	-	-	45,000
2c.4.13	DOC Staff Cost	-	-	-	-	-	-	6,060	909	6,969	6,969	-	-	-	-	-	-	-	-	-	90,000
2c.4.14	Utility Staff Cost	-	-	-	-	-	-	11,195	1,679	12,874	12,874	-	-	-	-	-	-	-	-	-	184,500
2c.4	Subtotal Period 2c Period-Dependent Costs	95	1,476	24	25	-	49	20,191	3,281	25,141	24,970	172	-	-	1,644	-	-	-	32,885	447	319,500
2c.0	TOTAL PERIOD 2c COST	1,334	2,853	339	2,080	1,455	1,638	24,233	6,036	39,969	37,040	2,929	-	15,047	17,394	-	-	-	2,150,869	46,610	325,740
PERIOD 2e - License Termination																					
Period 2e Direct Decommissioning Activities																					
2e.1.1	ORISE confirmatory survey	-	-	-	-	-	-	143	43	185	185	-	-	-	-	-	-	-	-	-	-
2e.1.2	Terminate license									a											
2e.1	Subtotal Period 2e Activity Costs	-	-	-	-	-	-	143	43	185	185	-	-	-	-	-	-	-	-	-	-
Period 2e Additional Costs																					
2e.2.1	Final Site Survey	-	-	-	-	-	-	13,911	4,173	18,084	18,084	-	-	-	-	-	-	-	-	300,099	3,120
2e.2	Subtotal Period 2e Additional Costs	-	-	-	-	-	-	13,911	4,173	18,084	18,084	-	-	-	-	-	-	-	-	300,099	3,120
Period 2e Collateral Costs																					
2e.3.1	DOC staff relocation expenses	-	-	-	-	-	-	1,163	175	1,338	1,338	-	-	-	-	-	-	-	-	-	-
2e.3.2	Spent Fuel Transfer	-	-	-	-	-	-	281	42	323	-	323	-	-	-	-	-	-	-	-	-
2e.3.3	N.H. Disposal Tax	-	-	-	-	-	-	5	1	7	7	-	-	-	-	-	-	-	-	-	-
2e.3	Subtotal Period 2e Collateral Costs	-	-	-	-	-	-	1,450	218	1,668	1,345	323	-	-	-	-	-	-	-	-	-
Period 2e Period-Dependent Costs																					
2e.4.1	Insurance	-	-	-	-	-	-	389	39	428	428	-	-	-	-	-	-	-	-	-	-
2e.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2e.4.3	Health physics supplies	-	1,067	-	-	-	-	-	267	1,334	1,334	-	-	-	-	-	-	-	-	-	-
2e.4.4	Disposal of DAW generated	-	-	5	5	-	11	-	4	25	25	-	-	-	356	-	-	-	7,126	97	-
2e.4.5	Plant energy budget	-	-	-	-	-	-	281	42	323	323	-	-	-	-	-	-	-	-	-	-
2e.4.6	NRC Fees	-	-	-	-	-	-	258	26	284	284	-	-	-	-	-	-	-	-	-	-

Table C - Base Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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 2e Period-Dependent Costs (continued)																					
2e.4.7	Emergency Planning Fees	-	-	-	-	-	-	75	8	83	-	83	-	-	-	-	-	-	-	-	-
2e.4.8	ISFSI Operating Costs	-	-	-	-	-	-	58	9	67	-	67	-	-	-	-	-	-	-	-	-
2e.4.9	Security Staff Cost	-	-	-	-	-	-	881	132	1,013	1,013	-	-	-	-	-	-	-	-	-	39,143
2e.4.10	DOC Staff Cost	-	-	-	-	-	-	3,975	596	4,572	4,572	-	-	-	-	-	-	-	-	-	57,149
2e.4.11	Utility Staff Cost	-	-	-	-	-	-	5,663	849	6,512	6,512	-	-	-	-	-	-	-	-	-	85,331
2e.4	Subtotal Period 2e Period-Dependent Costs	-	1,067	5	5	-	11	11,581	1,972	14,641	14,491	149	-	-	356	-	-	-	7,126	97	181,623
2e.0	TOTAL PERIOD 2e COST	-	1,067	5	5	-	11	27,084	6,406	34,578	34,106	472	-	-	356	-	-	-	7,126	300,196	184,743
PERIOD 2 TOTALS		6,647	44,109	11,875	13,385	32,606	27,009	212,027	69,391	417,049	383,030	33,544	475	353,352	102,353	2,937	459	-	24,049,070	965,900	2,760,848
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Containment	-	4,136	-	-	-	-	-	620	4,756	-	-	4,756	-	-	-	-	-	-	63,553	-
3b.1.1.2	Administration Building-Limited Areas	-	6	-	-	-	-	-	1	7	-	-	7	-	-	-	-	-	-	131	-
3b.1.1.3	Containment Enclosure Ventilation	-	124	-	-	-	-	-	19	143	-	-	143	-	-	-	-	-	-	2,048	-
3b.1.1.4	Emergency Feedwater Pump Building	-	210	-	-	-	-	-	31	241	-	-	241	-	-	-	-	-	-	3,194	-
3b.1.1.5	Equipment Vault	-	107	-	-	-	-	-	16	123	-	-	123	-	-	-	-	-	-	1,769	-
3b.1.1.6	Main Steam & Feedwater Pipe Chase	-	474	-	-	-	-	-	71	545	-	-	545	-	-	-	-	-	-	7,668	-
3b.1.1.7	Miscellaneous Structures	-	13	-	-	-	-	-	2	15	-	-	15	-	-	-	-	-	-	251	-
3b.1.1.8	Primary Auxiliary Building	-	1,178	-	-	-	-	-	177	1,355	-	-	1,355	-	-	-	-	-	-	18,811	-
3b.1.1.9	Steam Generator Blowdown Recovery	-	23	-	-	-	-	-	3	26	-	-	26	-	-	-	-	-	-	435	-
3b.1.1.10	Waste Processing	-	1,555	-	-	-	-	-	233	1,789	-	-	1,789	-	-	-	-	-	-	25,863	-
3b.1.1.11	Fuel Storage	-	678	-	-	-	-	-	102	780	-	-	780	-	-	-	-	-	-	9,965	-
3b.1.1	Totals	-	8,504	-	-	-	-	-	1,276	9,780	-	-	9,780	-	-	-	-	-	-	133,687	-
Site Closeout Activities																					
3b.1.2	Remove Rubble	-	277	-	-	-	-	-	42	319	-	-	319	-	-	-	-	-	-	1,928	-
3b.1.3	Grade & landscape site	-	63	-	-	-	-	-	10	73	-	-	73	-	-	-	-	-	-	216	-
3b.1.4	Final report to NRC	-	-	-	-	-	-	157	24	180	180	-	-	-	-	-	-	-	-	-	1,560
3b.1	Subtotal Period 3b Activity Costs	-	8,845	-	-	-	-	157	1,350	10,352	180	-	10,172	-	-	-	-	-	-	135,831	1,560
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	345	-	-	-	-	6	53	405	-	-	405	-	-	-	-	-	-	2,415	-
3b.2	Subtotal Period 3b Additional Costs	-	345	-	-	-	-	6	53	405	-	-	405	-	-	-	-	-	-	2,415	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	79	-	-	-	-	-	12	91	-	-	91	-	-	-	-	-	-	-	-
3b.3.2	Spent Fuel Transfer	-	-	-	-	-	-	489	73	563	-	563	-	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	79	-	-	-	-	489	85	654	-	563	91	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	978	98	1,075	-	1,075	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	3,414	-	-	-	-	-	512	3,926	-	-	3,926	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	352	53	405	-	-	405	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	406	41	447	-	447	-	-	-	-	-	-	-	-	-
3b.4.6	Emergency Planning Fees	-	-	-	-	-	-	188	19	207	-	207	-	-	-	-	-	-	-	-	-
3b.4.7	ISFSI Operating Costs	-	-	-	-	-	-	146	22	168	-	168	-	-	-	-	-	-	-	-	-
3b.4.8	Security Staff Cost	-	-	-	-	-	-	2,212	332	2,544	-	1,730	814	-	-	-	-	-	-	-	98,286
3b.4.9	DOC Staff Cost	-	-	-	-	-	-	10,937	1,641	12,578	-	-	12,578	-	-	-	-	-	-	-	155,291
3b.4.10	Utility Staff Cost	-	-	-	-	-	-	8,318	1,248	9,566	-	8,226	1,339	-	-	-	-	-	-	-	126,789

Table C - Base Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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: 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
3b.4	Subtotal Period 3b Period-Dependent Costs	-	3,414	-	-	-	-	23,538	3,964	30,916	-	11,854	19,062	-	-	-	-	-	-	-	380,366
3b.0	TOTAL PERIOD 3b COST	-	12,683	-	-	-	-	24,191	5,452	42,326	180	12,417	29,729	-	-	-	-	-	-	138,246	381,926
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Transfer	-	-	-	-	-	-	8,845	1,327	10,172	-	10,172	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	8,845	1,327	10,172	-	10,172	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	8,700	870	9,570	-	9,570	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3c.4.3	Plant energy budget	-	-	-	-	-	-	940	141	1,081	-	1,081	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	3,617	362	3,979	-	3,979	-	-	-	-	-	-	-	-	-
3c.4.5	Emergency Planning Fees	-	-	-	-	-	-	1,676	168	1,844	-	1,844	-	-	-	-	-	-	-	-	-
3c.4.6	ISFSI Operating Costs	-	-	-	-	-	-	1,301	195	1,496	-	1,496	-	-	-	-	-	-	-	-	-
3c.4.7	Security Staff Cost	-	-	-	-	-	-	15,746	2,362	18,108	-	18,108	-	-	-	-	-	-	-	-	699,657
3c.4.8	Utility Staff Cost	-	-	-	-	-	-	22,333	3,350	25,683	-	25,683	-	-	-	-	-	-	-	-	341,083
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	54,313	7,447	61,761	-	61,761	-	-	-	-	-	-	-	-	1,040,740
3c.0	TOTAL PERIOD 3c COST	-	-	-	-	-	-	63,158	8,774	71,933	-	71,933	-	-	-	-	-	-	-	-	1,040,740
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	580	-	-	14,595	-	2,247	17,422	17,422	-	-	-	-	-	-	637	129,800	-	-
3d.1.1	Totals	-	-	580	-	-	14,595	-	2,247	17,422	17,422	-	-	-	-	-	-	637	129,800	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	580	-	-	14,595	-	2,247	17,422	17,422	-	-	-	-	-	-	637	129,800	-	-
Period 3d Collateral Costs																					
3d.3.1	N.H. Disposal Tax	-	-	-	-	-	-	10	2	12	-	12	-	-	-	-	-	-	-	-	-
3d.3	Subtotal Period 3d Collateral Costs	-	-	-	-	-	-	10	2	12	-	12	-	-	-	-	-	-	-	-	-
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	20	2	22	-	22	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3d.4.3	Plant energy budget	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	8	1	9	-	9	-	-	-	-	-	-	-	-	-
3d.4.5	Emergency Planning Fees	-	-	-	-	-	-	4	0	4	-	4	-	-	-	-	-	-	-	-	-
3d.4.6	ISFSI Operating Costs	-	-	-	-	-	-	3	0	3	-	3	-	-	-	-	-	-	-	-	-
3d.4.7	Security Staff Cost	-	-	-	-	-	-	36	5	41	-	41	-	-	-	-	-	-	-	-	1,600
3d.4.8	Utility Staff Cost	-	-	-	-	-	-	51	8	59	-	59	-	-	-	-	-	-	-	-	780
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	124	17	141	-	141	-	-	-	-	-	-	-	-	2,380
3d.0	TOTAL PERIOD 3d COST	-	-	580	-	-	14,595	134	2,267	17,575	17,422	153	-	-	-	-	-	637	129,800	-	2,380

Table C - Base Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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: 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 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	ISFSI Decon and License Termination	-	336	3	308	-	699	1,533	535	3,414	-	3,414	-	-	5,592	-	-	-	1,068,867	9,870	2,560
3e.2	Subtotal Period 3e Additional Costs	-	336	3	308	-	699	1,533	535	3,414	-	3,414	-	-	5,592	-	-	-	1,068,867	9,870	2,560
Period 3e Collateral Costs																					
3e.3.1	Small tool allowance	-	4	-	-	-	-	-	1	5	-	5	-	-	-	-	-	-	-	-	-
3e.3.2	N.H. Disposal Tax	-	-	-	-	-	-	84	21	105	-	105	-	-	-	-	-	-	-	-	-
3e.3	Subtotal Period 3e Collateral Costs	-	4	-	-	-	-	84	22	110	-	110	-	-	-	-	-	-	-	-	-
Period 3e Period-Dependent Costs																					
3e.4.1	Insurance	-	-	-	-	-	-	175	17	192	-	192	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3e.4.3	Heavy equipment rental	-	181	-	-	-	-	-	27	208	-	208	-	-	-	-	-	-	-	-	-
3e.4.4	Plant energy budget	-	-	-	-	-	-	63	9	72	-	72	-	-	-	-	-	-	-	-	-
3e.4.5	NRC ISFSI Fees	-	-	-	-	-	-	73	7	80	-	80	-	-	-	-	-	-	-	-	-
3e.4.6	Emergency Planning Fees	-	-	-	-	-	-	34	3	37	-	37	-	-	-	-	-	-	-	-	-
3e.4.7	Security Staff Cost	-	-	-	-	-	-	142	21	164	-	164	-	-	-	-	-	-	-	-	6,325
3e.4.8	Utility Staff Cost	-	-	-	-	-	-	395	59	454	-	454	-	-	-	-	-	-	-	-	5,974
3e.4	Subtotal Period 3e Period-Dependent Costs	-	181	-	-	-	-	882	145	1,207	-	1,207	-	-	-	-	-	-	-	-	12,300
3e.0	TOTAL PERIOD 3e COST	-	520	3	308	-	699	2,499	702	4,730	-	4,730	-	-	5,592	-	-	-	1,068,867	9,870	14,860
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	ISFSI Demolition and Site Restoration	-	215	-	-	-	-	44	60	319	-	319	-	-	-	-	-	-	-	2,057	-
3f.2	Subtotal Period 3f Additional Costs	-	215	-	-	-	-	44	60	319	-	319	-	-	-	-	-	-	-	2,057	-
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	1	-	-	-	-	-	0	1	-	1	-	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	1	-	-	-	-	-	0	1	-	1	-	-	-	-	-	-	-	-	-
Period 3f Period-Dependent Costs																					
3f.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.3	Heavy equipment rental	-	61	-	-	-	-	-	9	70	-	70	-	-	-	-	-	-	-	-	-
3f.4.4	Plant energy budget	-	-	-	-	-	-	32	5	37	-	37	-	-	-	-	-	-	-	-	-
3f.4.5	Security Staff Cost	-	-	-	-	-	-	73	11	84	-	84	-	-	-	-	-	-	-	-	3,240
3f.4.6	Utility Staff Cost	-	-	-	-	-	-	184	28	212	-	212	-	-	-	-	-	-	-	-	2,700
3f.4	Subtotal Period 3f Period-Dependent Costs	-	61	-	-	-	-	290	53	403	-	403	-	-	-	-	-	-	-	-	5,940
3f.0	TOTAL PERIOD 3f COST	-	277	-	-	-	-	333	113	723	-	723	-	-	-	-	-	-	-	2,057	5,940
PERIOD 3 TOTALS		-	13,481	583	308	-	15,294	90,315	17,308	137,288	17,602	89,957	29,729	-	5,592	-	-	637	1,198,667	150,173	1,445,846
TOTAL COST TO DECOMMISSION		8,952	59,285	12,573	14,704	32,792	47,510	396,863	103,094	675,774	508,677	135,648	31,450	353,700	109,260	4,565	459	637	25,564,520	1,117,937	5,272,964

Table C - Base Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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			

TOTAL COST TO DECOMMISSION WITH 18% CONTINGENCY	$675,774	thousands of	2006 dollars
TOTAL NRC LICENSE TERMINATION COST IS 75.27% OR:	$508,677	thousands of	2006 dollars
SPENT FUEL MANAGEMENT COST IS 20.07% OR:	$135,648	thousands of	2006 dollars
NON-NUCLEAR DEMOLITION COST IS 4.65% OR	$31,450	thousands of	2006 dollars
TOTAL LOW-LEVEL RADIOACTIVE WASTE BURIAL VOLUME (CLASS A, B AND C)	114,284	cubic feet	
TOTAL GREATER-THAN-CLASS C WASTE BURIAL VOLUME	637	cubic feet	
TOTAL SCRAP METAL REMOVED:	40,591	tons	
TOTAL CRAFT LABOR REQUIREMENTS:	1,117,777	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

