

MAINE YANKEE

LTP SECTION 7

UPDATE OF SITE- SPECIFIC DECOMMISSIONING COSTS

TABLE OF CONTENTS

| | | |
|-------|---|------|
| 7.0 | UPDATE OF SITE- SPECIFIC DECOMMISSIONING COSTS | 7-1 |
| 7.1 | Introduction | 7-1 |
| 7.2 | Decommissioning Cost Estimate | 7-3 |
| 7.2.1 | Cost Estimate Previously Docketed in Accordance with 10 CFR 50.82 | 7-3 |
| 7.2.2 | Radiological Decontamination Costs | 7-4 |
| 7.2.3 | Spent Fuel Management Costs | 7-5 |
| 7.2.4 | Site Restoration (Remediation) | 7-5 |
| 7.2.5 | Summary of Maine Yankee Decommissioning Cost Estimate | 7-7 |
| 7.3 | Decommissioning Funding Plan | 7-7 |
| 7.4 | Reserve Requirements | 7-10 |
| 7.5 | References | 7-11 |

List of Tables

| | | |
|-----------|---|-----|
| Table 7-1 | Maine Yankee Summary of Decommissioning Costs | 7-6 |
| Table 7-2 | Maine Yankee Decommissioning Trust - Summary | 7-8 |

7.0 UPDATE OF SITE- SPECIFIC DECOMMISSIONING COSTS

7.1 Introduction

In accordance with 10 CFR 50.82(a)(9)(ii)(F) and the guidance of Regulatory Guide 1.179, the site-specific cost estimates and funding plans are provided. Regulatory Guide 1.179 discusses the details of the information to be presented.

The License Termination Plan (LTP) must:

Provide an estimate of the remaining decommissioning costs, and compare the estimated costs with the present funds set aside for decommissioning. The financial assurance instrument required by 10 CFR 50.75 must be funded to the amount of the cost estimate. If there is a deficit in the present funding, the LTP must indicate the means for ensuring adequate funds to complete the decommissioning.

Maine Yankee has previously submitted its Site-Specific Decommissioning Cost Estimate (Reference Letter: G. Zinke, Maine Yankee to USNRC; 10 CFR 50.82(a)(8)(iii) Site Specific Decommissioning Cost Estimate and PSDAR Update; MN-98-65, dated November 3, 1998). The report submitted with this letter, "Decommissioning Cost Analysis for the Maine Yankee Atomic Power Station" dated October 1997 provides a detailed analysis of the projected costs for decommissioning activities.

Regulatory Guide 1.179 requires that the decommissioning cost estimate in the LTP should include an evaluation of the following cost elements. The section of this submittal or the appropriate section of the report submitted on November 3, 1998 with the detailed discussion of each element is noted in parentheses.

- Cost assumptions used, including a contingency factor
("Decommissioning Cost Analysis for the Maine Yankee Atomic Power Station", Sections 3.1, 3.2, & 3.3)
- Major decommissioning activities and tasks
("Decommissioning Cost Analysis for the Maine Yankee Atomic Power Station", Section 4)
- Unit cost factors
("Decommissioning Cost Analysis for the Maine Yankee Atomic Power Station", Appendices A, B, & C)

- Estimated costs of decontamination and removal of equipment and structures (Section 7.2.2 and “Decommissioning Cost Analysis for the Maine Yankee Atomic Power Station”, Appendix C)
- Estimated costs of waste disposal, including applicable disposal site surcharges (“Decommissioning Cost Analysis for the Maine Yankee Atomic Power Station”, Section 5)
- Estimated final site survey costs (“Decommissioning Cost Analysis for the Maine Yankee Atomic Power Station”, Appendix C)
- Estimated total costs (Tables 7.1 & 7.2)

The cost estimate should focus on the remaining work, detailed activity by activity including costs of labor, materials, equipment, energy, and services.

The Maine Yankee site-specific cost estimate prepared by TLG Services in accordance with 10 CFR 50.82(a)(8)(iii) focuses on all decommissioning costs from 1997 through 2023, with the assumed final removal of all fuel from the site.

Maine Yankee has received an order from the Federal Energy Regulatory Commission (FERC), dated June 1, 1999 and effective August 1, 1999, concerning the recovery of decommissioning costs.

