

MAINE YANKEE
LTP SECTION 1
GENERAL INFORMATION

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Maine Yankee Decommissioning Supplementary Radiological Characterization and
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1.0 GENERAL INFORMATION

1.1 Introduction

This License Termination Plan (LTP) has been prepared by the Maine Yankee Atomic Power Company (MYAPC) nuclear power plant located at 321 Old Ferry Road, Wiscasset Maine, 04578. For the location of the plant with respect to population centers see Figure 1-1. The site boundary is defined in MYAPC Defueled Safety Analysis Report (DSAR) Figure 2.1-1. In accordance with requirements of 10 CFR 50.82(a)(9), the LTP has been prepared and submitted as a supplement to the DSAR and is intended to support an application for amendment of license number DPR-36; Docket Number 50-309. An application for amendment of the license has been provided to facilitate authorization/approval of the LTP as required by 10 CFR 50.82(a)(9).

The license condition includes a LTP change process similar to that required for the DSAR. The LTP will be updated in accordance with 10 CFR 50.71(e).

1.2 Operating and Decommissioning History

The plant is owned by a consortium of 10 New England electric utilities representing consumers in Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island. It began commercial operation in December 1972 under Atomic Energy Commission Docket No. 50-309, License No. OL-FP DPR-36, and last operated in December 1996 (Certification of cessation of operation under 10 CFR50.82(a)(1) submitted August 7, 1997). Over its lifetime, the plant operated for a total of approximately 16 effective full power years based on its rated thermal power. The Maine Yankee board of directors voted to permanently cease further operation and decommission the plant in August 1997. On August 27, 1997, Maine Yankee submitted the Post Shutdown Decommissioning Activities Report (PSDAR). On November 6, 1997, a public meeting was held in Wiscasset to hear public comments on the PSDAR. On November 3, 1998, Maine Yankee submitted the Site-Specific Decommissioning Cost Estimate along with a PSDAR Update.

On October 20, 1997, Maine Yankee submitted a request to revise the Technical Specifications to reflect the permanently defueled status of the plant. On March 30, 1998, the Nuclear Regulatory Commission (NRC) issued Amendment #161 approving those revised Technical Specifications. This amendment revised the Maine Yankee Technical Specifications to reflect the permanently defueled condition of the plant, and regulatory requirements and operating restrictions to ensure the safe storage of spent fuel.

The Final Safety Analysis Report (FSAR) was revised to reflect the permanently defueled plant condition and was re-titled "Defueled Safety Analysis Report" (DSAR).

The DSAR was submitted to the NRC on February 6, 1998 and has since been revised in accordance with 10 CFR 50.71(e). Additional licensing basis documents were also revised and submitted to reflect the plant's defueled condition (Defueled Security Plan, Fire Protection Plan, QA Plan, Training Plan and Emergency Plan).

On January 13, 2000, Maine Yankee submitted the original version of the LTP in accordance with 10 CFR 50.82(a)(9). This submittal was preceded by meetings with the NRC and other federal, state and local stakeholders. Draft copies of the Maine Yankee LTP had been circulated and docketed to enhance dialogue and encourage feedback. On March 16, 2000, the NRC completed its acceptance review of the LTP and determined that the LTP provides sufficient information for the staff to proceed with its detailed technical review. Accordingly, a public meeting was held at the Wiscasset High School on May 15, 2000 to solicit public comments. On May 17, 2000, the NRC published notice of the license amendment application proposing to authorize the LTP in the Federal Register (65FR31357-31358).

In an effort meet stakeholder expectations that site cleanup be conducted to the highest reasonable standards and beyond current federal regulatory requirements if feasible, Maine Yankee made a commitment in the original LTP preface to achieve a clean up of the site to a dose of less than 10 mrem for all pathways and less than 4 mrem to groundwater pathway. Nevertheless, on April 26, 2000, the Governor of the State of Maine signed into law LD 2688-SP1084 "An Act to Establish Clean-up Standards for Decommissioning Nuclear Facilities." This legislation amended the Maine State definition of Low Level Radioactive Waste to exclude, from that definition, radioactive material remaining at the site of a decommissioned nuclear power plant if the enhanced state standards described in the new law are met. These enhanced state standards include dose-based residual radioactivity limits of 10 mrem/year (mrem/yr) or less for all pathways and 4 mrem/year or less for groundwater drinking sources and other limits for construction demolition debris. Prior to the passage of this legislation, on April 14, 2000, Maine Yankee had signed an agreement with several Maine groups to support this legislation and to fulfill our mutual intent to reduce the radiological burden at the Maine Yankee site. These groups included "Safe Power for Maine," "Citizens Against Nuclear Trash," "Friends of the Coast - Opposing Nuclear Pollution" ("Friends of the Coast"), and the Town of Wiscasset. The implementation of the state law and the agreement identified above are both described in detail in Section 6 of this LTP.