Table C-1, NDFC Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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 - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	131	20	150	150	-	-	-	-	-	-	-	-	-	1,300
1a.1.2	Notification of Cessation of Operations									a											
1a.1.3	Remove fuel & source material									n/a											
1a.1.4	Notification of Permanent Defueling									a											
1a.1.5	Deactivate plant systems & process waste									a											
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	201	30	231	231	-	-	-	-	-	-	-	-	-	2,000
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	463	69	532	532	-	-	-	-	-	-	-	-	-	4,600
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	101	15	118	116	-	-	-	-	-	-	-	-	-	1,000
1a.1.10	End product description	-	-	-	-	-	-	101	15	118	116	-	-	-	-	-	-	-	-	-	1,000
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	131	20	150	150	-	-	-	-	-	-	-	-	-	1,300
1a.1.12	Define major work sequence	-	-	-	-	-	-	754	113	868	868	-	-	-	-	-	-	-	-	-	7,500
1a.1.13	Perform SER and EA	-	-	-	-	-	-	312	47	359	359	-	-	-	-	-	-	-	-	-	3,100
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	503	75	578	578	-	-	-	-	-	-	-	-	-	5,000
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	412	62	474	474	-	-	-	-	-	-	-	-	-	4,096
1a.1.16	Receive NRC approval of termination plan									a											
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	495	74	569	512	-	57	-	-	-	-	-	-	-	4,920
1a.1.17.2	Plant systems	-	-	-	-	-	-	419	63	482	434	-	48	-	-	-	-	-	-	-	4,167
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	50	8	58	58	-	-	-	-	-	-	-	-	-	500
1a.1.17.4	Reactor internals	-	-	-	-	-	-	714	107	821	821	-	-	-	-	-	-	-	-	-	7,100
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	654	98	752	752	-	-	-	-	-	-	-	-	-	6,500
1a.1.17.6	Biological shield	-	-	-	-	-	-	50	8	58	58	-	-	-	-	-	-	-	-	-	500
1a.1.17.7	Steam generators	-	-	-	-	-	-	314	47	361	361	-	-	-	-	-	-	-	-	-	3,120
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	161	24	185	93	-	93	-	-	-	-	-	-	-	1,600
1a.1.17.9	Main Turbine	-	-	-	-	-	-	40	6	46	-	-	46	-	-	-	-	-	-	-	400
1a.1.17.10	Main Condensers	-	-	-	-	-	-	40	6	46	-	-	46	-	-	-	-	-	-	-	400
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	314	47	361	180	-	180	-	-	-	-	-	-	-	3,120
1a.1.17.12	Waste management	-	-	-	-	-	-	463	69	532	532	-	-	-	-	-	-	-	-	-	4,600
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	91	14	104	52	-	52	-	-	-	-	-	-	-	900
1a.1.17	Total	-	-	-	-	-	-	3,805	571	4,375	3,853	-	523	-	-	-	-	-	-	-	37,827
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	241	36	278	278	-	-	-	-	-	-	-	-	-	2,400
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	2,419	383	2,782	2,782	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	141	21	162	162	-	-	-	-	-	-	-	-	-	1,400
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,048	307	2,355	2,355	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	124	19	142	142	-	-	-	-	-	-	-	-	-	1,230
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	11,885	1,783	13,668	13,145	-	523	-	-	-	-	-	-	-	73,753
Period 1a Collateral Costs																					
1a.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	4,107	616	4,723	-	4,723	-	-	-	-	-	-	-	-	-
1a.3.2	N.H. Disposal Tax	-	-	-	-	-	-	9	2	12	12	-	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	-	-	-	-	-	4,116	618	4,735	12	4,723	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	1,273	127	1,400	1,400	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	219	-	-	-	-	-	55	274	274	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	268	-	-	-	-	-	40	308	308	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	9	9	-	19	-	7	44	44	-	-	-	618	-	-	-	12,359	168	-

Table C-1, NDFC Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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.4.6	Plant energy budget	-	-	-	-	-	-	1,868	280	2,149	2,149	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	258	26	284	284	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	3,861	386	4,247	-	4,247	-	-	-	-	-	-	-	-	-
1a.4.9	Spent Fuel Pool O&M	-	-	-	-	-	-	630	95	725	-	725	-	-	-	-	-	-	-	-	-
1a.4.10	ISFSI Operating Costs	-	-	-	-	-	-	78	12	89	-	89	-	-	-	-	-	-	-	-	-
1a.4.11	INPO Fees	-	-	-	-	-	-	815	122	937	937	-	-	-	-	-	-	-	-	-	-
1a.4.12	Security Staff Cost	-	-	-	-	-	-	3,521	528	4,049	4,049	-	-	-	-	-	-	-	-	-	156,429
1a.4.13	Utility Staff Cost	-	-	-	-	-	-	25,841	3,876	29,717	29,717	-	-	-	-	-	-	-	-	-	438,000
1a.4	Subtotal Period 1a Period-Dependent Costs	-	487	9	9	-	19	38,145	5,554	44,223	39,162	5,061	-	-	618	-	-	-	12,359	168	594,429
1a.0	TOTAL PERIOD 1a COST	-	487	9	9	-	19	54,146	7,955	62,625	52,319	9,784	523	-	618	-	-	-	12,359	168	668,181
PERIOD 1b - Decommissioning Preparations																					
Period 1b Direct Decommissioning Activities																					
Detailed Work Procedures																					
1b.1.1.1	Plant systems	-	-	-	-	-	-	476	71	547	493	-	55	-	-	-	-	-	-	-	4,733
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.3	Reactor Internals	-	-	-	-	-	-	251	38	289	289	-	-	-	-	-	-	-	-	-	2,500
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	136	20	156	39	-	117	-	-	-	-	-	-	-	1,350
1b.1.1.5	CRD cooling assembly	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.6	CRD housings & ICI tubes	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.7	Incore instrumentation	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	365	55	420	420	-	-	-	-	-	-	-	-	-	3,630
1b.1.1.9	Facility closeout	-	-	-	-	-	-	121	18	139	69	-	69	-	-	-	-	-	-	-	1,200
1b.1.1.10	Missile shields	-	-	-	-	-	-	45	7	52	52	-	-	-	-	-	-	-	-	-	450
1b.1.1.11	Biological shield	-	-	-	-	-	-	121	18	139	139	-	-	-	-	-	-	-	-	-	1,200
1b.1.1.12	Steam generators	-	-	-	-	-	-	463	69	532	532	-	-	-	-	-	-	-	-	-	4,600
1b.1.1.13	Reinforced concrete	-	-	-	-	-	-	101	15	116	58	-	58	-	-	-	-	-	-	-	1,000
1b.1.1.14	Main Turbine	-	-	-	-	-	-	157	24	180	-	-	180	-	-	-	-	-	-	-	1,560
1b.1.1.15	Main Condensers	-	-	-	-	-	-	157	24	180	-	-	180	-	-	-	-	-	-	-	1,560
1b.1.1.16	Auxiliary building	-	-	-	-	-	-	275	41	316	284	-	32	-	-	-	-	-	-	-	2,730
1b.1.1.17	Reactor building	-	-	-	-	-	-	275	41	316	284	-	32	-	-	-	-	-	-	-	2,730
1b.1.1	Total	-	-	-	-	-	-	3,344	502	3,845	3,122	-	723	-	-	-	-	-	-	-	33,243
1b.1.2	Decon primary loop	367	-	-	-	-	-	-	183	550	550	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	367	-	-	-	-	-	3,344	685	4,395	3,672	-	723	-	-	-	-	-	-	1,067	33,243
Period 1b Additional Costs																					
1b.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	8,867	1,330	10,198	10,198	-	-	-	-	-	-	-	-	-	-
1b.2.2	Site Characterization	-	-	-	-	-	-	2,474	742	3,216	3,216	-	-	-	-	-	-	-	-	-	-
1b.2.3	Misc Waste	-	-	13	7	187	-	-	2	208	208	-	-	348	-	-	-	-	23,316	109	-
1b.2	Subtotal Period 1b Additional Costs	-	-	13	7	187	-	11,342	2,075	13,622	13,622	-	-	348	-	-	-	-	23,316	109	-
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	624	-	-	-	-	-	-	94	718	718	-	-	-	-	-	-	-	-	-	-
1b.3.2	DOC staff relocation expenses	-	-	-	-	-	-	1,163	175	1,338	1,338	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process liquid waste	51	-	88	990	-	5,178	-	1,478	7,785	7,785	-	-	-	334	1,628	-	-	273,827	422	-
1b.3.4	Small tool allowance	-	1	-	-	-	-	-	0	1	1	-	-	-	-	-	-	-	-	-	-
1b.3.5	Pipe cutting equipment	-	957	-	-	-	-	-	143	1,100	1,100	-	-	-	-	-	-	-	-	-	-
1b.3.6	Decon rig	1,243	-	-	-	-	-	-	186	1,430	1,430	-	-	-	-	-	-	-	-	-	-
1b.3.7	Fuel storage capital expenditures	-	-	-	-	-	-	251	38	289	-	289	-	-	-	-	-	-	-	-	-
1b.3.8	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,294	494	3,788	-	3,788	-	-	-	-	-	-	-	-	-

Table C-1, NDFC Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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 1b Collateral Costs (continued)																					
1b.3.9	N.H. Disposal Tax	-	-	-	-	-	-	35	9	44	44	-	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	1,919	957	88	990	-	5,178	4,744	2,616	16,492	12,415	4,077	-	-	334	1,628	-	-	273,827	422	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	19	-	-	-	-	-	-	5	24	24	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	642	64	706	706	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	115	-	-	-	-	-	29	144	144	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	135	-	-	-	-	-	20	155	155	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	5	6	-	11	-	4	26	26	-	-	-	364	-	-	-	7,282	99	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	1,884	283	2,166	2,166	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	130	13	143	143	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	1,946	195	2,141	-	2,141	-	-	-	-	-	-	-	-	-
1b.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	318	48	365	-	365	-	-	-	-	-	-	-	-	-
1b.4.11	ISFSI Operating Costs	-	-	-	-	-	-	39	6	45	-	45	-	-	-	-	-	-	-	-	-
1b.4.12	INPO Fees	-	-	-	-	-	-	411	62	472	472	-	-	-	-	-	-	-	-	-	-
1b.4.13	Security Staff Cost	-	-	-	-	-	-	1,775	266	2,041	2,041	-	-	-	-	-	-	-	-	-	78,857
1b.4.14	DOC Staff Cost	-	-	-	-	-	-	4,399	660	5,059	5,059	-	-	-	-	-	-	-	-	-	64,137
1b.4.15	Utility Staff Cost	-	-	-	-	-	-	13,112	1,967	15,079	15,079	-	-	-	-	-	-	-	-	-	221,851
1b.4	Subtotal Period 1b Period-Dependent Costs	19	251	5	6	-	11	24,655	3,620	28,567	26,016	2,551	-	-	364	-	-	-	7,282	99	364,846
1b.0	TOTAL PERIOD 1b COST	2,305	1,208	108	1,003	187	5,189	44,084	8,986	63,077	55,725	6,628	723	348	698	1,628	-	-	304,424	1,696	388,089
PERIOD 1 TOTALS		2,305	1,695	115	1,012	187	5,207	98,229	16,951	125,702	108,044	16,412	1,246	348	1,316	1,628	-	-	316,783	1,864	1,066,270
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	104	92	11	34	-	213	-	134	588	588	-	-	-	879	-	-	-	97,530	4,404	-
2a.1.1.2	Pressurizer Relief Tank	25	22	4	13	-	80	-	41	185	185	-	-	-	330	-	-	-	36,818	1,074	-
2a.1.1.3	Reactor Coolant Pumps & Motors	108	76	34	144	147	1,148	-	407	2,065	2,065	-	-	356	4,594	-	-	-	897,424	4,451	-
2a.1.1.4	Pressurizer	37	45	392	478	-	581	-	286	1,819	1,819	-	-	-	2,326	-	-	-	231,508	2,427	-
2a.1.1.5	Steam Generators	319	4,337	3,407	3,188	2,802	4,317	-	3,582	21,931	21,931	-	-	39,678	17,270	-	-	-	3,499,333	23,227	6,950
2a.1.1.6	CRDMs/ICIs/Service Structure Removal	130	75	127	66	-	167	-	148	713	713	-	-	-	3,198	-	-	-	78,800	4,406	-
2a.1.1.7	Reactor Vessel Internals	87	2,171	4,918	1,159	-	4,670	187	5,553	18,744	18,744	-	-	-	1,252	809	459	-	309,905	24,965	1,131
2a.1.1.8	Reactor Vessel	71	4,645	1,199	1,115	-	6,186	187	7,219	20,622	20,622	-	-	-	6,606	2,128	-	-	961,918	24,965	1,131
2a.1.1	Totals	880	11,464	10,093	6,193	2,948	17,383	375	17,350	66,685	66,685	-	-	40,034	36,455	2,937	459	-	6,111,036	89,928	9,211
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	416	237	71	932	469	-	395	2,520	2,520	-	-	4,809	2,531	-	-	-	623,905	9,663	-
2a.1.3	Main Condensers	-	985	128	124	814	410	-	502	2,963	2,963	-	-	7,933	2,210	-	-	-	544,847	23,200	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Containment	-	715	-	-	-	-	-	107	823	823	-	-	-	-	-	-	-	-	10,927	-
2a.1.4.2	Containment Enclosure Ventilation	-	14	-	-	-	-	-	2	16	16	-	-	-	-	-	-	-	-	228	-
2a.1.4.3	Primary Auxiliary Building	-	131	-	-	-	-	-	20	151	151	-	-	-	-	-	-	-	-	2,090	-
2a.1.4.4	Waste Processing	-	173	-	-	-	-	-	26	199	199	-	-	-	-	-	-	-	-	2,874	-
2a.1.4.5	Fuel Storage	-	75	-	-	-	-	-	11	87	87	-	-	-	-	-	-	-	-	1,107	-
2a.1.4	Totals	-	1,108	-	-	-	-	-	166	1,274	1,274	-	-	-	-	-	-	-	-	17,226	-
Disposal of Plant Systems																					
2a.1.5.1	Aux Steam - Insulated - RCA	-	241	5	31	412	-	-	127	817	817	-	-	4,447	-	-	-	-	180,604	5,209	-
2a.1.5.2	Aux Steam - RCA	-	49	1	5	68	-	-	23	146	146	-	-	737	-	-	-	-	29,928	1,108	-

Table C-1, NDFC Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
Disposal of Plant Systems (continued)																					
2a.1.5.3	Aux Steam Cond - Insulated	-	17	-	-	-	-	-	3	19	-	-	19	-	-	-	-	-	-	411	-
2a.1.5.4	Aux Steam Cond - Insulated - RCA	-	47	1	4	58	-	-	21	131	131	-	-	622	-	-	-	-	25,273	997	-
2a.1.5.5	Aux Steam Cond - RCA	-	4	0	0	2	-	-	1	7	7	-	-	18	-	-	-	-	720	86	-
2a.1.5.6	Aux Steam Heating - Insulated - RCA	-	34	0	2	29	-	-	13	79	79	-	-	311	-	-	-	-	12,616	708	-
2a.1.5.7	Condensate	-	626	26	167	2,193	-	-	513	3,527	3,527	-	-	23,687	-	-	-	-	961,954	14,717	-
2a.1.5.8	Condensate - Insulated	-	522	16	104	1,360	-	-	352	2,355	2,355	-	-	14,693	-	-	-	-	596,672	12,154	-
2a.1.5.9	Condensate Polisher	-	211	6	39	514	-	-	136	906	906	-	-	5,547	-	-	-	-	225,286	4,881	-
2a.1.5.10	Condenser Air Evacuation	-	260	5	33	436	-	-	136	871	871	-	-	4,714	-	-	-	-	191,432	5,728	-
2a.1.5.11	Condenser Air Evacuation - Insulated	-	22	0	2	28	-	-	10	62	62	-	-	299	-	-	-	-	12,152	486	-
2a.1.5.12	Condenser Air Evacuation - RCA	-	1	0	0	3	-	-	1	5	5	-	-	30	-	-	-	-	1,220	29	-
2a.1.5.13	Extraction Steam - Insulated	-	326	10	62	811	-	-	214	1,423	1,423	-	-	8,764	-	-	-	-	355,820	7,668	-
2a.1.5.14	Feedwater	-	81	1	4	53	-	-	29	168	168	-	-	574	-	-	-	-	23,303	1,928	-
2a.1.5.15	Feedwater - Insulated	-	530	18	114	1,492	-	-	375	2,529	2,529	-	-	16,110	-	-	-	-	654,236	12,339	-
2a.1.5.16	Feedwater - Insulated - RCA	-	105	5	28	366	-	-	86	590	590	-	-	3,950	-	-	-	-	160,431	2,384	-
2a.1.5.17	Feedwater - RCA	-	28	0	2	22	-	-	11	62	62	-	-	235	-	-	-	-	9,533	656	-
2a.1.5.18	Feedwater- Yard	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	7	-
2a.1.5.19	Feedwater- Yard - Insulated	-	10	-	-	-	-	-	2	12	-	-	12	-	-	-	-	-	-	270	-
2a.1.5.20	Heat Tracing	-	3	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	70	-
2a.1.5.21	Heat Tracing - RCA	-	21	1	5	64	-	-	16	106	106	-	-	688	-	-	-	-	27,938	497	-
2a.1.5.22	Main Steam	-	323	10	62	813	-	-	213	1,422	1,422	-	-	8,786	-	-	-	-	356,793	7,629	-
2a.1.5.23	Main Steam - Insulated	-	380	12	75	986	-	-	255	1,709	1,709	-	-	10,649	-	-	-	-	432,475	8,830	-
2a.1.5.24	Main Steam - Insulated - RCA	-	115	6	33	439	-	-	100	692	692	-	-	4,739	-	-	-	-	192,450	2,607	-
2a.1.5.25	Main Steam - RCA	-	88	4	25	325	-	-	75	516	516	-	-	3,510	-	-	-	-	142,542	2,041	-
2a.1.5.26	Main Steam Drain - Insulated	-	109	1	6	75	-	-	40	230	230	-	-	806	-	-	-	-	32,732	2,362	-
2a.1.5.27	Main Steam Drain - Insulated - RCA	-	27	0	2	25	-	-	11	65	65	-	-	269	-	-	-	-	10,942	553	-
2a.1.5.28	Moist Sep & Rhtr Drains	-	40	0	2	26	-	-	14	83	83	-	-	285	-	-	-	-	11,591	954	-
2a.1.5.29	Moist Sep & Rhtr Drains - Insulated	-	503	26	162	2,127	-	-	472	3,289	3,289	-	-	22,975	-	-	-	-	933,041	11,767	-
2a.1.5.30	Residual Heat Removal	1	17	0	1	5	2	-	6	31	31	-	-	55	9	-	-	-	3,005	393	-
2a.1.5.31	Residual Heat Removal-Insulated	115	132	12	27	67	144	-	142	639	639	-	-	724	777	-	-	-	95,404	4,229	-
2a.1.5.32	Steam Generator Blowdown	-	239	15	47	286	184	-	152	903	903	-	-	3,086	892	-	-	-	200,739	5,560	-
2a.1.5.33	Steam Generator Blowdown - Insulated	-	244	11	24	108	107	-	109	604	604	-	-	1,165	579	-	-	-	96,538	5,491	-
2a.1.5.34	Turbine Steam Seal - Insulated	-	118	3	17	218	-	-	65	421	421	-	-	2,357	-	-	-	-	95,728	2,724	-
2a.1.5	Totals	116	5,476	195	1,086	13,410	417	-	3,722	24,424	24,389	-	35	144,834	2,257	-	-	-	6,073,198	127,474	-
2a.1.6	Scaffolding in support of decommissioning	-	716	11	8	84	2	-	195	1,016	1,016	-	-	820	41	-	-	-	41,007	17,969	-
2a.1	Subtotal Period 2a Activity Costs	998	20,166	10,664	7,481	18,189	18,661	375	22,331	98,863	98,828	-	35	198,429	43,494	2,937	459	-	13,393,990	285,459	9,211
Period 2a Collateral Costs																					
2a.3.1	Process liquid waste	109	-	45	492	-	804	-	334	1,783	1,783	-	-	-	1,072	-	-	-	89,102	218	-
2a.3.2	Small tool allowance	-	167	-	-	-	-	-	25	192	173	-	19	-	-	-	-	-	-	-	-
2a.3.3	Spent Fuel Capital and Transfer	-	-	-	-	-	-	9,076	1,361	10,437	-	10,437	-	-	-	-	-	-	-	-	-
2a.3.4	N.H. Disposal Tax	-	-	-	-	-	-	799	200	999	999	-	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	109	167	45	492	-	804	9,875	1,920	13,411	2,954	10,437	19	-	1,072	-	-	-	89,102	218	-
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	53	-	-	-	-	-	-	13	66	66	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	804	80	885	885	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	1,164	-	-	-	-	-	291	1,456	1,456	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	1,840	-	-	-	-	-	276	2,116	2,116	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	78	81	-	159	-	60	378	378	-	-	-	5,314	-	-	-	106,284	1,445	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	2,470	371	2,841	2,841	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	479	48	527	527	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	139	14	153	-	153	-	-	-	-	-	-	-	-	-