The Nuclear Regulatory Commission (NRC) staff, in its initial acceptance review of the Maine Yankee License Termination Plan, requested that Maine Yankee provide an updated Site Specific Cost Estimate. Maine Yankee declines to expend the financial and schedule resources to provide an updated estimate formatted to the elements discussed above. Maine Yankee believes it is justified in its decision for the following reasons.

Maine Yankee has completed the initial radiological site characterization and an extensive radiologically contaminated asbestos removal program. Extensive radiologically contaminated commodity removal has been accomplished since the start of decommissioning activities, including the removal of the three steam generators, pressurizer and reactor coolant system piping. These and many other components have been shipped to the GTS Duretek facility in Memphis, TN for decontamination and disposal. The segmentation of the reactor vessel internals and preparation for the shipment of the reactor vessel with some internal components to the Barnwell facility are

currently underway. The cost of removal, preparation, and disposal of the reactor vessel is fixed by existing contracts. Those internal components classified as greater-than-Class C waste will be packaged for on site storage during the second quarter of 2001. Shipments of Class A waste to the Envirocare facility in Utah have been ongoing over the last 24 months. Maine Yankee has commissioned an on-site rail loading facility to facilitate the rail shipment of bulk commodities to Utah and of non-radiological bulk waste (primarily concrete) to other disposal facilities.

Maine Yankee's current financial planning cost estimate, which is used to demonstrate financial assurance in Section 7.3, has been updated and includes costs incurred since 1997 for the above activities plus the projected costs through 2023.

7.2 Decommissioning Cost Estimate

7.2.1 Cost Estimate Previously Docketed in Accordance with 10 CFR 50.82

As stated earlier, Maine Yankee has docketed a site-specific cost estimate prepared by TLG Services in accordance with 10 CFR 50.82(a)(8)(iii).

This section provides the result of and the basis for this cost estimate. This estimate was prepared using unit cost factors and site specific and schedule driven considerations in accordance with the methodology suggested in AIF/NESP-036, "Guidelines to Producing Decommissioning Cost Estimates." PSDAR Page 15, revision 1, summarizes decommissioning costs and is appended to this report as Table 7-1. This table presents costs derived from the TLG estimate but organized in accordance with Reg. Guide 1.179 guidance.

Maine Yankee's current financial planning decommissioning cost estimate includes costs to dismantle and decontaminate the plant, plus budgets for contingency, remediation and ISFSI engineering, licensing, construction and operation. These costs, totaling \$ 637 M, are presented in 2001 dollars. This estimate includes \$207 M of expenditures through 2000 (or \$221M in 2001 dollars when escalated at 3.8%) and \$314 M in 2001 dollars of expenditures between 2001 and 2004, including contingency and ISFSI costs. The assumptions for this estimate do not include any benefit of proceeds if Maine Yankee is successful in defending the declaratory judgement action brought by Federal Insurance regarding the recovery of performance and payment bonds and is successful in recovering under its proof of claim filed against Stone & Webster. Stone and Webster was relieved of its function as the Decommissioning Operations Contractor by Maine Yankee in May 2000.

The current financial planning cost estimate is consistent with the 1997 TLG report (within 9%) of \$508M in mid-1997 dollars or \$589M in 2001 dollars when escalated at 3.8%. Therefore, Maine Yankee is relying on the TLG cost estimate for this submittal since it meets the requirements for format and methodology discussed in AIF/NESP-036. Maine Yankee will continue to monitor future estimates to ensure that costs are within 20% of the TLG estimate. Maine Yankee recognizes that certain assumptions of the TLG estimate are no longer applicable, but has continually affirmed that the overall costs of decommissioning remain within the margin of the estimate and within the contingency assumed in the estimate.

7.2.2 Radiological Decontamination Costs

The costs for radiological decontamination activities, estimated to be \$343.3M in mid-1997 dollars or \$398.5M in 2001 dollars when escalated at 3.8%, are summarized in Table 7-1. Consistent with current NRC policy, Maine Yankee decontamination costs consider only those costs that are associated with normal decommissioning activities necessary for termination of the Part 50 license and release of the site for unrestricted use. This cost estimate remains valid for the enhanced state clean-up standards which are more restrictive than 10 CFR 20.1402 and the use of MARSSIM methodology for performing Final Status Surveys. It does not include costs associated with spent fuel management or the disposal of non-radioactive materials and structures beyond that necessary to terminate the Part 50 license.