In a letter dated May 9, 2000, the NRC requested that Maine Yankee describe what action it would take in response to the new state legislation. In a letter dated June 8, 2000, Maine Yankee generally explained the expected impact of the newly enacted legislation and indicated that Maine Yankee was continuing a dialogue with state agencies and other stakeholders concerning the end state of the site, verification of cleanup to state standards and other issues.

On June 15, 2000, the Friends of the Coast submitted a petition to intervene and a request for a hearing. On June 16, 2000, the State of Maine submitted a petition to intervene and a request for a hearing or, alternatively, to participate as an interested state. Accordingly, on July 7, 2000, an Atomic Safety and Licensing Board (ASLB) was established. During a telephone conference on July 20, 2000 with the participants in the LTP license amendment proceeding, Maine Yankee stated that it intended to submit a revised LTP addressing a number of new matters and suggested that the proceeding be held in abeyance until the revised LTP is filed. The other participants generally agreed with this suggestion. Accordingly, on July 20, 2000, the ASLB issued an order for, among other things, Maine Yankee to file a revised LTP by October 31, 2000 or on November 1, 2000 submit a status report.

During the summer and fall of 2000, Maine Yankee received over 400 comments on the LTP from a range of stakeholders. Many of these comments led to changes which have been included in Revision 1 to the LTP¹. In addition, Maine Yankee initiated and participated in two facilitated stakeholder meetings on decommissioning topics including the disposition of above grade concrete. As a result of these meetings, Maine Yankee agreed to remove and dispose of offsite the concrete debris which results from the demolition of buildings above three feet below grade. The effects of this agreement have led to additional changes to dose models, final status survey methodology, ALARA evaluations, and dismantlement activities which have been included in this revised LTP.

On October 31, 2000, Maine Yankee submitted to the NRC a status report including Maine Yankee's current best estimated schedule for submitting the revised LTP and progress in settling outstanding matters with stakeholders. Efforts associated with incorporating the above agreements and stakeholder comments resulted in the call for additional data collection and analysis. Based on these efforts and the desire to continue a responsive dialogue with stakeholders, Maine Yankee estimated that the revised LTP would be submitted to the NRC by April 15, 2001. On January 29, 2001 and April 3, 2001, Maine Yankee submitted status reports updating the Board on Maine Yankee's interactions with stakeholders. In the latter report, Maine Yankee extended the revised LTP submittal schedule to June 1, 2001. Accordingly, on June 1, 2001, Maine Yankee submitted LTP Revision 1.

On October 13, 2000 and again on February 5, 2001, the NRC issued requests for additional information (RAI). On August 8, 2001 (following the issuance of Revision 1 of the LTP on June 1, 2001), Maine Yankee submitted responses to the NRC RAIs of

¹ "Revised LTP" or "original LTP" will be used in the text where needed for clarity; however, in general, "LTP" is intended to mean the revised LTP in all references in this document subsequent to this point.

October 13, 2000 and February 5, 2001. Many of the RAI issues were incorporated, as appropriate, into Revision 1 of the LTP.

On June 8, 2001, Maine Yankee submitted a joint request to the ASLB for a ten-week period for LTP settlement discussions. On July 12, 2001, Maine Yankee provided responses to the State of Maine and Friends of the Coast comments and questions on the LTP. On August 13, 2001, Maine Yankee submitted LTP Revision 2 incorporating many of the remaining NRC, State of Maine and Friends of the Coast issues, as appropriate. On August 31, 2001, the State of Maine, Friends of the Coast, and Maine Yankee reached a Settlement Agreement (SA) related to the ASLB issues. The SA eliminated the need for an ASLB hearing and established a framework for the Parties to resolve the remaining issues. On October, 2, 2001, the ASLB issued an order approving the Settlement Agreement and terminating the proceeding.

One item of the SA was the establishment of a Technical Issue Resolution Panel (TIRP). The TIRP consisted of two members each from the State of Maine and Maine Yankee. The TIRP met several times between September 26 2001 and December 13, 2001. On December 13, 2001 the Team reached consensus on the five issues on it's agenda, and issued a Participant Settlement Agreement. The results of the TIRP consensus have been incorporated in Revision 3 of the LTP.

On December 18, 2001 and January 17, 2002, the NRC issued a further round of RAIs on LTP Revision 2. On March 13, 2002, Maine Yankee responded to the RAIs. As appropriate, the resolution of the RAIs were incorporated in Revision 3 of the LTP. LTP Revision 3 was submitted on October 15, 2002.

Three addenda letters were submitted to the NRC: (1) MN-02-058, LTP Revision 3 Addenda dated November 21, 2002 - Clarifications and Minor Corrections to Maine Yankee License Termination Plan Revision 3; (2) MN-02-061, dated November 26, 2002, Maine Yankee License Termination Plan, Rev. 3 Addenda and Additional Information Related to the Eberline Model E600 Instrument; (3) MN-02-063, dated December 12, 2002, Update on Forebay Dike Coring Results and Associated Changes to LTP Attachment 2H (LTP Revision 3 Addenda).