Table C-1, NDFC Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	877	132	1,009	-	1,009	-	-	-	-	-	-	-	-	-
2a.4.11	Radwaste Processing Equipment/Services	-	-	-	-	-	-	266	40	305	305	-	-	-	-	-	-	-	-	-	-
2a.4.12	ISFSI Operating Costs	-	-	-	-	-	-	108	16	124	-	124	-	-	-	-	-	-	-	-	-
2a.4.13	Security Staff Cost	-	-	-	-	-	-	3,287	490	3,757	3,757	-	-	-	-	-	-	-	-	-	145,143
2a.4.14	DOC Staff Cost	-	-	-	-	-	-	14,815	2,222	17,038	17,038	-	-	-	-	-	-	-	-	-	220,617
2a.4.15	Utility Staff Cost	-	-	-	-	-	-	25,465	3,820	29,285	29,285	-	-	-	-	-	-	-	-	-	431,074
2a.4	Subtotal Period 2a Period-Dependent Costs	53	3,005	78	81	-	159	48,690	7,873	59,939	58,653	1,288	-	-	5,314	-	-	-	106,284	1,445	796,834
2a.0	TOTAL PERIOD 2a COST	1,158	23,338	10,787	8,054	18,189	19,624	58,940	32,123	172,212	160,435	11,723	54	198,429	49,880	2,937	459	-	13,589,380	287,123	806,045
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	Boron Recovery	19	38	2	4	11	18	-	26	118	118	-	-	114	99	-	-	-	13,044	1,151	-
2b.1.1.2	Boron Recovery - Insulated	725	717	46	115	665	427	-	770	3,465	3,465	-	-	7,179	2,851	-	-	-	487,618	30,466	-
2b.1.1.3	Chem & Volume Control	46	107	4	8	23	41	-	65	292	292	-	-	245	221	-	-	-	28,690	3,252	-
2b.1.1.4	Chem & Volume Control - Insulated	-	611	60	131	459	633	-	405	2,298	2,298	-	-	4,953	3,506	-	-	-	491,331	13,992	-
2b.1.1.5	Cntnmnt Encl Air Handling	-	130	2	13	155	8	-	60	368	368	-	-	1,676	44	-	-	-	71,764	2,981	-
2b.1.1.6	Cntnmnt Encl Air Handling - Insulated	-	15	1	1	3	7	-	6	33	33	-	-	28	40	-	-	-	4,528	317	-
2b.1.1.7	Cntnmnt On-line Purge	-	67	2	8	68	16	-	32	192	192	-	-	734	86	-	-	-	37,092	1,435	-
2b.1.1.8	Combust Gas Control - Insulated - RCA	-	24	0	3	38	-	-	12	78	78	-	-	410	-	-	-	-	16,656	510	-
2b.1.1.9	Combust Gas Control - RCA	-	4	0	1	11	-	-	3	19	19	-	-	121	-	-	-	-	4,897	99	-
2b.1.1.10	Containment Air Handling	-	410	9	43	505	33	-	194	1,194	1,194	-	-	5,455	178	-	-	-	236,621	9,029	-
2b.1.1.11	Containment Air Purge	-	134	4	21	225	25	-	77	486	486	-	-	2,427	135	-	-	-	110,018	2,973	-
2b.1.1.12	Containmnt Bldg Spray	-	95	-	-	-	-	-	14	109	-	-	109	-	-	-	-	-	-	2,309	-
2b.1.1.13	Containmnt Bldg Spray - Insulated	-	56	-	-	-	-	-	8	64	-	-	64	-	-	-	-	-	-	1,405	-
2b.1.1.14	Containmnt Bldg Spray - Insulated - RCA	-	20	1	3	45	-	-	12	81	81	-	-	483	-	-	-	-	19,609	451	-
2b.1.1.15	Containmnt Bldg Spray - RCA	-	5	0	0	3	-	-	2	10	10	-	-	31	-	-	-	-	1,257	120	-
2b.1.1.16	Contaminated Waste	44	37	2	4	3	27	-	40	158	158	-	-	35	148	-	-	-	13,987	1,713	-
2b.1.1.17	Demineralized Water	-	96	1	5	68	-	-	35	205	205	-	-	735	-	-	-	-	29,855	2,105	-
2b.1.1.18	Demineralized Water - Insulated	-	147	2	10	129	-	-	58	344	344	-	-	1,388	-	-	-	-	56,360	3,237	-
2b.1.1.19	Demineralized Water - Insulated - RCA	-	46	1	4	56	-	-	20	127	127	-	-	602	-	-	-	-	24,436	960	-
2b.1.1.20	Demineralized Water - RCA	-	26	0	2	22	-	-	10	60	60	-	-	239	-	-	-	-	9,722	524	-
2b.1.1.21	Diesel Generator - Insulated - RCA	-	3	0	1	7	-	-	2	12	12	-	-	72	-	-	-	-	2,914	58	-
2b.1.1.22	Drains - Floor	-	159	7	15	29	83	-	68	361	361	-	-	315	450	-	-	-	51,069	3,584	-
2b.1.1.23	Drains - Floor - Insulated	-	167	8	18	22	108	-	75	394	394	-	-	233	570	-	-	-	57,891	3,780	-
2b.1.1.24	Elec Distribution/Emer - Clean	-	38	-	-	-	-	-	6	43	-	-	43	-	-	-	-	-	-	930	-
2b.1.1.25	Elec Distribution/Emer - Contaminated	-	60	1	3	38	2	-	22	126	126	-	-	423	11	-	-	-	18,070	1,372	-
2b.1.1.26	Elec Distribution/Emer - RCA	-	362	5	28	371	-	-	151	917	917	-	-	4,009	-	-	-	-	162,811	8,214	-
2b.1.1.27	Elec Tunnel Air Handling	-	7	-	-	-	-	-	1	8	-	-	8	-	-	-	-	-	-	184	-
2b.1.1.28	Electrical Distrib - Clean	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	506	-
2b.1.1.29	Electrical Distrib - Contaminated	-	96	1	6	72	4	-	37	215	215	-	-	776	20	-	-	-	33,188	2,203	-
2b.1.1.30	Electrical Distrib - RCA	-	576	8	51	673	-	-	254	1,562	1,562	-	-	7,266	-	-	-	-	295,072	13,098	-
2b.1.1.31	Emerg FW Pumphouse Air Handling	-	10	-	-	-	-	-	1	11	-	-	11	-	-	-	-	-	-	257	-
2b.1.1.32	Fire Protection	-	18	-	-	-	-	-	3	21	-	-	21	-	-	-	-	-	-	451	-
2b.1.1.33	Fire Protection - Insulated	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	37	-
2b.1.1.34	Fire Protection - Insulated - RCA	-	25	0	2	30	-	-	11	68	68	-	-	326	-	-	-	-	13,228	538	-
2b.1.1.35	Fire Protection - RCA	-	193	4	26	338	-	-	103	664	664	-	-	3,648	-	-	-	-	148,135	4,197	-
2b.1.1.36	Hot Water	-	31	-	-	-	-	-	5	36	-	-	36	-	-	-	-	-	-	788	-
2b.1.1.37	Hot Water - Insulated	-	9	-	-	-	-	-	1	10	-	-	10	-	-	-	-	-	-	240	-
2b.1.1.38	Hot Water - Insulated - RCA	-	23	0	2	23	-	-	10	58	58	-	-	245	-	-	-	-	9,965	483	-
2b.1.1.39	Hot Water - RCA	-	23	0	2	24	-	-	10	59	59	-	-	263	-	-	-	-	10,675	467	-
2b.1.1.40	Hydrogen Gas - RCA	-	9	0	1	9	-	-	4	22	22	-	-	93	-	-	-	-	3,770	185	-

Table C-1, NDFC Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
Disposal of Plant Systems (continued)																					
2b.1.1.41	Incore Instrumentation	-	33	3	8	38	35	-	24	142	142	-	-	414	189	-	-	-	32,873	787	-
2b.1.1.42	Instrument Air	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	35	-
2b.1.1.43	Instrument Air - RCA	-	209	2	14	180	-	-	82	486	486	-	-	1,941	-	-	-	-	78,817	4,482	-
2b.1.1.44	Leak Detection - RCA	-	7	0	1	7	-	-	3	17	17	-	-	74	-	-	-	-	3,014	144	-
2b.1.1.45	Mechanical Seal Supply - RCA	-	21	0	2	22	-	-	9	53	53	-	-	232	-	-	-	-	9,441	436	-
2b.1.1.46	Miscellaneous Equipment	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	8	-
2b.1.1.47	Miscellaneous Equipment - RCA	-	51	1	9	112	-	-	31	205	205	-	-	1,213	-	-	-	-	49,265	1,203	-
2b.1.1.48	Nitrogen Gas	-	2	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	53	-
2b.1.1.49	Nitrogen Gas - Insulated - RCA	-	25	0	2	23	-	-	10	61	61	-	-	252	-	-	-	-	10,225	502	-
2b.1.1.50	Nitrogen Gas - RCA	-	18	0	1	17	-	-	7	44	44	-	-	182	-	-	-	-	7,411	364	-
2b.1.1.51	Nuclear Inst	-	11	0	1	6	3	-	4	24	24	-	-	60	14	-	-	-	3,644	250	-
2b.1.1.52	Oil Collin For RC Pumps - RCA	-	74	2	14	185	-	-	49	324	324	-	-	1,998	-	-	-	-	81,142	1,717	-
2b.1.1.53	PAB Air Handling	-	289	6	33	390	20	-	141	880	880	-	-	4,207	110	-	-	-	180,195	6,460	-
2b.1.1.54	PAB Air Handling - Insulated	-	45	2	6	34	25	-	24	136	136	-	-	372	133	-	-	-	26,419	1,006	-
2b.1.1.55	Potable Water	-	66	-	-	-	-	-	10	75	-	-	75	-	-	-	-	-	-	1,688	-
2b.1.1.56	Potable Water - Insulated	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	38	-
2b.1.1.57	Prim Comp Clng Water - Insulated - RCA	-	621	20	118	1,547	-	-	407	2,713	2,713	-	-	16,712	-	-	-	-	678,673	13,804	-
2b.1.1.58	Prim Comp Clng Water - RCA	-	440	20	123	1,610	-	-	372	2,565	2,565	-	-	17,387	-	-	-	-	706,102	10,150	-
2b.1.1.59	RCA Check Point Air Handling	-	3	-	-	-	-	-	0	4	-	-	4	-	-	-	-	-	-	79	-
2b.1.1.60	Radiation Monitoring - RCA	-	57	3	16	213	-	-	49	338	338	-	-	2,299	-	-	-	-	93,383	1,329	-
2b.1.1.61	Reactor Coolant	-	111	5	12	31	63	-	50	272	272	-	-	338	338	-	-	-	42,449	2,610	-
2b.1.1.62	Reactor Coolant - Insulated	60	48	3	5	0	31	-	51	198	198	-	-	2	168	-	-	-	14,325	2,389	-
2b.1.1.63	Reactor Make-up Water	-	155	5	21	199	35	-	81	497	497	-	-	2,152	207	-	-	-	103,637	3,576	-
2b.1.1.64	Reactor Make-up Water - Insulated	-	24	1	2	4	12	-	10	55	55	-	-	46	66	-	-	-	7,495	525	-
2b.1.1.65	Release Recovery	-	34	1	5	46	9	-	18	114	114	-	-	495	54	-	-	-	24,440	769	-
2b.1.1.66	Release Recovery - Insulated	-	5	0	0	1	2	-	2	10	10	-	-	9	12	-	-	-	1,371	102	-
2b.1.1.67	Resin Sluicing	73	89	5	12	59	48	-	82	368	368	-	-	638	289	-	-	-	47,859	3,538	-
2b.1.1.68	Rod Control & Position	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	35	-
2b.1.1.69	Roof Drains - Insulated - RCA	-	18	0	2	23	-	-	8	51	51	-	-	245	-	-	-	-	9,931	389	-
2b.1.1.70	Roof Drains - RCA	-	13	0	1	15	-	-	6	35	35	-	-	157	-	-	-	-	6,370	287	-
2b.1.1.71	Safety Injection	-	163	13	55	549	85	-	154	1,018	1,018	-	-	5,930	469	-	-	-	279,631	3,820	-
2b.1.1.72	Safety Injection - Insulated	-	112	6	13	62	53	-	53	299	299	-	-	672	284	-	-	-	51,404	2,501	-
2b.1.1.73	Sampling - Insulated	-	174	3	7	36	26	-	57	302	302	-	-	387	139	-	-	-	27,566	4,129	-
2b.1.1.74	Service Air	-	2	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	59	-
2b.1.1.75	Service Air - RCA	-	95	1	7	97	-	-	40	241	241	-	-	1,049	-	-	-	-	42,614	1,968	-
2b.1.1.76	Service Water - Insulated - RCA	-	120	8	46	602	-	-	128	903	903	-	-	6,502	-	-	-	-	264,033	2,797	-
2b.1.1.77	Service Water - RCA	-	118	5	33	429	-	-	99	685	685	-	-	4,636	-	-	-	-	188,275	2,675	-
2b.1.1.78	Sta Info & Alarm Comp	-	2	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	62	-
2b.1.1.79	Vents - Insulated - RCA	-	11	0	1	10	-	-	4	26	26	-	-	109	-	-	-	-	4,434	218	-
2b.1.1.80	Vents - RCA	-	80	2	10	131	-	-	41	264	264	-	-	1,417	-	-	-	-	57,545	1,757	-
2b.1.1.81	WP - Liquid Drains	-	383	19	41	84	226	-	173	926	926	-	-	911	1,244	-	-	-	140,526	8,530	-
2b.1.1.82	Waste Gas - Insulated	-	91	7	15	57	72	-	52	293	293	-	-	614	389	-	-	-	57,857	2,023	-
2b.1.1.83	Waste Processing Air Handling	-	488	8	45	535	27	-	217	1,320	1,320	-	-	5,778	148	-	-	-	247,236	10,555	-
2b.1.1.84	Waste Processing Liquid	2	13	0	1	3	4	-	6	31	31	-	-	38	24	-	-	-	3,565	309	-
2b.1.1.85	Waste Processing Liquid - Insulated	285	279	19	46	221	192	-	302	1,344	1,344	-	-	2,389	1,135	-	-	-	185,252	11,380	-
2b.1.1.86	Waste Processing Liquid - Yard	-	22	1	3	2	17	-	11	55	55	-	-	21	91	-	-	-	8,604	483	-
2b.1.1.87	Waste Processing Solid - Insul - RCA	-	285	8	48	626	-	-	173	1,139	1,139	-	-	6,759	-	-	-	-	274,481	6,305	-
2b.1.1.88	Waste Processing Solid - RCA	-	2	0	0	3	-	-	1	7	7	-	-	35	-	-	-	-	1,421	52	-
2b.1.1	Totals	1,255	9,530	355	1,306	12,333	2,416	-	5,659	32,854	32,433	-	421	133,196	13,659	-	-	-	6,517,216	238,975	-
2b.1.2	Scaffolding in support of decommissioning	-	896	14	10	105	3	-	243	1,270	1,270	-	-	1,025	51	-	-	-	51,258	22,461	-
Decontamination of Site Buildings																					
2b.1.3.1	Containment	1,041	841	99	280	372	812	-	1,042	4,487	4,487	-	-	4,016	7,495	-	-	-	861,086	41,985	-
2b.1.3.2	Administration Building-Limited Areas	97	33	6	18	-	24	-	66	244	244	-	-	-	488	-	-	-	48,750	2,873	-