Concrete demolition debris is classified as special waste in accordance with Maine's Hazardous Waste, Seepage, and Solid Waste Management Act (38 MRSA, section 1301. et. seq.). A percentage of the concrete to be removed may be slightly contaminated with radioactive nuclides. Radiologically contaminated concrete materials will be shipped off site for disposal at a LLRW disposal facility or other appropriate disposal facility. Consequently the waste volumes estimated in Table 5.1 of the TLG Report, "Decommissioning Cost Analysis for the Maine Yankee Atomic Power Station", would be increased. The incremental cost increase associated with additional burial volumes is tempered by the reduction in the Final Status Survey scope of work, the expanded use of an existing rail line servicing the site for bulk shipments, the use of the volume reduction technology by Duretek's facility in Memphis, and the use of the Envirocare disposal facility for the disposal of the bulk of Class A low level waste rather than the use of the Barnwell facility for all Class A waste.

Maine Yankee projects the resulting incremental cost of increased waste disposal which supports site decontamination to the enhanced state of Maine cleanup standards will be well within the costs and contingency identified in Table 7-1.

7.2.3 Spent Fuel Management Costs

Maine Yankee acknowledges that the costs to construct and operate an independent spent fuel storage installation (ISFSI) and other spent fuel related costs are not considered by the NRC staff as part of decommissioning costs. Nevertheless a presentation of those costs is required because other stakeholders, recognized by the NRC as legitimate participants in the decommissioning and license termination proceedings, do not subscribe to the definition of “decommissioning costs” delineated in 10 CFR 50.75(c) with footnote. Also the staff recognized, as discussed in 10 CFR 50.75(a), that funding for the decommissioning of power reactors may be subject to the jurisdiction of other Federal and State agencies.

In order to satisfy other stakeholders in the decommissioning process, spent fuel management costs are separately summarized in Table 7-1 and estimated to be \$128.7M in 1997 dollars or \$149.4M in 2001 dollars when escalated at 3.8%. These costs include ISFSI engineering, licensing, construction, and operation until possession of the spent fuel is transferred to the Department of Energy (DOE) which is assumed in this estimate to begin in 2018. The cost of decommissioning the ISFSI facility is included in the fuel management costs.

7.2.4 Site Restoration (Remediation)

As discussed in Section 7.2.3, Maine Yankee recognizes that site restoration costs, including the treatment of non-radiological wastes (primarily concrete and structural materials) is outside the scope of 10 CFR 50.75 and 10 CFR 50.82(a)(9)(ii)(F). The following information is provided in deference to other stakeholder requirements.

The cost of site restoration is estimated to be \$35.7M in mid-1997 dollars or \$41.4M in 2001 dollars when escalated at 3.8% and as shown in Table 7-1. This cost includes demolition of non-radiological affected buildings and costs associated with non-radiological remediation required by Federal and State agencies, e.g., Resource Conservation and Recovery Act (RCRA) closure, asbestos disposal, etc..

Table 7-1
Maine Yankee Summary of Decommissioning Costs ⁽¹⁾
Key Tasks/Milestone

| Plant Radiological Decontamination | <u>1997 Dollars</u> | <u>2001 Dollars⁽⁴⁾</u> |
|---|--|--|
| Staffing | \$91,128 | \$105,789 |
| LLW Burial | \$64,816 | \$75,244 |
| Equipment Removal | \$44,310 | \$51,439 |
| LLW Packaging and Shipping | \$16,663 | \$19,344 |
| Decontamination Activities | \$ 6,376 | \$ 7,402 |
| Contingency | \$60,265 | \$69,961 |
| Other Costs ⁽²⁾ | \$59,719 | \$69,327 |
| Subtotal | <u>\$343,279 ⁽³⁾</u> | <u>\$398,505 ⁽³⁾</u> |
| Spent Fuel Management | | |
| Staffing and Security | \$33,189 | \$38,529 |
| Property Taxes | \$25,445 | \$29,539 |
| Construction Costs | \$52,249 | \$60,655 |
| NRC and State Fees | \$10,093 | \$11,717 |
| Insurance | \$ 3,018 | \$3,504 |
| Other Costs ⁽²⁾ | \$ 4,683 | \$5,436 |
| Subtotal | <u>\$128,677 ⁽³⁾</u> | <u>\$149,379⁽³⁾</u> |
| Site Restoration (Remediating) | | |
| Licensing Termination Survey | \$10,701 | \$12,423 |
| Major Component Removal | \$10,805 | \$12,543 |
| Close-out activities | \$ 3,222 | \$3,740 |
| Demolition of site buildings | \$10,973 | \$12,738 |
| Subtotal | <u>\$35,701 ⁽³⁾</u> | <u>\$41,445 ⁽³⁾</u> |
| Total Decommissioning Costs Estimate | <u>\$508,000 ⁽³⁾</u> | <u>\$589,329⁽³⁾</u> |