On February 28, 2003, the NRC issued Amendment 168 to the MY Facility Operating License; approving and incorporating LTP Revision 3, and associated addendum, into the MY License.

1.3 Plant Description

The plant is a three-loop pressurized water reactor with a power rating of 2,700 Megawatts thermal. It has a Nuclear Steam Supply System supplied by Asea Brown Boveri/Combustion Engineering. The secondary plant consists of three Asea Brown Boveri turbines, one high pressure and two low pressure, coupled with a 950 MVA Westinghouse electric generator and associated auxiliary systems. The site also includes ancillary facilities used to support normal plant operations. These facilities consist of warehouses, administrative office buildings, security structures, an environmental sampling complex, a substation and a fire protection system.

The plant is located on an 820-acre site in Lincoln County, Wiscasset, Maine as indicated in Figure 1-1. The site boundary is indicated in DSAR Figure 2.1-1. This location is approximately 0.43 miles from the nearest residence and is within 5 miles of the nearest population center, Town of Wiscasset, as shown in Figure 1-1.

1.4 LTP Submittal Change and Early Release of Land

1.4.1 LTP Submittal and Changes

Maine Yankee is submitting this LTP as a supplement to the Defueled Safety Analysis Report. Upon NRC approval, Maine Yankee's license will authorize and require Maine Yankee to implement and maintain in effect all provisions of the approved LTP. This license termination plan describes an acceptable approach for demonstrating compliance with the radiological criteria for unrestricted use, as defined by 10 CFR 20.1402, by meeting a site release criteria of 10 millirem TEDE per year over background (all pathways) and 4 millirem (as distinguishable from background) TEDE per year for groundwater sources of drinking water using appropriate dose modeling methods, pathways and parameters and acceptable final radiation survey methods. The LTP describes dose modeling methods, pathways and parameters which produce derived concentration guideline levels (DCGL's) for a given dose based release criteria. The LTP also describes the final radiation survey methods to demonstrate compliance with the DCGL's. The dose based release criteria used in the LTP is the site release criteria, namely 10 millirem TEDE per year over background (all pathways) and 4 millirem (as distinguished from background) TEDE per year for groundwater sources of drinking water in accordance with state law.¹ While it is understood that NRC may not agree with or adopt this criteria, it is expected that NRC will be confirming that compliance with NRC regulations is being

¹ LD 2688-SP 1084, "An Act to Establish Clean-up Standards for Decommissioning Nuclear Facilities," enacted on April 26, 2000.

demonstrated by meeting this site release criteria. Maine Yankee will certify in its application for license termination that it has met this site release criteria (10/4) and will at that time request NRC to confirm this certification.

Changes requiring NRC approval will be submitted via application for a license amendment in accordance with 10 CFR 50.90.

Pursuant to license condition 2.B (10) of Maine Yankee's Facility Operating License No. DPR-36, the licensee may make changes to the LTP without prior approval provided the proposed changes do not:

- a. Require Commission approval pursuant to 10 CFR 50.59;
- b. Violate the requirements of 10 CFR 50.82(a)(6);
- c. Reduce the coverage requirements for scan measurements;
- d. Increase the radioactivity level, relative to the applicable derived concentration guideline level, at which an investigation occurs; or
- e. Increase the probability of making a Type I decision error.

Maine Yankee will submit an updated License Termination Plan in accordance with 10 CFR 50.71(e).

Items a and b of the above LTP change criteria regarding 10 CFR 50.59 and 50.82(a)(6) are established in current regulation. Item c regarding the coverage requirements for scan measurements, is established in LTP Section 5.4.1, Table 5-3. Item d regarding investigation levels, sets a limit on the action thresholds that would trigger an investigation. These thresholds are specified in LTP Section 5.6, Table 5-7. Item e limits the probability of releasing a survey unit, which contains residual radioactivity above the release criterion. This probability value is discussed in LTP Section 5.4.2 and 5.8.1.

As appropriate, Maine Yankee will evaluate changes to the LTP using the Data Quality Objective (DQO) process outlined in NUREG-1575, "Multi Agency Radiological Survey and Site Investigation Manual" and/or the considerations described in section 3.2. Changes to the LTP not requiring NRC approval will be submitted as an updated supplement to the DSAR in accordance with 10 CFR 50.71e.