Table C-1, NDFC Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
Decontamination of Site Buildings (continued)																					
2b.1.3.3	Containment Enclosure Ventilation	24	9	2	5	0	7	-	17	64	64	-	-	5	135	-	-	-	13,736	726	-
2b.1.3.4	Main Steam & Feedwater Pipe Chase	58	2	0	1	2	1	-	30	94	94	-	-	19	12	-	-	-	1,928	1,417	-
2b.1.3.5	Miscellaneous Structures	7	3	1	1	-	2	-	5	18	18	-	-	-	40	-	-	-	4,014	206	-
2b.1.3.6	Non-Essential Switchgear Room	2	1	0	1	-	1	-	2	7	7	-	-	-	15	-	-	-	1,482	76	-
2b.1.3.7	Primary Auxiliary Building	241	132	19	57	62	75	-	192	778	778	-	-	672	1,458	-	-	-	171,902	8,209	-
2b.1.3.8	RCA Storage Facility	35	0	0	0	-	0	-	18	53	53	-	-	-	3	-	-	-	342	823	-
2b.1.3.9	Waste Processing	357	183	27	81	87	107	-	279	1,121	1,121	-	-	943	2,083	-	-	-	245,080	11,899	-
2b.1.3	Totals	1,862	1,204	155	442	524	1,029	-	1,650	6,865	6,865	-	-	5,655	11,730	-	-	-	1,348,320	68,215	-
2b.1	Subtotal Period 2b Activity Costs	3,117	11,630	524	1,758	12,962	3,447	-	7,551	40,988	40,568	-	421	139,875	25,441	-	-	-	7,916,795	329,652	-
Period 2b Collateral Costs																					
2b.3.1	Process liquid waste	293	-	128	1,392	-	2,102	-	894	4,809	4,809	-	-	-	3,021	-	-	-	259,689	616	-
2b.3.2	Small tool allowance	-	186	-	-	-	-	-	28	214	214	-	-	-	-	-	-	-	-	-	-
2b.3.3	Spent Fuel Capital and Transfer	-	-	-	-	-	-	18,993	2,849	21,842	-	21,842	-	-	-	-	-	-	-	-	-
2b.3.4	N.H. Disposal Tax	-	-	-	-	-	-	521	130	651	651	-	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	293	186	128	1,392	-	2,102	19,514	3,901	27,516	5,675	21,842	-	-	3,021	-	-	-	259,689	616	-
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	746	-	-	-	-	-	-	186	932	932	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	1,508	151	1,658	1,658	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	1,565	-	-	-	-	-	391	1,957	1,957	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	3,469	-	-	-	-	-	520	3,990	3,990	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	92	95	-	188	-	70	445	445	-	-	-	6,261	-	-	-	125,211	1,703	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	3,655	548	4,203	4,203	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	897	90	987	987	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	261	26	287	-	287	-	-	-	-	-	-	-	-	-
2b.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	1,644	247	1,890	-	1,890	-	-	-	-	-	-	-	-	-
2b.4.11	Radwaste Processing Equipment/Services	-	-	-	-	-	-	498	75	572	572	-	-	-	-	-	-	-	-	-	-
2b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	202	30	233	-	233	-	-	-	-	-	-	-	-	-
2b.4.13	Security Staff Cost	-	-	-	-	-	-	6,122	918	7,040	7,040	-	-	-	-	-	-	-	-	-	272,000
2b.4.14	DOC Staff Cost	-	-	-	-	-	-	26,706	4,006	30,712	30,712	-	-	-	-	-	-	-	-	-	397,120
2b.4.15	Utility Staff Cost	-	-	-	-	-	-	45,836	6,875	52,711	52,711	-	-	-	-	-	-	-	-	-	775,200
2b.4	Subtotal Period 2b Period-Dependent Costs	746	5,035	92	95	-	188	87,328	14,134	107,618	105,208	2,410	-	-	6,261	-	-	-	125,211	1,703	1,444,320
2b.0	TOTAL PERIOD 2b COST	4,155	16,851	744	3,246	12,962	5,736	106,842	25,587	176,122	151,450	24,251	421	139,875	34,722	-	-	-	8,301,694	331,971	1,444,320
PERIOD 2c - Decontamination Following Wet Fuel Storage																					
Period 2c Direct Decommissioning Activities																					
2c.1.1	Remove spent fuel racks	331	33	80	61	-	403	-	292	1,201	1,201	-	-	-	2,174	-	-	-	184,800	898	-
Disposal of Plant Systems																					
2c.1.2.1	FSB Air Handling	-	140	4	20	239	12	-	77	493	493	-	-	2,584	67	-	-	-	110,652	2,982	-
2c.1.2.2	Fuel Handling	-	154	8	28	228	72	-	96	585	585	-	-	2,457	389	-	-	-	132,824	3,621	-
2c.1.2.3	Spent Fuel Pool Cooling	-	214	17	41	127	204	-	131	734	734	-	-	1,371	1,103	-	-	-	149,180	4,907	-
2c.1.2	Totals	-	509	28	89	594	288	-	305	1,813	1,813	-	-	6,412	1,558	-	-	-	392,656	11,509	-
Decontamination of Site Buildings																					
2c.1.3.1	Fuel Storage	548	624	8	27	225	28	-	475	1,932	1,932	-	-	2,429	350	-	-	-	132,211	26,386	-
2c.1.3	Totals	548	624	8	27	225	28	-	475	1,932	1,932	-	-	2,429	350	-	-	-	132,211	26,386	-
2c.1.4	Scaffolding in support of decommissioning	-	179	3	2	21	1	-	49	254	254	-	-	205	10	-	-	-	10,252	4,492	-

Table C-1, NDFC Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
2c.1	Subtotal Period 2c Activity Costs	879	1,345	119	179	840	717	-	1,120	5,199	5,199	-	-	9,047	4,093	-	-	-	719,919	43,285	-
Period 2c Additional Costs																					
2c.2.1	Fuel Pool Concrete Decon	268	-	90	1,533	-	533	7	507	2,938	2,938	-	-	-	10,667	-	-	-	1,066,740	2,018	-
2c.2.2	Final Site Survey Program Management	-	-	-	-	-	-	1,376	413	1,789	1,789	-	-	-	-	-	-	-	-	-	6,240
2c.2	Subtotal Period 2c Additional Costs	268	-	90	1,533	-	533	1,383	920	4,727	4,727	-	-	-	10,667	-	-	-	1,066,740	2,018	6,240
Period 2c Collateral Costs																					
2c.3.1	Process liquid waste	93	-	26	274	-	273	-	158	825	825	-	-	-	837	-	-	-	31,325	125	-
2c.3.2	Small tool allowance	-	31	-	-	-	-	-	5	36	36	-	-	-	-	-	-	-	-	-	-
2c.3.3	Decommissioning Equipment Disposition	-	-	80	68	616	65	-	127	957	957	-	-	6,000	353	-	-	-	300,000	735	-
2c.3.4	N.H. Disposal Tax	-	-	-	-	-	-	261	65	326	326	-	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	93	31	106	343	616	339	261	355	2,144	2,144	-	-	6,000	990	-	-	-	331,325	860	-
Period 2c Period-Dependent Costs																					
2c.4.1	Decon supplies	95	-	-	-	-	-	-	24	119	119	-	-	-	-	-	-	-	-	-	-
2c.4.2	Insurance	-	-	-	-	-	-	499	50	549	549	-	-	-	-	-	-	-	-	-	-
2c.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2c.4.4	Health physics supplies	-	328	-	-	-	-	-	82	410	410	-	-	-	-	-	-	-	-	-	-
2c.4.5	Heavy equipment rental	-	1,148	-	-	-	-	-	172	1,320	1,320	-	-	-	-	-	-	-	-	-	-
2c.4.6	Disposal of DAW generated	-	-	24	25	-	49	-	18	117	117	-	-	-	1,644	-	-	-	32,885	447	-
2c.4.7	Plant energy budget	-	-	-	-	-	-	645	97	742	742	-	-	-	-	-	-	-	-	-	-
2c.4.8	NRC Fees	-	-	-	-	-	-	297	30	327	327	-	-	-	-	-	-	-	-	-	-
2c.4.9	Emergency Planning Fees	-	-	-	-	-	-	86	9	95	-	95	-	-	-	-	-	-	-	-	-
2c.4.10	Radwaste Processing Equipment/Services	-	-	-	-	-	-	329	49	379	379	-	-	-	-	-	-	-	-	-	-
2c.4.11	ISFSI Operating Costs	-	-	-	-	-	-	67	10	77	-	77	-	-	-	-	-	-	-	-	-
2c.4.12	Security Staff Cost	-	-	-	-	-	-	1,013	152	1,165	1,165	-	-	-	-	-	-	-	-	-	45,000
2c.4.13	DOC Staff Cost	-	-	-	-	-	-	6,060	909	6,969	6,969	-	-	-	-	-	-	-	-	-	99,000
2c.4.14	Utility Staff Cost	-	-	-	-	-	-	11,195	1,679	12,874	12,874	-	-	-	-	-	-	-	-	-	184,500
2c.4	Subtotal Period 2c Period-Dependent Costs	95	1,476	24	25	-	49	20,191	3,281	25,141	24,970	172	-	-	1,644	-	-	-	32,885	447	319,500
2c.0	TOTAL PERIOD 2c COST	1,334	2,853	339	2,080	1,455	1,638	21,835	5,676	37,211	37,040	172	-	15,047	17,394	-	-	-	2,150,869	46,610	325,740
PERIOD 2e - License Termination																					
Period 2e Direct Decommissioning Activities																					
2e.1.1	ORISE confirmatory survey	-	-	-	-	-	-	143	43	185	185	-	-	-	-	-	-	-	-	-	-
2e.1.2	Terminate license									a											
2e.1	Subtotal Period 2e Activity Costs	-	-	-	-	-	-	143	43	185	185	-	-	-	-	-	-	-	-	-	-
Period 2e Additional Costs																					
2e.2.1	Final Site Survey	-	-	-	-	-	-	13,911	4,173	18,084	18,084	-	-	-	-	-	-	-	-	300,099	3,120
2e.2	Subtotal Period 2e Additional Costs	-	-	-	-	-	-	13,911	4,173	18,084	18,084	-	-	-	-	-	-	-	-	300,099	3,120
Period 2e Collateral Costs																					
2e.3.1	DOC staff relocation expenses	-	-	-	-	-	-	1,163	175	1,338	1,338	-	-	-	-	-	-	-	-	-	-
2e.3.2	N.H. Disposal Tax	-	-	-	-	-	-	5	1	7	7	-	-	-	-	-	-	-	-	-	-
2e.3	Subtotal Period 2e Collateral Costs	-	-	-	-	-	-	1,169	176	1,345	1,345	-	-	-	-	-	-	-	-	-	-
Period 2e Period-Dependent Costs																					
2e.4.1	Insurance	-	-	-	-	-	-	389	39	428	428	-	-	-	-	-	-	-	-	-	-
2e.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2e.4.3	Health physics supplies	-	1,067	-	-	-	-	-	267	1,334	1,334	-	-	-	-	-	-	-	-	-	-
2e.4.4	Disposal of DAW generated	-	-	5	5	-	11	-	4	25	25	-	-	-	356	-	-	-	7,126	97	-
2e.4.5	Plant energy budget	-	-	-	-	-	-	281	42	323	323	-	-	-	-	-	-	-	-	-	-
2e.4.6	NRC Fees	-	-	-	-	-	-	258	26	284	284	-	-	-	-	-	-	-	-	-	-

Table C-1, NDFC Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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 2e Period-Dependent Costs (continued)																					
2e.4.7	Emergency Planning Fees	-	-	-	-	-	-	75	8	83	-	83	-	-	-	-	-	-	-	-	-
2e.4.8	ISFSI Operating Costs	-	-	-	-	-	-	58	9	67	-	67	-	-	-	-	-	-	-	-	-
2e.4.9	Security Staff Cost	-	-	-	-	-	-	881	132	1,013	1,013	-	-	-	-	-	-	-	-	-	39,143
2e.4.10	DOC Staff Cost	-	-	-	-	-	-	3,975	598	4,572	4,572	-	-	-	-	-	-	-	-	-	57,149
2e.4.11	Utility Staff Cost	-	-	-	-	-	-	5,663	849	6,512	6,512	-	-	-	-	-	-	-	-	-	85,331
2e.4	Subtotal Period 2e Period-Dependent Costs	-	1,067	5	5	-	11	11,581	1,972	14,641	14,491	149	-	-	356	-	-	-	7,126	97	181,623
2e.0	TOTAL PERIOD 2e COST	-	1,067	5	5	-	11	26,803	6,364	34,255	34,106	149	-	-	356	-	-	-	7,126	300,198	184,743
PERIOD 2 TOTALS		6,647	44,109	11,675	13,385	32,606	27,009	214,420	69,749	419,801	383,030	36,298	475	353,352	102,353	2,937	459	-	24,049,070	965,900	2,760,848
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Containment	-	4,136	-	-	-	-	-	620	4,756	-	-	4,756	-	-	-	-	-	-	83,553	-
3b.1.1.2	Administration Building-Limited Areas	-	6	-	-	-	-	-	1	7	-	-	7	-	-	-	-	-	-	131	-
3b.1.1.3	Containment Enclosure Ventilation	-	124	-	-	-	-	-	19	143	-	-	143	-	-	-	-	-	-	2,048	-
3b.1.1.4	Emergency Feedwater Pump Building	-	210	-	-	-	-	-	31	241	-	-	241	-	-	-	-	-	-	3,194	-
3b.1.1.5	Equipment Vault	-	107	-	-	-	-	-	16	123	-	-	123	-	-	-	-	-	-	1,769	-
3b.1.1.6	Main Steam & Feedwater Pipe Chase	-	474	-	-	-	-	-	71	545	-	-	545	-	-	-	-	-	-	7,668	-
3b.1.1.7	Miscellaneous Structures	-	13	-	-	-	-	-	2	15	-	-	15	-	-	-	-	-	-	251	-
3b.1.1.8	Primary Auxiliary Building	-	1,178	-	-	-	-	-	177	1,355	-	-	1,355	-	-	-	-	-	-	18,811	-
3b.1.1.9	Steam Generator Blowdown Recovery	-	23	-	-	-	-	-	3	26	-	-	26	-	-	-	-	-	-	435	-
3b.1.1.10	Waste Processing	-	1,555	-	-	-	-	-	233	1,789	-	-	1,789	-	-	-	-	-	-	25,863	-
3b.1.1.11	Fuel Storage	-	878	-	-	-	-	-	102	780	-	-	780	-	-	-	-	-	-	9,865	-
3b.1.1	Totals	-	8,504	-	-	-	-	-	1,276	9,780	-	-	9,780	-	-	-	-	-	-	133,887	-
Site Closeout Activities																					
3b.1.2	Remove Rubble	-	277	-	-	-	-	-	42	319	-	-	319	-	-	-	-	-	-	1,928	-
3b.1.3	Grade & landscape site	-	63	-	-	-	-	-	10	73	-	-	73	-	-	-	-	-	-	216	-
3b.1.4	Final report to NRC	-	-	-	-	-	-	157	24	180	180	-	-	-	-	-	-	-	-	-	1,560
3b.1	Subtotal Period 3b Activity Costs	-	8,845	-	-	-	-	157	1,350	10,352	180	-	10,172	-	-	-	-	-	-	135,831	1,560
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	345	-	-	-	-	6	53	405	-	-	405	-	-	-	-	-	-	2,415	-
3b.2	Subtotal Period 3b Additional Costs	-	345	-	-	-	-	6	53	405	-	-	405	-	-	-	-	-	-	2,415	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	79	-	-	-	-	-	12	91	-	-	91	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	79	-	-	-	-	-	12	91	-	-	91	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	978	98	1,075	-	1,075	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	3,414	-	-	-	-	-	512	3,926	-	-	3,926	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	352	53	405	-	-	405	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	406	41	447	-	447	-	-	-	-	-	-	-	-	-
3b.4.6	Emergency Planning Fees	-	-	-	-	-	-	188	19	207	-	207	-	-	-	-	-	-	-	-	-
3b.4.7	ISFSI Operating Costs	-	-	-	-	-	-	146	22	168	-	168	-	-	-	-	-	-	-	-	-
3b.4.8	Security Staff Cost	-	-	-	-	-	-	2,212	332	2,544	-	1,730	814	-	-	-	-	-	-	-	98,286
3b.4.9	DOC Staff Cost	-	-	-	-	-	-	10,937	1,641	12,578	-	-	12,578	-	-	-	-	-	-	-	155,291
3b.4.10	Utility Staff Cost	-	-	-	-	-	-	8,318	1,248	9,566	-	8,228	1,339	-	-	-	-	-	-	-	126,789
3b.4	Subtotal Period 3b Period-Dependent Costs	-	3,414	-	-	-	-	23,538	3,964	30,916	-	11,854	19,062	-	-	-	-	-	-	-	380,366