Notes:

- (1) Prompt Decommissioning Technique (DECON), costs in thousands of dollars
- (2) Other costs include energy, maintenance, etc.
- (3) Sums may not be exact due to rounding to nearest thousand
- (4) Escalation rate of 3.8% used

Based on extensive input from State regulatory agencies, the Community Advisory Panel, and other key Stakeholders, the concrete waste from plant areas outside of the radiologically controlled area will be disposed of at commercial facilities licensed or permitted to handle special waste as defined by the State of Maine or to out of state facilities, provided out-of-State disposal is cost effective relative to other disposal options. This waste form also is to be shipped primarily by rail.

7.2.5 Summary of Maine Yankee Decommissioning Cost Estimate

The “Decommissioning Cost Analysis for the Maine Yankee Atomic Power Station”, is the basis for the company’s decommissioning cost estimate and was provided in a format consistent with regulatory guidance with additional detail. Maine Yankee will continue to monitor actual costs to ensure future financial planning cost estimates, which include a significant portion of fixed costs, continue to be within 20% of the TLG estimate.

Finally, Maine Yankee has used its current financial planning cost estimate of \$637M in 2001 dollars (which exceeds the formal cost estimate of \$589 M in 2001 \$) presented in Table 7-2, which includes dismantlement and decommissioning, spent fuel construction and management costs, site restoration, and remaining Maine Yankee projected decommissioning costs through 2023, to project Decommissioning Trust Fund (DTF) balances and to demonstrate financial assurance.

The projections presented in Table 7-2 include the expenditures for waste disposal and decontamination in accordance with the enhanced state clean-up standards that are more restrictive than 10 CFR 20.1402.

7.3 Decommissioning Funding Plan

As stated above, Maine Yankee has used its current financial planning estimate of \$637M (2001 \$) and projections of decommissioning collections which consider the recent FERC rate case settlement to project DTF balances and to evidence financial assurance along with other funding avenues available to the Company as described below. (See Table 7-2.).

Table 7-2
Maine Yankee
Decommissioning Trust - Summary

Decommissioning Cost \$637M (2001\$) @ 3.8%: Assumed New Rate Filing 1/1/04
(Dollars in Thousands)