In addition to the above license condition LTP change criteria, Maine Yankee will notify the State of Maine promptly prior to making a change to the LTP that would result in an increase, of any amount, in a Derived Concentration Guideline Level (DCGL) and will request NRC approval if a change to the LTP would result in an increase in a DCGL, as specified in Table 6-11, by more than a factor of two. Note that any DCGL increase is only allowable provided the resulting "Total Annual Dose" remains less than or equal to 10 mrem/y and the "Drinking Water" (dose) remains less than or equal to 4 mrem/y (as presented Table 6-11). In other words, the individual contaminated material DCGLs listed in Table 6-11 must always collectively result in a total annual dose of 10 mrem/y or less and a drinking water dose of 4 mrem/y or less. As discussed above, Maine Yankee will certify in its application for license termination that it has met this site release criteria (pursuant to license condition 2.B (10) of Maine Yankee's Facility Operating License).

In the event that Maine Yankee elects to reduce a survey unit's classification as listed in Section 5, i.e., from Class 1 to Class 2 or 3, or from Class 2 to 3, prior notification will be provided to the NRC. Criteria for reclassification is discussed in Section 5.6.4. Maine Yankee will provide the NRC as much early notice of this decision as practical but not less than two weeks. (See Reference 1.7.16.)

1.4.2 Phased Release and License Termination

Maine Yankee will make changes to the site boundary footprints to allow unrestricted release and license termination of parcels of property. The following process will be used for making these changes:

- a. Following the completion of LTP activities in a given area, Maine Yankee will provide to the NRC a license amendment request covering the area which it seeks to release from the Part 50 license. This report will contain the information which the NRC needs to make a determination similar to 10 CFR 50.82(a)(11) and will include:
 1. A description of the boundaries associated with the area to be released.
 2. A statement that the remaining dismantlement activities for the affected area described in the license termination plan have been performed.

3. Final Status Survey (FSS) results for the area. FSS is not required for non-impacted areas.
4. An evaluation of the potential for possible re-contamination of the area and a description of the specific controls established to prevent re-contamination.
5. An evaluation of the impact on the exclusion area for the site lands remaining within the domain of the Part 50 license.
6. An evaluation of the potential combined dose effects on the critical group at license termination as a result of partial releases of land
7. An evaluation of the impact on the following license programs for the site lands remaining within the domain of the Part 50 license: Offsite Dose Calculation Manual (ODCM), Emergency Plan, Security Plan, Fire Protection Plan, QA Plan, Training Plan, DSAR, and Post Shutdown Decommissioning Activities Report (PSDAR).
8. A no significant hazards determination evaluation.

This process has been informed by NRC Regulatory Issue Summary 2000-19 "Partial Release of Reactor Site for Unrestricted Use Before NRC Approval of the License Termination Plan."

Upon satisfactory NRC review, the NRC will provide a license amendment to Maine Yankee that the NRC has made the required 10 CFR 50.82(a)(11) and 50.91 determinations regarding the area to be released from the Part 50 license and that the area is henceforth released from the Part 50 license. This license amendment will carry the same authority as that associated with terminating a license under 10 CFR 50.82(a)(11).

- b. Once an area is so released, it is understood that the NRC will not require additional surveys or decontamination of these areas by Maine Yankee in response to future NRC criteria or standards, new information or third party survey results, unless, similar to 10 CFR 20.1401(c), the NRC determines that the criteria of

10 CFR Part 20, Subpart E were not met and residual activity remaining at the site could result in significant threat to public health and safety. With regard to each release, Maine Yankee will work with the NRC and the State of Maine in facilitating confirmatory surveys.

- c. Maine Yankee anticipates a three-phased release of land from the operating license:
1. Approximately 641 acres of land associated with the Eaton Farms and the land north of Ferry Road. A portion of this land will be transferred for the purpose of an environmental center in accordance with the FERC rate case settlement.

Reference: Maine Yankee to USNRC letters dated August 16, 2001 (MN-01-034) Early Release of Backlands (Combined), Proposed Change No. 211, Supplement No. 1, and November 19, 2001 (MN-01-044) same subject, Proposed Change No. 211, Supplement No. 2.

Approval: The NRC provided approval of the subject request for release of site lands by issuance of the license amendment granted by the NRC letter to Maine Yankee, dated July 30, 2002, Issuance of Amendment No. 167.

2. The remainder of the site not associated with the ISFSI
3. The portion of the site associated with the ISFSI

1.5 Plan Description

1.5.1 General Information

This section summarizes each of the seven (7) LTP sections required by 10 CFR 50.82(a)(9)(ii).

1.5.2 Site Characterization

Section 2 summarizes the radiological surveys that have been conducted to characterize the nature and extent of contamination at Maine Yankee.

A site radiological characterization was performed to support decommissioning planning during November 1997 through March 1998. This resulted in GTS Duratek's "Characterization Survey Report for the Maine Yankee Atomic Power Plant." Following the initial characterization effort, additional data was required and collected (referred to as "continuing characterization), as discussed in Section 2.1. The additional ("continuing") characterization will continue to be performed as required during the term of the decommissioning project. The site characterization results have been and will be used to identify areas of the site that are likely to require remediation, to plan remediation strategies, and to support final status survey and dose assessment activities.