Table C-1, NDFC Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
3b.0	TOTAL PERIOD 3b COST	-	12,683	-	-	-	-	23,701	5,379	41,763	180	11,854	29,729	-	-	-	-	-	-	138,246	381,926
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Transfer	-	-	-	-	-	-	11,185	1,675	12,840	-	12,840	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	11,185	1,675	12,840	-	12,840	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	32,078	3,208	35,286	-	35,286	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3c.4.3	Plant energy budget	-	-	-	-	-	-	3,487	520	3,986	-	3,986	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	13,337	1,334	14,670	-	14,670	-	-	-	-	-	-	-	-	-
3c.4.5	Emergency Planning Fees	-	-	-	-	-	-	6,180	618	6,798	-	6,798	-	-	-	-	-	-	-	-	-
3c.4.6	ISFSI Operating Costs	-	-	-	-	-	-	4,797	719	5,516	-	5,516	-	-	-	-	-	-	-	-	-
3c.4.7	Security Staff Cost	-	-	-	-	-	-	58,059	8,709	66,768	-	66,768	-	-	-	-	-	-	-	-	2,579,771
3c.4.8	Utility Staff Cost	-	-	-	-	-	-	82,346	12,352	94,698	-	94,698	-	-	-	-	-	-	-	-	1,257,639
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	200,264	27,460	227,724	-	227,724	-	-	-	-	-	-	-	-	3,837,410
3c.0	TOTAL PERIOD 3c COST	-	-	-	-	-	-	211,429	29,135	240,564	-	240,564	-	-	-	-	-	-	-	-	3,837,410
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	580	-	-	14,595	-	2,247	17,422	17,422	-	-	-	-	-	-	637	129,800	-	-
3d.1.1	Totals	-	-	580	-	-	14,595	-	2,247	17,422	17,422	-	-	-	-	-	-	637	129,800	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	580	-	-	14,595	-	2,247	17,422	17,422	-	-	-	-	-	-	637	129,800	-	-
Period 3d Collateral Costs																					
3d.3.1	N.H. Disposal Tax	-	-	-	-	-	-	10	2	12	-	12	-	-	-	-	-	-	-	-	-
3d.3	Subtotal Period 3d Collateral Costs	-	-	-	-	-	-	10	2	12	-	12	-	-	-	-	-	-	-	-	-
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	20	2	22	-	22	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3d.4.3	Plant energy budget	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	8	1	9	-	9	-	-	-	-	-	-	-	-	-
3d.4.5	Emergency Planning Fees	-	-	-	-	-	-	4	0	4	-	4	-	-	-	-	-	-	-	-	-
3d.4.6	ISFSI Operating Costs	-	-	-	-	-	-	3	0	3	-	3	-	-	-	-	-	-	-	-	-
3d.4.7	Security Staff Cost	-	-	-	-	-	-	36	5	41	-	41	-	-	-	-	-	-	-	-	1,600
3d.4.8	Utility Staff Cost	-	-	-	-	-	-	51	8	59	-	59	-	-	-	-	-	-	-	-	780
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	124	17	141	-	141	-	-	-	-	-	-	-	-	2,380
3d.0	TOTAL PERIOD 3d COST	-	-	580	-	-	14,595	134	2,267	17,575	17,422	153	-	-	-	-	-	637	129,800	-	2,380
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	ISFSI Decon and License Termination	-	377	3	348	-	785	1,552	576	3,641	-	3,641	-	-	6,282	-	-	-	1,201,122	10,968	2,560
3e.2	Subtotal Period 3e Additional Costs	-	377	3	348	-	785	1,552	576	3,641	-	3,641	-	-	6,282	-	-	-	1,201,122	10,968	2,560

Table C-1, NDFC Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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 3e Collateral Costs																					
3e.3.1	Small tool allowance	-	5	-	-	-	-	-	1	5	-	5	-	-	-	-	-	-	-	-	-
3e.3.2	N.H. Disposal Tax	-	-	-	-	-	-	94	24	118	-	118	-	-	-	-	-	-	-	-	-
3e.3	Subtotal Period 3e Collateral Costs	-	5	-	-	-	-	94	24	123	-	123	-	-	-	-	-	-	-	-	-
Period 3e Period-Dependent Costs																					
3e.4.1	Insurance	-	-	-	-	-	-	175	17	192	-	192	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3e.4.3	Heavy equipment rental	-	181	-	-	-	-	-	27	208	-	208	-	-	-	-	-	-	-	-	-
3e.4.4	Plant energy budget	-	-	-	-	-	-	63	9	72	-	72	-	-	-	-	-	-	-	-	-
3e.4.5	NRC ISFSI Fees	-	-	-	-	-	-	73	7	80	-	80	-	-	-	-	-	-	-	-	-
3e.4.6	Emergency Planning Fees	-	-	-	-	-	-	34	3	37	-	37	-	-	-	-	-	-	-	-	-
3e.4.7	Security Staff Cost	-	-	-	-	-	-	142	21	164	-	164	-	-	-	-	-	-	-	-	6,326
3e.4.8	Utility Staff Cost	-	-	-	-	-	-	395	59	454	-	454	-	-	-	-	-	-	-	-	5,974
3e.4	Subtotal Period 3e Period-Dependent Costs	-	181	-	-	-	-	882	145	1,207	-	1,207	-	-	-	-	-	-	-	-	12,300
3e.0	TOTAL PERIOD 3e COST	-	562	3	348	-	785	2,527	745	4,972	-	4,972	-	-	6,282	-	-	-	1,201,122	10,968	14,860
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	ISFSI Demolition and Site Restoration	-	241	-	-	-	-	44	67	352	-	352	-	-	-	-	-	-	-	2,294	-
3f.2	Subtotal Period 3f Additional Costs	-	241	-	-	-	-	44	67	352	-	352	-	-	-	-	-	-	-	2,294	-
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	1	-	-	-	-	-	0	1	-	1	-	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	1	-	-	-	-	-	0	1	-	1	-	-	-	-	-	-	-	-	-
Period 3f Period-Dependent Costs																					
3f.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.3	Heavy equipment rental	-	61	-	-	-	-	-	9	70	-	70	-	-	-	-	-	-	-	-	-
3f.4.4	Plant energy budget	-	-	-	-	-	-	32	5	37	-	37	-	-	-	-	-	-	-	-	-
3f.4.5	Security Staff Cost	-	-	-	-	-	-	73	11	84	-	84	-	-	-	-	-	-	-	-	3,240
3f.4.6	Utility Staff Cost	-	-	-	-	-	-	184	28	212	-	212	-	-	-	-	-	-	-	-	2,700
3f.4	Subtotal Period 3f Period-Dependent Costs	-	61	-	-	-	-	290	53	403	-	403	-	-	-	-	-	-	-	-	5,940
3f.0	TOTAL PERIOD 3f COST	-	303	-	-	-	-	333	120	756	-	756	-	-	-	-	-	-	-	2,294	5,940
PERIOD 3 TOTALS		-	13,549	583	348	-	15,380	238,125	37,645	305,630	17,602	258,299	29,729	-	6,282	-	-	637	1,330,922	151,508	4,242,516
TOTAL COST TO DECOMMISSION		8,952	59,353	12,573	14,745	32,792	47,597	550,774	124,346	851,133	508,677	311,007	31,450	353,700	109,950	4,565	459	637	25,696,770	1,119,272	8,069,633

Table C-1, NDFC Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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			

TOTAL COST TO DECOMMISSION WITH 17.11% CONTINGENCY:	$851,133	thousands of 2006 dollars
TOTAL NRC LICENSE TERMINATION COST IS 59.76% OR:	$508,677	thousands of 2006 dollars
SPENT FUEL MANAGEMENT COST IS 36.54% OR:	$311,007	thousands of 2006 dollars
NON-NUCLEAR DEMOLITION COST IS 3.7% OR:	$31,450	thousands of 2006 dollars
TOTAL LOW-LEVEL RADIOACTIVE WASTE BURIAL VOLUME (CLASS A, B AND C):	114,974	cubic feet
TOTAL GREATER-THAN-CLASS C WASTE BURIAL VOLUME:	837	cubic feet
TOTAL SCRAP METAL REMOVED:	40,591	tons
TOTAL CRAFT LABOR REQUIREMENTS:	1,119,112	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

Table C-2, 2050 Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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: 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 - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	131	20	150	150	-	-	-	-	-	-	-	-	-	1,300
1a.1.2	Notification of Cessation of Operations									a											
1a.1.3	Remove fuel & source material									n/a											
1a.1.4	Notification of Permanent Defueling									a											
1a.1.5	Deactivate plant systems & process waste									a											
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	201	30	231	231	-	-	-	-	-	-	-	-	-	2,000
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	463	69	532	532	-	-	-	-	-	-	-	-	-	4,600
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1a.1.10	End product description	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	131	20	150	150	-	-	-	-	-	-	-	-	-	1,300
1a.1.12	Define major work sequence	-	-	-	-	-	-	754	113	868	868	-	-	-	-	-	-	-	-	-	7,500
1a.1.13	Perform SER and EA	-	-	-	-	-	-	312	47	359	359	-	-	-	-	-	-	-	-	-	3,100
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	503	75	578	578	-	-	-	-	-	-	-	-	-	5,000
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	412	62	474	474	-	-	-	-	-	-	-	-	-	4,096
1a.1.16	Receive NRC approval of termination plan									a											
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	495	74	569	512	-	57	-	-	-	-	-	-	-	4,920
1a.1.17.2	Plant systems	-	-	-	-	-	-	419	63	482	434	-	48	-	-	-	-	-	-	-	4,167
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	50	8	58	58	-	-	-	-	-	-	-	-	-	500
1a.1.17.4	Reactor Internals	-	-	-	-	-	-	714	107	821	821	-	-	-	-	-	-	-	-	-	7,100
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	654	98	752	752	-	-	-	-	-	-	-	-	-	6,500
1a.1.17.6	Biological shield	-	-	-	-	-	-	50	8	58	58	-	-	-	-	-	-	-	-	-	500
1a.1.17.7	Steam generators	-	-	-	-	-	-	314	47	361	361	-	-	-	-	-	-	-	-	-	3,120
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	161	24	185	93	-	93	-	-	-	-	-	-	-	1,600
1a.1.17.9	Main Turbine	-	-	-	-	-	-	40	6	46	-	-	46	-	-	-	-	-	-	-	400
1a.1.17.10	Main Condensers	-	-	-	-	-	-	40	6	46	-	-	46	-	-	-	-	-	-	-	400
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	314	47	361	180	-	180	-	-	-	-	-	-	-	3,120
1a.1.17.12	Waste management	-	-	-	-	-	-	463	69	532	532	-	-	-	-	-	-	-	-	-	4,600
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	91	14	104	52	-	52	-	-	-	-	-	-	-	900
1a.1.17	Total	-	-	-	-	-	-	3,805	571	4,375	3,853	-	523	-	-	-	-	-	-	-	37,827
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	241	36	278	278	-	-	-	-	-	-	-	-	-	2,400
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	2,419	363	2,782	2,782	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	141	21	162	162	-	-	-	-	-	-	-	-	-	1,400
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,048	307	2,355	2,355	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	124	19	142	142	-	-	-	-	-	-	-	-	-	1,230
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	11,885	1,783	13,668	13,145	-	523	-	-	-	-	-	-	-	73,753
Period 1a Collateral Costs																					
1a.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	4,107	616	4,723	-	4,723	-	-	-	-	-	-	-	-	-
1a.3.2	N.H. Disposal Tax	-	-	-	-	-	-	9	2	12	12	-	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	-	-	-	-	-	4,116	618	4,735	12	4,723	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	1,273	127	1,400	1,400	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	219	-	-	-	-	-	55	274	274	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	268	-	-	-	-	-	40	308	308	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	9	9	-	19	-	7	44	44	-	-	-	618	-	-	-	12,359	188	-

Table C-2, 2050 Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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: 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.4.6	Plant energy budget	-	-	-	-	-	-	1,868	280	2,149	2,149	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	258	26	284	284	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	3,861	386	4,247	-	4,247	-	-	-	-	-	-	-	-	-
1a.4.9	Spent Fuel Pool O&M	-	-	-	-	-	-	630	95	725	-	725	-	-	-	-	-	-	-	-	-
1a.4.10	ISFSI Operating Costs	-	-	-	-	-	-	78	12	89	-	89	-	-	-	-	-	-	-	-	-
1a.4.11	INPO Fees	-	-	-	-	-	-	815	122	937	937	-	-	-	-	-	-	-	-	-	-
1a.4.12	Security Staff Cost	-	-	-	-	-	-	3,521	528	4,049	4,049	-	-	-	-	-	-	-	-	-	158,429
1a.4.13	Utility Staff Cost	-	-	-	-	-	-	25,841	3,876	29,717	29,717	-	-	-	-	-	-	-	-	-	438,000
1a.4	Subtotal Period 1a Period-Dependent Costs	-	487	9	9	-	19	38,145	5,554	44,223	39,162	5,061	-	-	618	-	-	-	12,359	168	594,429
1a.0	TOTAL PERIOD 1a COST	-	487	9	9	-	19	54,146	7,955	62,625	52,319	9,784	523	-	618	-	-	-	12,359	168	668,181
PERIOD 1b - Decommissioning Preparations																					
Period 1b Direct Decommissioning Activities																					
Detailed Work Procedures																					
1b.1.1.1	Plant systems	-	-	-	-	-	-	476	71	547	493	-	55	-	-	-	-	-	-	-	4,733
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.3	Reactor internals	-	-	-	-	-	-	251	38	289	289	-	-	-	-	-	-	-	-	-	2,500
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	136	20	156	39	-	117	-	-	-	-	-	-	-	1,350
1b.1.1.5	CRD cooling assembly	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.6	CRD housings & ICI tubes	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.7	Incore instrumentation	-	-	-	-	-	-	101	15	116	116	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	365	55	420	420	-	-	-	-	-	-	-	-	-	3,630
1b.1.1.9	Facility closeout	-	-	-	-	-	-	121	18	139	69	-	69	-	-	-	-	-	-	-	1,200
1b.1.1.10	Missile shields	-	-	-	-	-	-	45	7	52	52	-	-	-	-	-	-	-	-	-	450
1b.1.1.11	Biological shield	-	-	-	-	-	-	121	18	139	139	-	-	-	-	-	-	-	-	-	1,200
1b.1.1.12	Steam generators	-	-	-	-	-	-	463	69	532	532	-	-	-	-	-	-	-	-	-	4,600
1b.1.1.13	Reinforced concrete	-	-	-	-	-	-	101	15	116	58	-	58	-	-	-	-	-	-	-	1,000
1b.1.1.14	Main Turbine	-	-	-	-	-	-	157	24	180	-	-	180	-	-	-	-	-	-	-	1,560
1b.1.1.15	Main Condensers	-	-	-	-	-	-	157	24	180	-	-	180	-	-	-	-	-	-	-	1,560
1b.1.1.16	Auxiliary building	-	-	-	-	-	-	275	41	316	284	-	32	-	-	-	-	-	-	-	2,730
1b.1.1.17	Reactor building	-	-	-	-	-	-	275	41	316	284	-	32	-	-	-	-	-	-	-	2,730
1b.1.1	Total	-	-	-	-	-	-	3,344	502	3,845	3,122	-	723	-	-	-	-	-	-	-	33,243
1b.1.2	Decon primary loop	367	-	-	-	-	-	-	183	550	550	-	-	-	-	-	-	-	-	1,087	-
1b.1	Subtotal Period 1b Activity Costs	367	-	-	-	-	-	3,344	685	4,395	3,672	-	723	-	-	-	-	-	-	1,087	33,243
Period 1b Additional Costs																					
1b.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	8,867	1,330	10,198	10,198	-	-	-	-	-	-	-	-	-	-
1b.2.2	Site Characterization	-	-	-	-	-	-	2,474	742	3,216	3,216	-	-	-	-	-	-	-	-	-	-
1b.2.3	Misc Waste	-	-	13	7	187	-	-	2	208	208	-	-	348	-	-	-	-	23,316	109	-
1b.2	Subtotal Period 1b Additional Costs	-	-	13	7	187	-	11,342	2,075	13,622	13,622	-	-	348	-	-	-	-	23,316	109	-
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	624	-	-	-	-	-	-	94	718	718	-	-	-	-	-	-	-	-	-	-
1b.3.2	DOC staff relocation expenses	-	-	-	-	-	-	1,163	175	1,338	1,338	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process liquid waste	51	-	88	990	-	5,178	-	1,478	7,785	7,785	-	-	-	334	1,628	-	-	273,827	422	-
1b.3.4	Small tool allowance	-	1	-	-	-	-	-	0	1	1	-	-	-	-	-	-	-	-	-	-
1b.3.5	Pipe cutting equipment	-	957	-	-	-	-	-	143	1,100	1,100	-	-	-	-	-	-	-	-	-	-
1b.3.6	Decon rig	1,243	-	-	-	-	-	-	186	1,430	1,430	-	-	-	-	-	-	-	-	-	-
1b.3.7	Fuel storage capital expenditures	-	-	-	-	-	-	3,436	515	3,951	-	3,951	-	-	-	-	-	-	-	-	-
1b.3.8	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,294	494	3,788	-	3,788	-	-	-	-	-	-	-	-	-