| DECOMMISSIONING TRUST | | | | | | |
|---------------------------------------|---|--|---|--|---|---|
| Year | (Col. 1) Annual Decommissioning Accrued Contributions | (Col. 2) Escalated Expenditures* | (Col. 3) After-Tax Trust Earnings and Adjustments | (Col. 4) Funding Per Section 7.4 | (Col. 5) Accrued Decommissioning Trust Balance | (Col. 6) ISFSI Expenditures From SPENT FUEL DISPOSAL TRUST |
| 1997 | | \$1,965 | | | \$200,743 | \$0 |
| 1998 | 35,627 | 40,441 | 19,746 | | 215,676 | 0 |
| 1999 | 33,171 | 64,568 | 5,561 | | 189,839 | 6,613 |
| 2000 | 25,577 | 70,669 | 11,489 | | 156,236 | (1)(3) 22,355 |
| 2001 | 25,577 | 91,778 | 3,850 | | 93,885 | (3) 26,308 |
| 2002 | 25,577 | 88,957 | 2,177 | | 32,683 | (3) 13,670 |
| 2003 | 25,577 | 67,574 | 409 | 20,000 | 11,095 | (3) 1,054 |
| 2004 | 33,730 | 39,326 | (1,053) | 5,000 | 9,446 | (3)(4) 0 |
| 2005 | 33,730 | 11,504 | (400) | (20,000) | 11,272 | 0 |
| 2006 | 33,730 | 6,698 | 989 | (5,000) | 34,294 | 0 |
| 2007 | 33,730 | 6,261 | 2,401 | | 64,164 | 0 |
| 2008 | 28,109 | 6,477 | 3,749 | | 89,544 | 0 |
| 2009 | 0 | 5,385 | 4,343 | | 88,501 | |
| 2010 | 0 | 5,585 | 4,285 | | 87,202 | |
| 2011 | 0 | 5,792 | 4,215 | | 85,626 | |
| 2012 | 0 | 6,007 | 4,131 | | 83,750 | |
| 2013 | 0 | 6,230 | 4,032 | | 81,551 | |
| 2014 | 0 | 6,462 | 3,916 | | 79,005 | |
| 2015 | 0 | 6,703 | 3,783 | | 76,085 | |
| 2016 | 0 | 6,953 | 3,630 | | 72,762 | |
| 2017 | 0 | 7,213 | 3,458 | | 69,007 | |
| 2018 | 0 | 8,432 | 3,240 | | 63,815 | |
| 2019 | 0 | 9,726 | 2,948 | | 57,036 | |
| 2020 | 0 | 10,092 | 2,600 | | 49,544 | |
| 2021 | 0 | 9,206 | 2,247 | | 42,585 | |
| 2022 | 0 | 18,598 | 1,664 | | 25,651 | |
| 2023 | 0 | 26,277 | 626 | | (0) | |
| Total | \$334,137 | \$634,880 | \$98,035 | | | \$70,000 |
| * Excludes ISFSI-related expenditures | | | | | | |

* Excludes ISFSI-related expenditures

- (1) The Decommissioning Trust Fund Balance as of December 31, 2000 was \$ 156.2M. This balance includes amounts for site restoration and long term spent fuel storage management. As of December 31, 2000, \$ 206.6 million had been expended for all decommissioning costs.
- (2) The Spent Fuel Disposal Trust Fund Balance as of December 31, 2000 was \$112.2M.
- (3) Includes a reserve for SAFSTOR as discussed in Section 7.4
- (4) Annual decommissioning collections increase from \$25.6M to \$33.7M with approval effective 1/1/04. Tax Billing Change (Column 3) where Trust pays for all decommissioning income taxes commencing 1/1/04.

Table 7-2 column 2 combines the annual projections for the costs specifically associated with plant (radiological) dismantlement, spent fuel management, and site-restoration as “Escalated Expenditures.”

Maine Yankee is currently collecting decommissioning funds through its Power Contracts and Amendatory Agreements under FERC regulation. These contracts have been filed with the FERC. Table 7-2 column 1 identifies the decommissioning funds currently being collected and those projected to be collected under the contracts and includes the funding of radiological decommissioning, spent fuel management, and remediation.

As a result of the FERC order dated June 1, 1999 and effective August 1, 1999, Maine Yankee has agreed to file with the FERC no later than January 1, 2004 for the purpose of examining any further rate adjustments specifically, although not limited to the future cost of spent fuel storage management. Maine Yankee expects that case to determine any adjustments to decommissioning collections. Maine Yankee’s plan to fully fund all decommissioning costs and spent fuel storage costs by 2008 would require an increase in annual collections from approximately \$26M to approximately \$34M.

As a result of State of Maine Legislative action effective September 18, 1999, Maine Yankee has access to its state-mandated Spent Fuel Disposal Trust (SFDT). As of December 31, 2000 the SFDT balance was \$112,242,000. This Trust is separate and distinct from the DTF pursuant to 10 CFR 50.75 and 10 CFR 50.82. Effective October 1, 1999, Maine Yankee is permitted by State law to withdraw funds from the SFDT to meet expenditures for interim spent fuel storage costs and to offset those interim spent fuel storage costs already incurred by Maine Yankee. Expenditures from the SFDT are incorporated in the FERC Rate Settlement. Table 7-2 column 6 identifies the estimated costs associated with the construction of an ISFSI which will be funded from the SFDT.