1.5.3 Identification of Remaining Site Dismantlement Activities

Section 3 presents the sequence of dismantlement and decontamination (D&D) activities for the remaining systems, structures, and components at Maine Yankee.

The overall project schedule identifies the remaining site dismantlement activities. These activities include: (1) the removal of structures to increase the free area needed for large vehicles and equipment; (2) commodity removal; (3) decontamination and remediation; (4) movement of spent fuel to dry storage; and (5) demolition of structures to three feet below grade. The extent to which these activities are expected to be conducted under 10 CFR 50.59 is described. The final state of the site, including any underground remnants, is also described.

The strategies for disposal of waste generated during decommissioning are discussed including the disposition of the materials from above grade structures which will be demolished. These strategies include the removal of radioactive material from the site in order to meet the radiological release criteria of 10 CFR 20.1402 and the state clean-up standards. These state clean-up standards specify, among other things, that any construction demolition debris (CDD), including concrete, disposed of at the site meets the limits specified in Table 1 in the 1974 United States Atomic Energy Commission (AEC) Regulatory Guide 1.86. However, Maine Yankee does not expect to dispose of CDD on site.

This section also includes: estimates of the quantity of radioactive material to be released; control mechanisms; and radioactive waste characterization.

A detailed description of the coordination of activities, requirements, permits and licenses covered by other regulatory agencies is included. These activities, requirements, permits and licenses include Comprehensive Environmental Response, Compensation and Liabilities Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Site Location of Development Permitting, Natural

Resources Protection Act (NRPA), Solid Waste Storage and Disposal Permits, Hazardous Waste Storage and Disposal Permits, National Pollution Discharge Elimination System (NPDES) Permits, Waste Discharge Licensing, Tank Closure Certification, Stormwater Management, Erosion and Sedimentation Control, Asbestos and PCB characterization and remediation, Noise Regulations, Air Emissions License, etc. These efforts involve coordination between Maine Yankee and other stakeholders including: the Maine Department of Environmental Protection, the Maine Department of Human Services including the State Nuclear Inspectors, the Governor's Nuclear Safety Advisor, the Governor's Technical Advisory Panel, the Advisory Committee on Radiation and Nuclear Waste, etc. In addition to describing the coordination of the efforts described above, this section of the LTP also describes the various agreements between Maine Yankee and the State of Maine and other parties.

For the purpose of this LTP, it is assumed that the installation and operation of an Independent Spent Fuel Storage Installation will be conducted, separate from the LTP, under a general license which has already been issued in accordance with 10 CFR 72.210. However, the decommissioning of the ISFSI is described in this section. If Maine Yankee submits an application for a 10 CFR Part 72 specific license, this LTP will be revised to eliminate from its scope the decommissioning of the ISFSI.

1.5.4 Remediation Plans

The methods used to reduce the levels of radioactivity to meet the radiological release criteria of 10 CFR 20.1402 (Radiological Criteria for Unrestricted Use) and the enhanced state cleanup standards are described in Section 4. The calculations used to verify that the residual activity levels have been reduced to levels that are as low as reasonably achievable (ALARA) are presented. These calculations, and the applied methodology generally conform to the guidance provided in Draft Regulatory Guide DG-4006 or as superceded by NUREG-1727, "NMSS Decommissioning Standard Review Plan (SRP) [Demonstrating Compliance with the Radiological Criteria for License Termination]."

1.5.5 Final Status Survey (FSS)

Section 5 of this LTP describes the methods that will be used by Maine Yankee to demonstrate that residual contamination levels at the plant site have been reduced to levels below the site release criteria. The derived concentration guideline (DCGL) is calculated in Section 6 of this LTP and represents the residual contamination levels that will result in a Total Effective Dose Equivalent (TEDE)

to the average member of the critical population group that is less than 25 mrem per year in accordance with the radiological release criteria of 10 CFR 20.1402 and less than the enhanced state clean-up standards of 10 mrem per year from all pathways and 4 mrem per year from groundwater sources of drinking water. The methods for conducting the final status survey generally follow the guidance in Draft Regulatory Guide 4006 or as superceded by the Standard Review Plan (SRP). NUREG-1575 (Multi-Agency Radiation Survey and Site Investigation Manual [MARSSIM]) is also used to the extent it is referenced in DG-4006 as appropriate. Additional sections of NUREG-1575 are followed as required for specific applications. The FSS plan describes methodology for the division of the site into survey units, the classification of survey areas, and the requirement that all survey units meet the DCGL with a 95% confidence level. Survey areas have been classified. These survey areas will be divided into survey units as work progresses. Management controls over all aspects of the project are discussed in detail, including quality assurance, data processing, and final status survey reports.

1.5.6 Compliance With the Specified Radiological Criteria for License Termination

Section 6 of the LTP describes the methods used for conducting a dose assessment to develop the DCGLs for demonstrating compliance with the unrestricted use criteria in Subpart E of 10 CFR 20 and the enhanced state clean-up standards established by State of Maine Public Law - LD 2688-SP 1084.