Table C-2, 2050 Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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: 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 1b Collateral Costs (continued)																					
1b.3.9	N.H. Disposal Tax -	-	-	-	-	-	-	35	9	44	44	-	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	1,919	957	88	990	-	5,178	7,928	3,094	20,154	12,415	7,739	-	-	334	1,628	-	-	273,827	422	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	19	-	-	-	-	-	-	5	24	24	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	642	64	706	706	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	115	-	-	-	-	-	29	144	144	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	135	-	-	-	-	-	20	155	155	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	5	6	-	11	-	4	26	26	-	-	-	364	-	-	-	7,282	99	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	1,884	283	2,166	2,166	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	130	13	143	143	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	1,946	195	2,141	-	2,141	-	-	-	-	-	-	-	-	-
1b.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	318	48	365	-	365	-	-	-	-	-	-	-	-	-
1b.4.11	ISFSI Operating Costs	-	-	-	-	-	-	39	6	45	-	45	-	-	-	-	-	-	-	-	-
1b.4.12	INPO Fees	-	-	-	-	-	-	411	62	472	472	-	-	-	-	-	-	-	-	-	-
1b.4.13	Security Staff Cost	-	-	-	-	-	-	1,775	266	2,041	2,041	-	-	-	-	-	-	-	-	-	78,857
1b.4.14	DOC Staff Cost	-	-	-	-	-	-	4,399	660	5,059	5,059	-	-	-	-	-	-	-	-	-	64,137
1b.4.15	Utility Staff Cost	-	-	-	-	-	-	13,112	1,967	15,079	15,079	-	-	-	-	-	-	-	-	-	221,851
1b.4	Subtotal Period 1b Period-Dependent Costs	19	251	5	6	-	11	24,855	3,620	28,567	26,016	2,551	-	-	364	-	-	-	7,282	99	364,846
1b.0	TOTAL PERIOD 1b COST	2,305	1,208	106	1,003	187	5,189	47,268	9,474	66,739	55,725	10,290	723	348	698	1,628	-	-	304,424	1,696	398,089
PERIOD 1 TOTALS		2,305	1,695	115	1,012	187	5,207	101,414	17,429	129,364	108,044	20,074	1,246	348	1,316	1,628	-	-	316,783	1,864	1,066,270
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	104	92	11	34	-	213	-	134	588	588	-	-	-	879	-	-	-	97,530	4,404	-
2a.1.1.2	Pressurizer Relief Tank	25	22	4	13	-	80	-	41	185	185	-	-	-	330	-	-	-	36,618	1,074	-
2a.1.1.3	Reactor Coolant Pumps & Motors	108	76	34	144	147	1,148	-	407	2,065	2,065	-	-	356	4,594	-	-	-	897,424	4,461	-
2a.1.1.4	Pressurizer	37	45	392	478	-	581	-	286	1,819	1,819	-	-	-	2,326	-	-	-	231,508	2,427	-
2a.1.1.5	Steam Generators	319	4,337	3,407	3,188	2,802	4,317	-	3,562	21,931	21,931	-	-	39,678	17,270	-	-	-	3,499,333	23,227	6,950
2a.1.1.6	CRDMs/ICIs/Service Structure Removal	130	75	127	66	-	167	-	148	713	713	-	-	-	3,198	-	-	-	78,800	4,406	-
2a.1.1.7	Reactor Vessel Internals	87	2,171	4,918	1,159	-	4,711	187	5,574	18,806	18,806	-	-	-	1,252	809	459	-	309,905	24,965	1,131
2a.1.1.8	Reactor Vessel	71	4,645	1,199	1,115	-	6,215	187	7,233	20,666	20,666	-	-	-	6,606	2,128	-	-	961,918	24,965	1,131
2a.1.1	Totals	880	11,464	10,093	6,193	2,948	17,433	375	17,385	66,771	66,771	-	-	40,034	36,455	2,937	459	-	6,111,036	89,928	9,211
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	416	237	71	932	469	-	395	2,520	2,520	-	-	4,809	2,531	-	-	-	623,905	9,663	-
2a.1.3	Main Condensers	-	985	128	124	814	410	-	502	2,963	2,963	-	-	7,933	2,210	-	-	-	544,847	23,200	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Containment	-	715	-	-	-	-	-	107	823	823	-	-	-	-	-	-	-	-	10,927	-
2a.1.4.2	Containment Enclosure Ventilation	-	14	-	-	-	-	-	2	16	16	-	-	-	-	-	-	-	-	228	-
2a.1.4.3	Primary Auxiliary Building	-	131	-	-	-	-	-	20	151	151	-	-	-	-	-	-	-	-	2,090	-
2a.1.4.4	Waste Processing	-	173	-	-	-	-	-	26	199	199	-	-	-	-	-	-	-	-	2,874	-
2a.1.4.5	Fuel Storage	-	75	-	-	-	-	-	11	87	87	-	-	-	-	-	-	-	-	1,107	-
2a.1.4	Totals	-	1,108	-	-	-	-	-	166	1,274	1,274	-	-	-	-	-	-	-	-	17,226	-
Disposal of Plant Systems																					
2a.1.5.1	Aux Steam - Insulated - RCA	-	241	5	31	412	-	-	127	817	817	-	-	4,447	-	-	-	-	180,604	5,209	-
2a.1.5.2	Aux Steam - RCA	-	49	1	5	88	-	-	23	148	148	-	-	737	-	-	-	-	29,928	1,108	-

Table C-2, 2050 Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
Disposal of Plant Systems (continued)																					
2a.1.5.3	Aux Steam Cond - Insulated	-	17	-	-	-	-	-	3	19	-	-	19	-	-	-	-	-	-	411	-
2a.1.5.4	Aux Steam Cond - Insulated - RCA	-	47	1	4	58	-	-	21	131	131	-	-	622	-	-	-	-	25,273	997	-
2a.1.5.5	Aux Steam Cond - RCA	-	4	0	0	2	-	-	1	7	7	-	-	18	-	-	-	-	720	86	-
2a.1.5.6	Aux Steam Heating - Insulated - RCA	-	34	0	2	29	-	-	13	79	79	-	-	311	-	-	-	-	12,616	708	-
2a.1.5.7	Condensate	-	626	26	167	2,193	-	-	513	3,527	3,527	-	-	23,687	-	-	-	-	961,954	14,717	-
2a.1.5.8	Condensate - Insulated	-	522	16	104	1,360	-	-	352	2,355	2,355	-	-	14,693	-	-	-	-	596,672	12,154	-
2a.1.5.9	Condensate Polisher	-	211	6	39	514	-	-	136	906	906	-	-	5,547	-	-	-	-	225,286	4,881	-
2a.1.5.10	Condenser Air Evacuation	-	260	5	33	436	-	-	136	871	871	-	-	4,714	-	-	-	-	191,432	5,728	-
2a.1.5.11	Condenser Air Evacuation - Insulated	-	22	0	2	28	-	-	10	62	62	-	-	299	-	-	-	-	12,152	486	-
2a.1.5.12	Condenser Air Evacuation - RCA	-	1	0	0	3	-	-	1	5	5	-	-	30	-	-	-	-	1,220	29	-
2a.1.5.13	Extraction Steam - Insulated	-	326	10	62	811	-	-	214	1,423	1,423	-	-	8,764	-	-	-	-	355,920	7,668	-
2a.1.5.14	Feedwater	-	81	1	4	53	-	-	29	168	168	-	-	574	-	-	-	-	23,303	1,928	-
2a.1.5.15	Feedwater - Insulated	-	530	18	114	1,492	-	-	375	2,529	2,529	-	-	16,110	-	-	-	-	654,236	12,339	-
2a.1.5.16	Feedwater - Insulated - RCA	-	105	5	28	388	-	-	86	590	590	-	-	3,950	-	-	-	-	160,431	2,384	-
2a.1.5.17	Feedwater - RCA	-	28	0	2	22	-	-	11	62	62	-	-	235	-	-	-	-	9,533	656	-
2a.1.5.18	Feedwater- Yard	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	7	-
2a.1.5.19	Feedwater- Yard - Insulated	-	10	-	-	-	-	-	2	12	-	-	12	-	-	-	-	-	-	270	-
2a.1.5.20	Heat Tracing	-	3	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	70	-
2a.1.5.21	Heat Tracing - RCA	-	21	1	5	64	-	-	16	106	106	-	-	688	-	-	-	-	27,938	497	-
2a.1.5.22	Main Steam	-	323	10	62	813	-	-	213	1,422	1,422	-	-	8,786	-	-	-	-	356,793	7,629	-
2a.1.5.23	Main Steam - Insulated	-	380	12	75	986	-	-	255	1,709	1,709	-	-	10,649	-	-	-	-	432,475	8,830	-
2a.1.5.24	Main Steam - Insulated - RCA	-	115	6	33	439	-	-	100	692	692	-	-	4,739	-	-	-	-	192,450	2,607	-
2a.1.5.25	Main Steam - RCA	-	88	4	25	325	-	-	75	516	516	-	-	3,510	-	-	-	-	142,542	2,041	-
2a.1.5.26	Main Steam Drain - Insulated	-	109	1	6	75	-	-	40	230	230	-	-	806	-	-	-	-	32,732	2,362	-
2a.1.5.27	Main Steam Drain - Insulated - RCA	-	27	0	2	25	-	-	11	65	65	-	-	269	-	-	-	-	10,942	553	-
2a.1.5.28	Moist Sep & Rhtr Drains	-	40	0	2	26	-	-	14	83	83	-	-	285	-	-	-	-	11,591	954	-
2a.1.5.29	Moist Sep & Rhtr Drains - Insulated	-	503	26	162	2,127	-	-	472	3,289	3,289	-	-	22,975	-	-	-	-	933,041	11,767	-
2a.1.5.30	Residual Heat Removal	1	17	0	1	5	2	-	6	31	31	-	-	55	9	-	-	-	3,005	393	-
2a.1.5.31	Residual Heat Removal-Insulated	115	132	12	27	67	144	-	142	639	639	-	-	724	777	-	-	-	95,404	4,229	-
2a.1.5.32	Steam Generator Blowdown	-	239	15	47	286	164	-	152	903	903	-	-	3,088	892	-	-	-	200,739	5,560	-
2a.1.5.33	Steam Generator Blowdown - Insulated	-	244	11	24	108	107	-	109	604	604	-	-	1,165	579	-	-	-	96,538	5,491	-
2a.1.5.34	Turbine Steam Seal - Insulated	-	118	3	17	218	-	-	65	421	421	-	-	2,357	-	-	-	-	95,728	2,724	-
2a.1.5	Totals	116	5,476	195	1,086	13,410	417	-	3,722	24,424	24,389	-	35	144,834	2,257	-	-	-	6,073,198	127,474	-
2a.1.6	Scaffolding in support of decommissioning	-	716	11	8	84	2	-	195	1,016	1,016	-	-	820	41	-	-	-	41,007	17,989	-
2a.1	Subtotal Period 2a Activity Costs	996	20,166	10,664	7,481	18,189	18,731	375	22,366	98,968	98,933	-	35	198,429	43,494	2,937	459	-	13,393,990	285,459	9,211
Period 2a Collateral Costs																					
2a.3.1	Process liquid waste	109	-	45	492	-	804	-	334	1,783	1,783	-	-	-	1,072	-	-	-	89,102	218	-
2a.3.2	Small tool allowance	-	167	-	-	-	-	-	25	192	173	-	19	-	-	-	-	-	-	-	-
2a.3.3	Spent Fuel Capital and Transfer	-	-	-	-	-	-	7,035	1,055	8,090	-	8,090	-	-	-	-	-	-	-	-	-
2a.3.4	N.H. Disposal Tax	-	-	-	-	-	-	799	200	999	999	-	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	109	167	45	492	-	804	7,834	1,614	11,064	2,954	8,090	19	-	1,072	-	-	-	89,102	218	-
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	53	-	-	-	-	-	-	13	66	66	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	804	80	885	885	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	1,164	-	-	-	-	-	291	1,456	1,456	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	1,840	-	-	-	-	-	276	2,116	2,116	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	78	81	-	159	-	60	378	378	-	-	-	5,314	-	-	-	106,284	1,445	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	2,470	371	2,841	2,841	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	479	48	527	527	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	139	14	153	-	153	-	-	-	-	-	-	-	-	-

Table C-2, 2050 Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	877	132	1,009	-	1,009	-	-	-	-	-	-	-	-	-
2a.4.11	Radwaste Processing Equipment/Services	-	-	-	-	-	-	268	40	305	305	-	-	-	-	-	-	-	-	-	-
2a.4.12	ISFSI Operating Costs	-	-	-	-	-	-	108	16	124	-	124	-	-	-	-	-	-	-	-	-
2a.4.13	Security Staff Cost	-	-	-	-	-	-	3,287	490	3,757	3,757	-	-	-	-	-	-	-	-	-	145,143
2a.4.14	DOC Staff Cost	-	-	-	-	-	-	14,815	2,222	17,038	17,038	-	-	-	-	-	-	-	-	-	220,617
2a.4.15	Utility Staff Cost	-	-	-	-	-	-	25,465	3,820	29,285	29,285	-	-	-	-	-	-	-	-	-	431,074
2a.4	Subtotal Period 2a Period-Dependent Costs	53	3,005	78	81	-	159	48,690	7,873	59,939	58,653	1,286	-	-	5,314	-	-	-	106,284	1,445	796,834
2a.0	TOTAL PERIOD 2a COST	1,158	23,338	10,787	8,054	18,189	19,694	56,899	31,852	169,971	160,540	9,378	54	198,429	49,880	2,937	459	-	13,589,380	287,123	806,045
PERIOD 2b - Site Decontamination																					
Period 2b	Direct Decommissioning Activities																				
Disposal of	Plant Systems																				
2b.1.1.1	Boron Recovery	19	38	2	4	11	18	-	28	118	118	-	-	114	99	-	-	-	13,044	1,151	-
2b.1.1.2	Boron Recovery - Insulated	725	717	46	115	665	427	-	770	3,465	3,465	-	-	7,179	2,651	-	-	-	487,618	30,466	-
2b.1.1.3	Chem & Volume Control	46	107	4	8	23	41	-	65	292	292	-	-	245	221	-	-	-	28,690	3,252	-
2b.1.1.4	Chem & Volume Control - Insulated	-	611	60	131	459	633	-	405	2,298	2,298	-	-	4,953	3,506	-	-	-	491,331	13,992	-
2b.1.1.5	Cntnmnt Encl Air Handling	-	130	2	13	155	8	-	60	368	368	-	-	1,676	44	-	-	-	71,764	2,981	-
2b.1.1.6	Cntnmnt Encl Air Handling - Insulated	-	15	1	1	3	7	-	6	33	33	-	-	28	40	-	-	-	4,528	317	-
2b.1.1.7	Cntnmnt On-line Purge	-	67	2	8	68	18	-	32	192	192	-	-	734	86	-	-	-	37,092	1,435	-
2b.1.1.8	Combust Gas Control - Insulated - RCA	-	24	0	3	38	-	-	12	78	78	-	-	410	-	-	-	-	16,656	510	-
2b.1.1.9	Combust Gas Control - RCA	-	4	0	1	11	-	-	3	19	19	-	-	121	-	-	-	-	4,897	99	-
2b.1.1.10	Containment Air Handling	-	410	9	43	505	33	-	194	1,194	1,194	-	-	5,455	178	-	-	-	236,621	9,029	-
2b.1.1.11	Containment Air Purge	-	134	4	21	225	25	-	77	486	486	-	-	2,427	135	-	-	-	110,018	2,973	-
2b.1.1.12	Containmnt Bldg Spray	-	95	-	-	-	-	-	14	109	-	-	109	-	-	-	-	-	-	2,309	-
2b.1.1.13	Containmnt Bldg Spray - Insulated	-	56	-	-	-	-	-	8	64	-	-	64	-	-	-	-	-	-	1,405	-
2b.1.1.14	Containmnt Bldg Spray - Insulated - RCA	-	20	1	3	45	-	-	12	81	81	-	-	483	-	-	-	-	19,609	451	-
2b.1.1.15	Containmnt Bldg Spray - RCA	-	5	0	0	3	-	-	2	10	10	-	-	31	-	-	-	-	1,257	120	-
2b.1.1.16	Contaminated Waste	44	37	2	4	3	27	-	40	158	158	-	-	35	148	-	-	-	13,987	1,713	-
2b.1.1.17	Demineralized Water	-	96	1	5	68	-	-	35	205	205	-	-	735	-	-	-	-	29,855	2,105	-
2b.1.1.18	Demineralized Water - Insulated	-	147	2	10	129	-	-	58	344	344	-	-	1,388	-	-	-	-	56,380	3,237	-
2b.1.1.19	Demineralized Water - Insulated - RCA	-	46	1	4	56	-	-	20	127	127	-	-	602	-	-	-	-	24,436	960	-
2b.1.1.20	Demineralized Water - RCA	-	26	0	2	22	-	-	10	60	60	-	-	239	-	-	-	-	9,722	524	-
2b.1.1.21	Diesel Generator - Insulated - RCA	-	3	0	1	7	-	-	2	12	12	-	-	72	-	-	-	-	2,914	58	-
2b.1.1.22	Drains - Floor	-	159	7	15	29	83	-	68	361	361	-	-	315	450	-	-	-	51,069	3,584	-
2b.1.1.23	Drains - Floor - Insulated	-	167	8	18	22	106	-	75	394	394	-	-	233	570	-	-	-	57,891	3,780	-
2b.1.1.24	Elec Distribution/Emer - Clean	-	38	-	-	-	-	-	6	43	-	-	43	-	-	-	-	-	-	930	-
2b.1.1.25	Elec Distribution/Emer - Contaminated	-	60	1	3	39	2	-	22	126	126	-	-	423	11	-	-	-	18,070	1,372	-
2b.1.1.26	Elec Distribution/Emer - RCA	-	362	5	28	371	-	-	151	917	917	-	-	4,009	-	-	-	-	162,811	8,214	-
2b.1.1.27	Elec Tunnel Air Handling	-	7	-	-	-	-	-	1	8	-	-	8	-	-	-	-	-	-	184	-
2b.1.1.28	Electrical Distrib - Clean	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	506	-
2b.1.1.29	Electrical Distrib - Contaminated	-	96	1	6	72	4	-	37	215	215	-	-	776	20	-	-	-	33,188	2,203	-
2b.1.1.30	Electrical Distrib - RCA	-	576	8	51	673	-	-	254	1,562	1,562	-	-	7,266	-	-	-	-	295,072	13,098	-
2b.1.1.31	Emerg FW Pumphouse Air Handling	-	10	-	-	-	-	-	1	11	-	-	11	-	-	-	-	-	-	257	-
2b.1.1.32	Fire Protection	-	18	-	-	-	-	-	3	21	-	-	21	-	-	-	-	-	-	451	-
2b.1.1.33	Fire Protection - Insulated	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	37	-
2b.1.1.34	Fire Protection - Insulated - RCA	-	25	0	2	30	-	-	11	68	68	-	-	326	-	-	-	-	13,228	538	-
2b.1.1.35	Fire Protection - RCA	-	193	4	26	338	-	-	103	664	664	-	-	3,648	-	-	-	-	148,135	4,197	-
2b.1.1.36	Hot Water	-	31	-	-	-	-	-	5	36	-	-	36	-	-	-	-	-	-	786	-
2b.1.1.37	Hot Water - Insulated	-	9	-	-	-	-	-	1	10	-	-	10	-	-	-	-	-	-	240	-
2b.1.1.38	Hot Water - Insulated - RCA	-	23	0	2	23	-	-	10	58	58	-	-	245	-	-	-	-	9,865	483	-
2b.1.1.39	Hot Water - RCA	-	23	0	2	24	-	-	10	59	59	-	-	263	-	-	-	-	10,675	467	-
2b.1.1.40	Hydrogen Gas - RCA	-	9	0	1	9	-	-	4	22	22	-	-	93	-	-	-	-	3,770	185	-