As of December 31, 2000, the accrued MY Decommissioning Trust Balance was \$156.2 million. This balance includes amounts in the trust for all decommissioning costs including remediation and long term spent fuel management as well as decommissioning as defined in 10 CFR 50.75 and the PSDAR.

Note that as of December 31, 2000, Maine Yankee had incurred \$206.6 million of decommissioning expenditures, which includes \$29 M for ISFSI construction.

Maine Yankee recognizes that the staff does not consider the cost to construct and operate the ISFSI and other spent fuel-related costs as part of the decommissioning cost, nor does it consider the cost to complete all environmental restoration activities at the site as part of the decommissioning cost estimate. However, Table 7-2 includes all such costs, including contingency.

As indicated in Table 7-2, column 5, the DTF pursuant to 10 CFR 50.75 is sufficient, together with current FERC-approved collections, an assumed rate increase in 2004, and an assumed financing, if necessary, of up to \$25M, to cover all of the expenditures related to decommissioning. Refer to Section 7.4 for a description of financing options available to Maine Yankee.

7.4 Reserve Requirements

10 CFR 50.82(8)(i)(B) and 10 CFR 50.82(8)(i)(C) require that a reserve be maintained in the DTF to accommodate a sudden unexpected delay in decommissioning activities.

All spent fuel is expected to have been transferred to the completed ISFSI and the existing Spent Fuel Building (SFB) is expected to be decommissioned by the end of 2004. Fuel management costs after 2004 will consist of operational costs until 2023 and decommissioning costs associated with the ISFSI.

All D&D activities are scheduled for completion by year end 2004. Assuming a SAFSTOR condition, DTF expenditures would be minimized to D&D activities only.

Maine Yankee has assumed that it can fund up to \$25M, if necessary, to maintain positive DTF balances. As an alternative, Maine Yankee could choose to defer up to \$25M in activities for up to two years. This would also assume that 100% of contingency has been expended and no proceeds associated with claims against Stone and Webster and Federal Insurance are received. As a result, Maine Yankee forecasts sufficient DTF balances should a SAFSTOR condition occur during the period between 2001 and 2004.

After 2004, the majority of expenditures from the DTF are related to the ISFSI. As shown in Table 7-2 column 5, sufficient funding will exist, based on Maine Yankee's assumption that the DOE will take all responsibility for Spent Fuel disposal by 2023.

As demonstrated in Table 7-2, Maine Yankee will maintain adequate DTF balances for ALL \$637M of decommissioning expenditures. To further strengthen this position, Maine Yankee has identified funding options as listed below:

- Any proceeds resulting from a favorable outcome in litigation against Stone and Webster.
- Proceeds from performance and payment bonds associated with the terminated Stone and Webster contract.
- Lower expenditures than estimated due to successfully managing the use of unallocated contingency.
- Maine Yankee has projected corporate cash which could be used to fund

- decommissioning.
- Maine Yankee's ability to borrow funds under current financial agreements.
- Agreements with FERC to file no later than January 1, 2004 for further rate adjustments.
- Adjustments to collections as defined under the power contracts, as amended.
- Maine Yankee's ability to defer decommissioning activities in order to reduce DTF expenditures.

Pursuant to 10 CFR 50.75 and 10 CFR 50.82 regulations, we believe we have demonstrated a financial plan which includes adequate reserves for the entire decommissioning and ISFSI-related costs therefore meets the requirements for costs associated with decommissioning and dismantlement as defined by these regulations and, in fact, have demonstrated capability beyond the required NRC definition of decommissioning.

7.5 References

- 7.5.1 NRC Regulatory Guide 1.179, "Standard Format and Content of License Termination Plans for Nuclear Power Reactors
- 7.5.2 Maine Yankee letter to NRC MN-98-65, November 3, 1998, Site Specific Decommissioning Cost Estimate and PSDAR Update
- 7.5.3 Decommissioning Cost Analysis for the Maine Yankee Atomic Power Station, October 1997 TLG Services Inc.
- 7.5.4 Federal Energy Regulatory Commission Order, June 1, 1999
- 7.5.5 Guidelines to Producing Decommissioning Cost Estimates, AIF/NESP-036