10 CFR 20.1402, "Radiological Criteria for Unrestricted Use," allows termination/amendment of a license and release of a site for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a total effective dose equivalent to an average member of a critical group that does not exceed 25 mrem per year and the residual radioactivity has been reduced to levels that are ALARA. The enhanced state cleanup standards require that the residual radioactivity distinguishable from background radiation will result in a total effective dose equivalent to an average member of a critical group not more than 10 mrem/year for all pathways and 4 mrem/year for groundwater sources of drinking water. In addition, the enhanced state cleanup standards require that any construction demolition debris, including concrete, disposed of at the site meet the limits of Table 1 in the 1974 AEC Regulatory Guide 1.86.

1.5.7 Update of the Site-Specific Decommissioning Costs

Section 7 provides an updated estimate of remaining decommissioning costs and a comparison of these estimated costs with the present funds set aside for

decommissioning. A site-specific decommissioning cost analysis was prepared by TLG Services in October of 1997. Subsequent to that, a revision to the decommissioning cost estimate was presented in the MYAPC Site Specific Decommissioning Cost Estimate, dated November 3, 1998. As decommissioning activities are initiated and completed, the actual costs are compared against the estimates previously submitted.

1.5.8 Supplement to the Environmental Report

Section 8 satisfies the requirements stated in:

- a. 10 CFR 50.82(a)(9)(ii)(G)
A supplement to the Environmental Report pursuant to 51.53 describing any new information or significant environmental change associated with the licensee's proposed termination activities.

- b. 10 CFR 51.53(d)
Post operating license stage. Each applicant for a license amendment authorizing decommissioning activities for a production or utilization facility either for unrestricted use or based on continuing use restrictions applicable to the site; and each applicant for a license amendment approving a license termination plan or decommissioning plan under §§50.82 of this chapter either for unrestricted use or based on continuing use restrictions applicable to the site; and each applicant for a license or license amendment to store spent fuel at a nuclear power reactor after expiration of the operating license for the nuclear power reactor shall submit with its application the number of copies, as specified in §§51.55, of a separate document, entitled "Supplement to Applicant's Environmental Report -- Post Operating License Stage," which will update "Applicant's Environmental Report -- Operating License Stage," as appropriate, to reflect any new information or significant environmental change associated with the applicant's proposed decommissioning activities or with the applicant's proposed activities with respect to the planned storage of spent fuel. Unless otherwise required by the Commission, in accordance with the generic determination in §§51.23(a) and the provisions in §§51.23(b), the applicant shall only address the environmental impact of spent fuel storage for the term of the license applied for. The "Supplement to Applicant's Environmental Report -- Post Operating License Stage" may incorporate by

reference any information contained in "Applicants Environmental Report -- Construction Permit Stage.

The purpose of Section 8 of the LTP is to upgrade the Maine Yankee Environmental Report with any new information or significant environmental change associated with Maine Yankee's proposed decommissioning/license termination activities. This section of the LTP constitutes a supplement to Maine Yankee's Environmental Report pursuant to 10 CFR 51.53(d) and 10 CFR 50.82(a)(9)(ii)(G). In October, 1970, Maine Yankee submitted to the US Atomic Energy Commission (AEC: NRC's predecessor) its Environmental Report, which was further appended in February 1971 with supplementary information. On April 19, 1972, Maine Yankee submitted to the AEC a "Supplement to Environmental Report." It is this latest supplement which is being updated by this LTP section pursuant to the above regulations. On July 1972 the AEC issued the Final Environmental Statement related to the operation of Maine Yankee Atomic Power Station.

Any identified new information or significant environmental change associated with Maine Yankee's proposed decommissioning/license termination activities has been evaluated to determine whether it is bounded by the site-specific decommissioning activities described in Maine Yankee's PSDAR or AEC's Final Environmental Statement. Pursuant to 10 CFR 51.53, this supplement identifies any changes in Maine Yankee's decommissioning activities as previously identified in revision of its submittal, and provides the reasons for concluding that the impacts associated with those changes remain bounded by the Final Generic Environmental Impact Report Statement (FGEIS), NUREG-0586.

1.5.9 Special Agreement With Friends of the Coast - Opposing Nuclear Pollution

- a. As a result of its review of the draft revised LTP, Friends of the Coast raised questions regarding the characterization of radioactivity deposition in off-site marine sediment. The plant derived activity is the result of licensed plant effluent releases offsite into the intertidal zone surrounding Bailey Point. A separate agreement was reached between Maine Yankee and Friends of the Coast to conduct a special marine sediment study in the intertidal zone areas with the overall purpose of enhancing public confidence in the decommissioning process. The key elements of this agreement, "Maine Yankee Decommissioning Supplementary Radiological Characterization and Analysis," dated May 31, 2001, are described in this section. The full text of the agreement is included as Attachment 1-A to this section.