Table C-2, 2050 Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
Disposal of Plant Systems (continued)																					
2b.1.1.41	Incore Instrumentation	-	33	3	8	38	35	-	24	142	142	-	-	414	189	-	-	-	32,873	787	-
2b.1.1.42	Instrument Air	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	35	-
2b.1.1.43	Instrument Air - RCA	-	209	2	14	180	-	-	82	486	486	-	-	1,941	-	-	-	-	78,817	4,482	-
2b.1.1.44	Leak Detection - RCA	-	7	0	1	7	-	-	3	17	17	-	-	74	-	-	-	-	3,014	144	-
2b.1.1.45	Mechanical Seal Supply - RCA	-	21	0	2	22	-	-	9	53	53	-	-	232	-	-	-	-	9,441	436	-
2b.1.1.46	Miscellaneous Equipment	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	8	-
2b.1.1.47	Miscellaneous Equipment - RCA	-	51	1	9	112	-	-	31	205	205	-	-	1,213	-	-	-	-	49,265	1,203	-
2b.1.1.48	Nitrogen Gas	-	2	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	53	-
2b.1.1.49	Nitrogen Gas - Insulated - RCA	-	25	0	2	23	-	-	10	61	61	-	-	252	-	-	-	-	10,225	502	-
2b.1.1.50	Nitrogen Gas - RCA	-	18	0	1	17	-	-	7	44	44	-	-	182	-	-	-	-	7,411	364	-
2b.1.1.51	Nuclear Inst	-	11	0	1	6	3	-	4	24	24	-	-	60	14	-	-	-	3,644	250	-
2b.1.1.52	Oil Collin For RC Pumps - RCA	-	74	2	14	185	-	-	49	324	324	-	-	1,998	-	-	-	-	81,142	1,717	-
2b.1.1.53	PAB Air Handling	-	269	6	33	390	20	-	141	880	880	-	-	4,207	110	-	-	-	180,195	6,460	-
2b.1.1.54	PAB Air Handling - Insulated	-	45	2	6	34	25	-	24	136	136	-	-	372	133	-	-	-	26,419	1,006	-
2b.1.1.55	Potable Water	-	66	-	-	-	-	-	10	75	-	-	75	-	-	-	-	-	-	1,688	-
2b.1.1.56	Potable Water - Insulated	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	38	-
2b.1.1.57	Prim Comp Clng Water - Insulated - RCA	-	621	20	118	1,547	-	-	407	2,713	2,713	-	-	16,712	-	-	-	-	678,673	13,804	-
2b.1.1.58	Prim Comp Clng Water - RCA	-	440	20	123	1,610	-	-	372	2,565	2,565	-	-	17,387	-	-	-	-	706,102	10,150	-
2b.1.1.59	RCA Check Point Air Handling	-	3	-	-	-	-	-	0	4	-	-	4	-	-	-	-	-	-	79	-
2b.1.1.60	Radiation Monitoring - RCA	-	57	3	18	213	-	-	49	338	338	-	-	2,299	-	-	-	-	93,383	1,329	-
2b.1.1.61	Reactor Coolant	-	111	5	12	31	63	-	50	272	272	-	-	338	338	-	-	-	42,449	2,610	-
2b.1.1.62	Reactor Coolant - Insulated	60	48	3	5	0	31	-	51	198	198	-	-	2	168	-	-	-	14,325	2,389	-
2b.1.1.63	Reactor Make-up Water	-	155	5	21	199	35	-	81	497	497	-	-	2,152	207	-	-	-	103,637	3,578	-
2b.1.1.64	Reactor Make-up Water - Insulated	-	24	1	2	4	12	-	10	55	55	-	-	46	66	-	-	-	7,495	525	-
2b.1.1.65	Release Recovery	-	34	1	5	46	9	-	18	114	114	-	-	495	54	-	-	-	24,440	769	-
2b.1.1.66	Release Recovery - Insulated	-	5	0	0	1	2	-	2	10	10	-	-	9	12	-	-	-	1,371	102	-
2b.1.1.67	Resin Sluicing	73	89	5	12	59	48	-	82	368	368	-	-	638	289	-	-	-	47,859	3,538	-
2b.1.1.68	Rod Control & Position	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	35	-
2b.1.1.69	Roof Drains - Insulated - RCA	-	18	0	2	23	-	-	8	51	51	-	-	245	-	-	-	-	9,931	389	-
2b.1.1.70	Roof Drains - RCA	-	13	0	1	15	-	-	6	35	35	-	-	157	-	-	-	-	6,370	287	-
2b.1.1.71	Safety Injection	-	163	13	55	549	85	-	154	1,018	1,018	-	-	5,930	469	-	-	-	279,631	3,820	-
2b.1.1.72	Safety Injection - Insulated	-	112	6	13	62	53	-	53	299	299	-	-	672	284	-	-	-	51,404	2,501	-
2b.1.1.73	Sampling - Insulated	-	174	3	7	36	26	-	57	302	302	-	-	387	139	-	-	-	27,566	4,129	-
2b.1.1.74	Service Air	-	2	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	59	-
2b.1.1.75	Service Air - RCA	-	95	1	7	97	-	-	40	241	241	-	-	1,049	-	-	-	-	42,614	1,968	-
2b.1.1.76	Service Water - Insulated - RCA	-	120	8	46	602	-	-	128	903	903	-	-	6,502	-	-	-	-	264,033	2,797	-
2b.1.1.77	Service Water - RCA	-	118	5	33	429	-	-	99	685	685	-	-	4,636	-	-	-	-	188,275	2,675	-
2b.1.1.78	Sta Info & Alarm Comp	-	2	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	62	-
2b.1.1.79	Vents - Insulated - RCA	-	11	0	1	10	-	-	4	26	26	-	-	109	-	-	-	-	4,434	218	-
2b.1.1.80	Vents - RCA	-	80	2	10	131	-	-	41	264	264	-	-	1,417	-	-	-	-	57,545	1,757	-
2b.1.1.81	WP - Liquid Drains	-	383	19	41	84	226	-	173	926	926	-	-	911	1,244	-	-	-	140,526	8,530	-
2b.1.1.82	Waste Gas - Insulated	-	91	7	15	57	72	-	52	293	293	-	-	614	389	-	-	-	57,857	2,023	-
2b.1.1.83	Waste Processing Air Handling	-	488	8	45	535	27	-	217	1,320	1,320	-	-	5,778	148	-	-	-	247,236	10,555	-
2b.1.1.84	Waste Processing Liquid	2	13	0	1	3	4	-	6	31	31	-	-	38	24	-	-	-	3,565	309	-
2b.1.1.85	Waste Processing Liquid - Insulated	285	279	19	46	221	192	-	302	1,344	1,344	-	-	2,389	1,135	-	-	-	185,252	11,380	-
2b.1.1.86	Waste Processing Liquid - Yard	-	22	1	3	2	17	-	11	55	55	-	-	21	91	-	-	-	8,604	483	-
2b.1.1.87	Waste Processing Solid - Insul - RCA	-	285	8	48	626	-	-	173	1,139	1,139	-	-	6,759	-	-	-	-	274,481	6,305	-
2b.1.1.88	Waste Processing Solid - RCA	-	2	0	0	3	-	-	1	7	7	-	-	35	-	-	-	-	1,421	52	-
2b.1.1	Totals	1,255	9,530	355	1,306	12,333	2,416	-	5,659	32,854	32,433	-	421	133,196	13,659	-	-	-	6,517,216	238,975	-
2b.1.2	Scaffolding in support of decommissioning	-	896	14	10	105	3	-	243	1,270	1,270	-	-	1,025	51	-	-	-	51,258	22,461	-
Decontamination of Site Buildings																					
2b.1.3.1	Containment	1,041	841	99	280	372	812	-	1,042	4,487	4,487	-	-	4,016	7,495	-	-	-	861,086	41,985	-
2b.1.3.2	Administration Building-Limited Areas	97	33	6	18	-	24	-	66	244	244	-	-	-	488	-	-	-	48,750	2,873	-

Table C-2, 2050 Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 Llc. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes 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
Decontamination of Site Buildings (continued)																					
2b.1.3.3	Containment Enclosure Ventilation	24	9	2	5	0	7	-	17	64	64	-	-	5	136	-	-	-	13,736	726	-
2b.1.3.4	Main Steam & Feedwater Pipe Chase	58	2	0	1	2	1	-	30	94	94	-	-	19	12	-	-	-	1,928	1,417	-
2b.1.3.5	Miscellaneous Structures	7	3	1	1	-	2	-	5	18	18	-	-	-	40	-	-	-	4,014	206	-
2b.1.3.6	Non-Essential Switchgear Room	2	1	0	1	-	1	-	2	7	7	-	-	-	15	-	-	-	1,482	76	-
2b.1.3.7	Primary Auxiliary Building	241	132	19	57	62	75	-	192	778	778	-	-	672	1,458	-	-	-	171,902	8,209	-
2b.1.3.8	RCA Storage Facility	35	0	0	0	-	0	-	18	53	53	-	-	-	3	-	-	-	342	823	-
2b.1.3.9	Waste Processing	357	183	27	81	87	107	-	279	1,121	1,121	-	-	943	2,083	-	-	-	245,080	11,899	-
2b.1.3	Totals	1,862	1,204	155	442	524	1,029	-	1,650	6,865	6,865	-	-	5,655	11,730	-	-	-	1,348,320	68,215	-
2b.1	Subtotal Period 2b Activity Costs	3,117	11,630	524	1,758	12,962	3,447	-	7,551	40,988	40,568	-	421	139,875	25,441	-	-	-	7,916,795	329,652	-
Period 2b Collateral Costs																					
2b.3.1	Process liquid waste	293	-	128	1,392	-	2,102	-	894	4,809	4,809	-	-	-	3,021	-	-	-	259,689	616	-
2b.3.2	Small tool allowance	-	186	-	-	-	-	-	28	214	214	-	-	-	-	-	-	-	-	-	-
2b.3.3	Spent Fuel Capital and Transfer	-	-	-	-	-	-	11,699	1,755	13,454	-	13,454	-	-	-	-	-	-	-	-	-
2b.3.4	N.H. Disposal Tax	-	-	-	-	-	-	521	130	651	651	-	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	293	186	128	1,392	-	2,102	12,220	2,807	19,129	5,675	13,454	-	-	3,021	-	-	-	259,689	616	-
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	746	-	-	-	-	-	-	186	932	932	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	1,508	151	1,658	1,658	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	1,565	-	-	-	-	-	391	1,957	1,957	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	3,469	-	-	-	-	-	520	3,990	3,990	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	92	95	-	188	-	70	445	445	-	-	-	6,261	-	-	-	125,211	1,703	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	3,655	548	4,203	4,203	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	897	90	987	987	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	261	26	287	-	287	-	-	-	-	-	-	-	-	-
2b.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	1,644	247	1,890	-	1,890	-	-	-	-	-	-	-	-	-
2b.4.11	Radwaste Processing Equipment/Services	-	-	-	-	-	-	498	75	572	572	-	-	-	-	-	-	-	-	-	-
2b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	202	30	233	-	233	-	-	-	-	-	-	-	-	-
2b.4.13	Security Staff Cost	-	-	-	-	-	-	6,122	918	7,040	7,040	-	-	-	-	-	-	-	-	-	272,000
2b.4.14	DOC Staff Cost	-	-	-	-	-	-	26,706	4,006	30,712	30,712	-	-	-	-	-	-	-	-	-	397,120
2b.4.15	Utility Staff Cost	-	-	-	-	-	-	45,838	6,875	52,711	52,711	-	-	-	-	-	-	-	-	-	775,200
2b.4	Subtotal Period 2b Period-Dependent Costs	746	5,035	92	95	-	188	87,328	14,134	107,618	105,208	2,410	-	-	6,261	-	-	-	125,211	1,703	1,444,320
2b.0	TOTAL PERIOD 2b COST	4,155	16,851	744	3,246	12,962	5,736	99,548	24,493	167,735	151,450	15,864	421	139,875	34,722	-	-	-	8,301,694	331,971	1,444,320
PERIOD 2c - Decontamination Following Wet Fuel Storage																					
Period 2c Direct Decommissioning Activities																					
2c.1.1	Remove spent fuel racks	331	33	80	61	-	403	-	292	1,201	1,201	-	-	-	2,174	-	-	-	184,800	898	-
Disposal of Plant Systems																					
2c.1.2.1	FSB Air Handling	-	140	4	20	239	12	-	77	493	493	-	-	2,584	67	-	-	-	110,652	2,982	-
2c.1.2.2	Fuel Handling	-	154	8	28	228	72	-	96	585	585	-	-	2,457	389	-	-	-	132,824	3,621	-
2c.1.2.3	Spent Fuel Pool Cooling	-	214	17	41	127	204	-	131	734	734	-	-	1,371	1,103	-	-	-	149,180	4,907	-
2c.1.2	Totals	-	509	28	89	594	288	-	305	1,813	1,813	-	-	6,412	1,558	-	-	-	392,656	11,509	-
Decontamination of Site Buildings																					
2c.1.3.1	Fuel Storage	548	624	8	27	225	26	-	475	1,932	1,932	-	-	2,429	350	-	-	-	132,211	26,386	-
2c.1.3	Totals	548	624	8	27	225	26	-	475	1,932	1,932	-	-	2,429	350	-	-	-	132,211	26,386	-
2c.1.4	Scaffolding in support of decommissioning	-	179	3	2	21	1	-	49	254	254	-	-	205	10	-	-	-	10,252	4,492	-

Table C-2, 2050 Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
2c.1	Subtotal Period 2c Activity Costs	879	1,345	119	179	840	717	-	1,120	5,199	5,199	-	-	9,047	4,093	-	-	-	719,819	43,285	-
Period 2c Additional Costs																					
2c.2.1	Fuel Pool Concrete Decon	268	-	90	1,533	-	533	7	507	2,938	2,938	-	-	-	10,667	-	-	-	1,066,740	2,018	-
2c.2.2	Final Site Survey Program Management	-	-	-	-	-	-	1,376	413	1,789	1,789	-	-	-	-	-	-	-	-	-	6,240
2c.2	Subtotal Period 2c Additional Costs	268	-	90	1,533	-	533	1,383	920	4,727	4,727	-	-	-	10,667	-	-	-	1,066,740	2,018	6,240
Period 2c Collateral Costs																					
2c.3.1	Process liquid waste	93	-	26	274	-	273	-	158	825	825	-	-	-	637	-	-	-	31,325	125	-
2c.3.2	Small tool allowance	-	31	-	-	-	-	-	5	36	36	-	-	-	-	-	-	-	-	-	-
2c.3.3	Decommissioning Equipment Disposition	-	-	80	68	616	65	-	127	957	957	-	-	6,000	353	-	-	-	300,000	735	-
2c.3.4	N.H. Disposal Tax	-	-	-	-	-	-	261	65	326	326	-	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	93	31	106	343	616	339	261	355	2,144	2,144	-	-	6,000	990	-	-	-	331,325	860	-
Period 2c Period-Dependent Costs																					
2c.4.1	Decon supplies	95	-	-	-	-	-	-	24	119	119	-	-	-	-	-	-	-	-	-	-
2c.4.2	Insurance	-	-	-	-	-	-	499	50	549	549	-	-	-	-	-	-	-	-	-	-
2c.4.3	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2c.4.4	Health physics supplies	-	328	-	-	-	-	-	82	410	410	-	-	-	-	-	-	-	-	-	-
2c.4.5	Heavy equipment rental	-	1,148	-	-	-	-	-	172	1,320	1,320	-	-	-	-	-	-	-	-	-	-
2c.4.6	Disposal of DAW generated	-	-	24	25	-	49	-	18	117	117	-	-	-	1,644	-	-	-	32,885	447	-
2c.4.7	Plant energy budget	-	-	-	-	-	-	645	97	742	742	-	-	-	-	-	-	-	-	-	-
2c.4.8	NRC Fees	-	-	-	-	-	-	297	30	327	327	-	-	-	-	-	-	-	-	-	-
2c.4.9	Emergency Planning Fees	-	-	-	-	-	-	86	9	95	-	95	-	-	-	-	-	-	-	-	-
2c.4.10	Radwaste Processing Equipment/Services	-	-	-	-	-	-	329	49	379	379	-	-	-	-	-	-	-	-	-	-
2c.4.11	ISFSI Operating Costs	-	-	-	-	-	-	67	10	77	-	77	-	-	-	-	-	-	-	-	-
2c.4.12	Security Staff Cost	-	-	-	-	-	-	1,013	152	1,165	1,165	-	-	-	-	-	-	-	-	-	45,000
2c.4.13	DOC Staff Cost	-	-	-	-	-	-	6,060	909	6,969	6,969	-	-	-	-	-	-	-	-	-	90,000
2c.4.14	Utility Staff Cost	-	-	-	-	-	-	11,195	1,679	12,874	12,874	-	-	-	-	-	-	-	-	-	184,500
2c.4	Subtotal Period 2c Period-Dependent Costs	95	1,476	24	25	-	49	20,191	3,281	25,141	24,970	172	-	-	1,644	-	-	-	32,885	447	319,500
2c.0	TOTAL PERIOD 2c COST	1,334	2,853	339	2,080	1,455	1,638	21,835	5,676	37,211	37,040	172	-	15,047	17,394	-	-	-	2,150,869	46,610	325,740
PERIOD 2e - License Termination																					
Period 2e Direct Decommissioning Activities																					
2e.1.1	ORISE confirmatory survey	-	-	-	-	-	-	143	43	185	185	-	-	-	-	-	-	-	-	-	-
2e.1.2	Terminate license									a											
2e.1	Subtotal Period 2e Activity Costs	-	-	-	-	-	-	143	43	185	185	-	-	-	-	-	-	-	-	-	-
Period 2e Additional Costs																					
2e.2.1	Final Site Survey	-	-	-	-	-	-	13,911	4,173	18,084	18,084	-	-	-	-	-	-	-	-	300,099	3,120
2e.2	Subtotal Period 2e Additional Costs	-	-	-	-	-	-	13,911	4,173	18,084	18,084	-	-	-	-	-	-	-	-	300,099	3,120
Period 2e Collateral Costs																					
2e.3.1	DOC staff relocation expenses	-	-	-	-	-	-	1,163	175	1,338	1,338	-	-	-	-	-	-	-	-	-	-
2e.3.2	N.H. Disposal Tax	-	-	-	-	-	-	5	1	7	7	-	-	-	-	-	-	-	-	-	-
2e.3	Subtotal Period 2e Collateral Costs	-	-	-	-	-	-	1,169	176	1,345	1,345	-	-	-	-	-	-	-	-	-	-
Period 2e Period-Dependent Costs																					
2e.4.1	Insurance	-	-	-	-	-	-	389	39	428	428	-	-	-	-	-	-	-	-	-	-
2e.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2e.4.3	Health physics supplies	-	1,067	-	-	-	-	-	267	1,334	1,334	-	-	-	-	-	-	-	-	-	-
2e.4.4	Disposal of DAW generated	-	-	5	5	-	11	-	4	25	25	-	-	-	356	-	-	-	7,126	97	-
2e.4.5	Plant energy budget	-	-	-	-	-	-	281	42	323	323	-	-	-	-	-	-	-	-	-	-
2e.4.6	NRC Fees	-	-	-	-	-	-	258	26	284	284	-	-	-	-	-	-	-	-	-	-