- b. It is recognized that the intertidal zone, beyond the site boundary (per the Maine Yankee DSAR Section 2.1 and DSAR Figure 2.1-1), is an area subject to the periodic discharge of low levels of radioactive effluents, released under the plant's operating license per the regulations governing off-site releases, monitoring, dose assessment, sampling, and reporting [i.e., 10 CFR Part 20, Subpart D, Part 50 Appendix I, and 10 CFR 50.36a(2)]. These discharges have been made and evaluated in accordance with the Offsite Dose Calculation Manual and the Radiological Effluent Monitoring Program which are the principal site administrative programs that implement the above requirements. Because this intertidal zone area is beyond the site boundary, addressed by regulations associated with the Part 50 plant license, and involve dose commitment to the public already assessed by these programs and regulations, the area is not included within the scope of the LTP.
- c. Regardless of regulatory considerations, Maine Yankee recognizes the community interest in future potential public uses of this area. Although all measurements to date have identified intertidal zone levels of radioactivity well below that allowed to be left on-site, Maine Yankee acknowledges a public benefit in enhanced confidence that can be achieved by additional radiological characterization of the intertidal zone near the end of decommissioning.
- d. Per the subject agreement, Maine Yankee will work with Friends of the Coast to contract a radiological survey to characterize the intertidal zone (which is defined in the agreement). This survey is distinct from and in addition to that formerly agreed upon in the partial settlement of the FERC rate case settlement which also provides for a survey of off-site marine sediment (Reference 1.7.12). The intertidal zone characterization will include the "non-affected" Eaton Farm location as well as Bailey Point (to an agreed point, south of Ferry Road).
- e. The methods and protocols used in the survey are discussed in the agreement. Dose pathways associated with the intertidal zone, considering current and future uses, will be identified and agreed upon between Maine Yankee and Friends of the Coast. The characterization results and dose assessment will be reported in a form to allow comparison to appropriate on-site DCGLs

established in the LTP and to the resident farmer dose. Based on prior sampling in these areas, Maine Yankee anticipates that the future surveys will report intertidal zone activities and dose levels that are well below federal and state limits for site decommissioning.

- f. Maine Yankee and Friends of the Coast will define the survey scope by the end of 2001 and implement the survey following final liquid discharge from spend fuel pool operations (currently planned for late in the first quarter of 2003).
- g. Results of the characterization will be reported to Maine Yankee and Friends of the Coast. The written report will be publicly available, and Friends of the Coast will receive sufficient copies to disseminate to interested parties and members of the public who request copies.

1.6 Maine Yankee LTP Information Contact

For information or comments regarding the Maine Yankee License Termination Plan, please contact the following party:

Mr. Thomas L. Williamson
Director, Nuclear Safety and Regulatory Affairs
Maine Yankee Atomic Power Company
321 Old Ferry Road
Wiscasset, Maine 04578
(207) 882-4530
Email: williamt@myapc.com

1.7 References

- 1.7.1 NUREG-0586, "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities".
- 1.7.2 NUREG-1496, Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities.
- 1.7.3 Maine Yankee Environmental Report, dated October 1970
- 1.7.4 "Final Environmental Statement Related To Operation of MY Atomic Power Station," dated July 1972.

- 1.7.5 Supplement One to the Maine Yankee Environmental Report, dated April 19, 1972.
- 1.7.6 NRC Regulatory Issue Summary 2000-19, "Partial Release of Site for Unrestricted Use Before NRC Approval of the License Termination Plan"
- 1.7.7 GTS Duratek, "Characterization Survey Report for the Maine Yankee Atomic Power Plant," Volumes 1-9, 1998 (ICS).
- 1.7.8 NUREG-1727 "NMSS Decommissioning Standard Review Plan," September 15, 2000.
- 1.7.9 NUREG-1575, "Multi-Agency Radiation Survey and Site Investigation Manual" (MARSSIM), Revision 1 (June 2001)
- 1.7.10 AEC Regulatory Guide 1.86
- 1.7.11 MYAPC Site Specific Decommissioning Cost Estimate, November 3, 1998
- 1.7.12 June 1, 1999 Federal Energy Regulatory Commission approval of rate case settlement agreement, Docket Nos. ER98-570-000, EL98-13-000, and EL98-14-00
- 1.7.13 Post Shutdown Decommissioning Activities Report, Maine Yankee letter to the NRC, MN-97-99, dated August 27, 1997.
- 1.7.14 MYAPC Defueled Safety Analysis Report (DSAR)
- 1.7.15 State of Maine Public Law LD 2688-SP1084 "An Act to Establish Clean-up Standards for Decommissioning Nuclear Facilities", April 26, 2000
- 1.7.16 NRC letter to Maine Yankee, dated August 23, 2002, "Maine Yankee Atomic Power Station re: License Termination Plan Issue" (dealing with survey unit reclassification and the PAB test pit issue).
- 1.7.17 NRC letter to Maine Yankee, dated July 30, 2002, Issuance of Amendment No. 167, license amendment approving partial release of site lands.
- 1.7.18 Maine Yankee letter to the NRC, MN-00-004 dated January 13, 2000,