Table C-2, 2050 Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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 2e Period-Dependent Costs (continued)																					
2e.4.7	Emergency Planning Fees	-	-	-	-	-	-	75	8	83	-	83	-	-	-	-	-	-	-	-	-
2e.4.8	ISFSI Operating Costs	-	-	-	-	-	-	58	9	67	-	67	-	-	-	-	-	-	-	-	-
2e.4.9	Security Staff Cost	-	-	-	-	-	-	881	132	1,013	1,013	-	-	-	-	-	-	-	-	-	39,143
2e.4.10	DOC Staff Cost	-	-	-	-	-	-	3,975	596	4,572	4,572	-	-	-	-	-	-	-	-	-	57,149
2e.4.11	Utility Staff Cost	-	-	-	-	-	-	5,663	849	6,512	6,512	-	-	-	-	-	-	-	-	-	85,331
2e.4	Subtotal Period 2e Period-Dependent Costs	-	1,067	5	5	-	11	11,581	1,972	14,641	14,491	149	-	-	356	-	-	-	7,126	97	181,623
2e.0	TOTAL PERIOD 2e COST	-	1,067	5	5	-	11	26,803	6,364	34,255	34,106	149	-	-	356	-	-	-	7,126	300,196	184,743
PERIOD 2 TOTALS		6,647	44,109	11,875	13,385	32,606	27,079	205,086	68,384	409,172	383,136	25,562	475	353,352	102,353	2,937	459	-	24,049,070	965,900	2,760,848
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Containment	-	4,136	-	-	-	-	-	620	4,756	-	-	4,756	-	-	-	-	-	-	63,553	-
3b.1.1.2	Administration Building-Limited Areas	-	6	-	-	-	-	-	1	7	-	-	7	-	-	-	-	-	-	131	-
3b.1.1.3	Containment Enclosure Ventilation	-	124	-	-	-	-	-	19	143	-	-	143	-	-	-	-	-	-	2,048	-
3b.1.1.4	Emergency Feedwater Pump Building	-	210	-	-	-	-	-	31	241	-	-	241	-	-	-	-	-	-	3,194	-
3b.1.1.5	Equipment Vault	-	107	-	-	-	-	-	16	123	-	-	123	-	-	-	-	-	-	1,769	-
3b.1.1.6	Main Steam & Feedwater Pipe Chase	-	474	-	-	-	-	-	71	545	-	-	545	-	-	-	-	-	-	7,668	-
3b.1.1.7	Miscellaneous Structures	-	13	-	-	-	-	-	2	15	-	-	15	-	-	-	-	-	-	251	-
3b.1.1.8	Primary Auxiliary Building	-	1,178	-	-	-	-	-	177	1,355	-	-	1,355	-	-	-	-	-	-	18,811	-
3b.1.1.9	Steam Generator Blowdown Recovery	-	23	-	-	-	-	-	3	26	-	-	26	-	-	-	-	-	-	435	-
3b.1.1.10	Waste Processing	-	1,555	-	-	-	-	-	233	1,789	-	-	1,789	-	-	-	-	-	-	25,863	-
3b.1.1.11	Fuel Storage	-	678	-	-	-	-	-	102	780	-	-	780	-	-	-	-	-	-	9,965	-
3b.1.1	Totals	-	8,504	-	-	-	-	-	1,276	9,780	-	-	9,780	-	-	-	-	-	-	133,687	-
Site Closeout Activities																					
3b.1.2	Remove Rubble	-	277	-	-	-	-	-	42	319	-	-	319	-	-	-	-	-	-	1,928	-
3b.1.3	Grade & landscape site	-	63	-	-	-	-	-	10	73	-	-	73	-	-	-	-	-	-	216	-
3b.1.4	Final report to NRC	-	-	-	-	-	-	157	24	180	180	-	-	-	-	-	-	-	-	-	1,560
3b.1	Subtotal Period 3b Activity Costs	-	8,845	-	-	-	-	157	1,350	10,352	180	-	10,172	-	-	-	-	-	-	135,831	1,560
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	345	-	-	-	-	6	53	405	-	-	405	-	-	-	-	-	-	2,415	-
3b.2	Subtotal Period 3b Additional Costs	-	345	-	-	-	-	6	53	405	-	-	405	-	-	-	-	-	-	2,415	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	79	-	-	-	-	-	12	91	-	-	91	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	79	-	-	-	-	-	12	91	-	-	91	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	978	98	1,075	-	1,075	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	3,414	-	-	-	-	-	512	3,926	-	-	3,926	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	352	53	405	-	-	405	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	406	41	447	-	447	-	-	-	-	-	-	-	-	-
3b.4.6	Emergency Planning Fees	-	-	-	-	-	-	188	19	207	-	207	-	-	-	-	-	-	-	-	-
3b.4.7	ISFSI Operating Costs	-	-	-	-	-	-	146	22	168	-	168	-	-	-	-	-	-	-	-	-
3b.4.8	Security Staff Cost	-	-	-	-	-	-	2,212	332	2,544	-	1,730	814	-	-	-	-	-	-	-	98,286
3b.4.9	DOC Staff Cost	-	-	-	-	-	-	10,937	1,641	12,578	-	-	12,578	-	-	-	-	-	-	-	155,291
3b.4.10	Utility Staff Cost	-	-	-	-	-	-	8,318	1,248	9,566	-	8,226	1,339	-	-	-	-	-	-	-	126,789

Table C-2, 2050 Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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
3b.4	Subtotal Period 3b Period-Dependent Costs	-	3,414	-	-	-	-	23,538	3,964	30,916	-	11,854	19,062	-	-	-	-	-	-	-	380,368
3b.0	TOTAL PERIOD 3b COST	-	12,683	-	-	-	-	23,701	5,379	41,763	180	11,854	29,729	-	-	-	-	-	-	136,246	381,928
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Transfer	-	-	-	-	-	-	16,675	2,501	19,176	-	19,176	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	16,675	2,501	19,176	-	19,176	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	21,697	2,170	23,867	-	23,867	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3c.4.3	Plant energy budget	-	-	-	-	-	-	2,345	352	2,696	-	2,696	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	9,021	902	9,923	-	9,923	-	-	-	-	-	-	-	-	-
3c.4.5	Emergency Planning Fees	-	-	-	-	-	-	4,180	418	4,598	-	4,598	-	-	-	-	-	-	-	-	-
3c.4.6	ISFSI Operating Costs	-	-	-	-	-	-	3,244	487	3,731	-	3,731	-	-	-	-	-	-	-	-	-
3c.4.7	Security Staff Cost	-	-	-	-	-	-	39,270	5,891	45,161	-	45,161	-	-	-	-	-	-	-	-	1,744,914
3c.4.8	Utility Staff Cost	-	-	-	-	-	-	55,698	8,355	64,052	-	64,052	-	-	-	-	-	-	-	-	850,646
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	135,455	18,573	154,029	-	154,029	-	-	-	-	-	-	-	-	2,595,560
3c.0	TOTAL PERIOD 3c COST	-	-	-	-	-	-	152,130	21,075	173,205	-	173,205	-	-	-	-	-	-	-	-	2,595,560
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	580	-	-	14,595	-	2,247	17,422	17,422	-	-	-	-	-	-	637	129,800	-	-
3d.1.1	Totals	-	-	580	-	-	14,595	-	2,247	17,422	17,422	-	-	-	-	-	-	637	129,800	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	580	-	-	14,595	-	2,247	17,422	17,422	-	-	-	-	-	-	637	129,800	-	-
Period 3d Collateral Costs																					
3d.3.1	N.H. Disposal Tax	-	-	-	-	-	-	10	2	12	-	12	-	-	-	-	-	-	-	-	-
3d.3	Subtotal Period 3d Collateral Costs	-	-	-	-	-	-	10	2	12	-	12	-	-	-	-	-	-	-	-	-
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	20	2	22	-	22	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3d.4.3	Plant energy budget	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	8	1	9	-	9	-	-	-	-	-	-	-	-	-
3d.4.5	Emergency Planning Fees	-	-	-	-	-	-	4	0	4	-	4	-	-	-	-	-	-	-	-	-
3d.4.6	ISFSI Operating Costs	-	-	-	-	-	-	3	0	3	-	3	-	-	-	-	-	-	-	-	-
3d.4.7	Security Staff Cost	-	-	-	-	-	-	36	5	41	-	41	-	-	-	-	-	-	-	-	1,600
3d.4.8	Utility Staff Cost	-	-	-	-	-	-	51	8	59	-	59	-	-	-	-	-	-	-	-	780
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	124	17	141	-	141	-	-	-	-	-	-	-	-	2,380
3d.0	TOTAL PERIOD 3d COST	-	-	580	-	-	14,595	134	2,267	17,575	17,422	153	-	-	-	-	-	637	129,800	-	2,380
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	ISFSI Decon and License Termination	-	553	4	520	-	1,149	1,629	748	4,604	-	4,604	-	-	9,195	-	-	-	1,806,534	15,607	2,560
3e.2	Subtotal Period 3e Additional Costs	-	553	4	520	-	1,149	1,629	748	4,604	-	4,604	-	-	9,195	-	-	-	1,806,534	15,607	2,560
Period 3e Collateral Costs																					
3e.3.1	Small tool allowance	-	7	-	-	-	-	-	1	8	-	8	-	-	-	-	-	-	-	-	-
3e.3.2	N.H. Disposal Tax	-	-	-	-	-	-	138	34	172	-	172	-	-	-	-	-	-	-	-	-
3e.3	Subtotal Period 3e Collateral Costs	-	7	-	-	-	-	138	35	180	-	180	-	-	-	-	-	-	-	-	-

Table C-2, 2050 Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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 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 3e Period-Dependent Costs																					
3e.4.1	Insurance	-	-	-	-	-	-	175	17	192	-	192	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3e.4.3	Heavy equipment rental	-	181	-	-	-	-	-	27	208	-	208	-	-	-	-	-	-	-	-	-
3e.4.4	Plant energy budget	-	-	-	-	-	-	63	9	72	-	72	-	-	-	-	-	-	-	-	-
3e.4.5	NRC ISFSI Fees	-	-	-	-	-	-	73	7	80	-	80	-	-	-	-	-	-	-	-	-
3e.4.6	Emergency Planning Fees	-	-	-	-	-	-	34	3	37	-	37	-	-	-	-	-	-	-	-	-
3e.4.7	Security Staff Cost	-	-	-	-	-	-	142	21	164	-	164	-	-	-	-	-	-	-	-	6,326
3e.4.8	Utility Staff Cost	-	-	-	-	-	-	395	59	454	-	454	-	-	-	-	-	-	-	-	5,974
3e.4	Subtotal Period 3e Period-Dependent Costs	-	181	-	-	-	-	882	145	1,207	-	1,207	-	-	-	-	-	-	-	-	12,300
3e.0	TOTAL PERIOD 3e COST	-	740	4	520	-	1,149	2,649	929	5,991	-	5,991	-	-	9,195	-	-	-	1,806,534	15,607	14,860
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	ISFSI Demolition and Site Restoration	-	351	-	-	-	-	44	94	489	-	489	-	-	-	-	-	-	-	3,295	-
3f.2	Subtotal Period 3f Additional Costs	-	351	-	-	-	-	44	94	489	-	489	-	-	-	-	-	-	-	3,295	-
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	2	-	-	-	-	-	0	2	-	2	-	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	2	-	-	-	-	-	0	2	-	2	-	-	-	-	-	-	-	-	-
Period 3f Period-Dependent Costs																					
3f.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.2	Property taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.3	Heavy equipment rental	-	61	-	-	-	-	-	9	70	-	70	-	-	-	-	-	-	-	-	-
3f.4.4	Plant energy budget	-	-	-	-	-	-	32	5	37	-	37	-	-	-	-	-	-	-	-	-
3f.4.5	Security Staff Cost	-	-	-	-	-	-	73	11	84	-	84	-	-	-	-	-	-	-	-	3,240
3f.4.6	Utility Staff Cost	-	-	-	-	-	-	184	28	212	-	212	-	-	-	-	-	-	-	-	2,700
3f.4	Subtotal Period 3f Period-Dependent Costs	-	61	-	-	-	-	290	53	403	-	403	-	-	-	-	-	-	-	-	5,940
3f.0	TOTAL PERIOD 3f COST	-	414	-	-	-	-	333	147	894	-	894	-	-	-	-	-	-	-	3,295	5,940
PERIOD 3 TOTALS		-	13,837	584	520	-	15,744	178,947	29,797	239,429	17,602	192,098	29,729	-	9,195	-	-	637	1,936,334	157,148	3,000,666
TOTAL COST TO DECOMMISSION		8,952	59,641	12,574	14,917	32,792	48,031	485,447	115,610	777,965	508,782	237,733	31,450	353,700	112,863	4,565	459	637	26,302,180	1,124,912	6,827,784

Table C-2, 2050 Scenario
FPL Energy Seabrook
DECON Decommissioning Cost Estimate
(Thousands of 2006 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			

TOTAL COST TO DECOMMISSION WITH 17.45% CONTINGENCY:	$777,965	thousands of 2006 dollars
TOTAL NRC LICENSE TERMINATION COST IS 65.4% OR:	$508,782	thousands of 2006 dollars
SPENT FUEL MANAGEMENT COST IS 30.56% OR:	$237,733	thousands of 2006 dollars
NON-NUCLEAR DEMOLITION COST IS 4.04% OR:	$31,450	thousands of 2006 dollars
TOTAL LOW-LEVEL RADIOACTIVE WASTE BURIAL VOLUME (CLASS A, B AND C):	117,887	cubic feet
TOTAL GREATER-THAN-CLASS C WASTE BURIAL VOLUME:	637	cubic feet
TOTAL SCRAP METAL REMOVED:	40,591	tons
TOTAL CRAFT LABOR REQUIREMENTS:	1,124,752	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

Attachment 6

Point Beach Nuclear Plant – Unit 2
NextEra Energy Point Beach, LLC (NextEra),
Decommissioning Funding Status Report

1. The minimum decommissioning fund estimate pursuant to 10 CFR 50.75(b) and (c).

	NRC Minimum (a)
NextEra (100%)	398,528,276

(a) Refer to Attachment 1 for calculation assumptions.

2. The amount accumulated at the end of the calendar year preceding the date of the report.

	Total
NextEra (100%)	245,135,466

3. Schedule of the projected amounts remaining to be collected.

	Projected Funds at Shutdown
NextEra (100%) (see notes (b)(c))	408,653,331

(b) Projection includes a pro-rata credit during the dismantlement period pursuant to 10CFR 50.75(e)(1)(ii).

(c) Assumes no annual contributions to the fund.

4. Assumptions used regarding escalation in decommissioning costs, rate of earnings on decommissioning funds and rates of other factors used in funding projections.

	Rate of Earnings (Nominal Rate Of Return)	*Escalation Factor (Inflation)*	*Real Rate of Return (Projected)*
NextEra (see note (d))			2%

Basis for Allowance:

(d) The real rate of return allowed by 10 CFR 50.75 is 2%.

5. Any contracts upon which the licensee is relying pursuant to 10 CFR 50.75(e)(1)(v). None

6. Any modifications to a licensee's method of providing financial assurance occurring since the last submitted report. None

7. **Any material changes to trust agreements.**
Effective April 16, 2009, the name was changed on the qualified and non-qualified trusts from FPL Energy Point Beach, LLC to NextEra Energy Point Beach, LLC to reflect a corporate name change. Also, the name of the trustee was changed from "Mellon Trust of Delaware, National Association" to "BNY Mellon Trust of Delaware", to reflect a name change that followed the merger of Mellon Trust of Delaware with the Bank of New York (Delaware).

See response