Maine Yankee License Termination Plan

- 1.7.19 Maine Yankee letter to the NRC, MN-01-023 dated June 1, 2001, Revision 1, Maine Yankee's License Termination Plan
- 1.7.20 Maine Yankee letter to the NRC, MN-01-032 dated August 13, 2001, Revision 2, Maine Yankee's License Termination Plan
- 1.7.21 NRC Letter to Maine Yankee, dated December 18, 2001, Request for Additional Information (RAI) for Maine Yankee Atomic Power Station License Termination Plan (TAC No. MA8000).
- 1.7.22 NRC Letter to Maine Yankee, dated January 17, 2002, Request for Additional Information (RAI) for Maine Yankee Atomic Power Station License Termination Plan (TAC No. MA8000).
- 1.7.23 Maine Yankee letter to the NRC, MN-02-011 dated March 13, 2002, Response to NRC Request(s) for Additional Information for Maine Yankee Atomic Power Station License Termination Plan
- 1.7.24 MYAPC Letter MN-02-048 dated October 15, 2021, Revision 3, Maine Yankee's License Termination Plan
- 1.7.25 NRC Letter to MYAPC dated February 28, 2003, Issuance of Amendment No. 168 to Facility Operating License No. DPR-36 -- Maine Yankee Atomic Power Station (TAC No. M8000).
- 1.7.26 Maine Yankee Letter to the NRC, MN-02-058, LTP Revision 3 Addenda dated November 21, 2002 - Clarifications and Minor Corrections to Maine Yankee License Termination Plan Revision 3
- 1.7.27 MN-02-061, dated November 26, 2002, Maine Yankee License Termination Plan, Rev. 3 Addenda and Additional Information Related to the Eberline Model E600 Instrument
- 1.7.28 MN-02-063, dated December 12, 2002, Update on Forebay Dike Coring Results and Associated Changes to LTP Attachment 2H (LTP Revision 3 Addenda).

**MYAPC License Termination Plan
Revision 3
October 15, 2002**

**[PLACEMENT PAGE FOR]
Figure 1-1
Location of Population Centers
With Respect to Location of Maine Yankee**

ATTACHMENT 1A

**Maine Yankee Decommissioning
Supplementary Radiological
Characterization and Analysis Agreement**

Maine Yankee Decommissioning Supplementary Radiological Characterization and Analysis Agreement

Parties:

This is an agreement between Maine Yankee Atomic Power Company (Maine Yankee) and Friends of the Coast – Opposing Nuclear Pollution (Friends of the Coast).

Purpose:

The purpose of this agreement is to enhance public confidence in the decommissioning process through an independent, professional, comprehensive and scientifically valid radiological survey of the intertidal area adjacent to the Maine Yankee site.

Background:

Maine Yankee and Friends of the Coast agree that Maine Yankee has been lawfully allowed to discharge low levels of radioactive effluents through its licensed pathways. With that understanding, both parties entered into an agreement (copy attached) as a partial settlement of the 1998 FERC rate case, which included provisions for a survey of off-site marine sediments. The present agreement is in addition to the “FERC agreement” and supplements the License Termination Plan by explicitly recognizing, for the purposes of this agreement, the intertidal zone (defined below) as a separate and distinct element of an elective offsite survey

Substance:

Maine Yankee agrees to contract a radiological characterization of the intertidal zone (the present “supplemental agreement”) supplementing and in addition to the radiological survey of offsite marine sediment (per the “FERC agreement”). For purposes of economy and efficiency, Maine Yankee will seek a single contractor for both the offsite marine sediment survey and the intertidal zone survey through a single request for proposal (RFP). Nothing in this “supplementary agreement” alters the previous “FERC agreement”.

The intertidal zone is that offsite area that lies between the site boundary (as described in the Maine Yankee license basis and the License Termination Plan) and the mean low tide mark of adjacent waters (or an outer bound drawn 100 feet from the high tide mark, whichever is closer). The extent of the intertidal zone to be characterized shall include the designated “non-affected” Eaton Farm location as well as Bailey Point (to an agreed upon point south of Ferry Road).

Dose pathways associated with the intertidal zone current and potential future uses will be identified and agreed upon between Maine Yankee and Friends of the Coast. Characterization results will be used to calculate an incremental intertidal zone dose which may be compared to the limiting “resident farmer” dose calculations in the License

Termination Plan. Characterization results will also be reported in a form allowing comparison to on-site DCGLs (e.g., soil) in the License Termination Plan.

Methods and Media:

The intertidal zone characterization will be conducted using agreed upon methods and protocols. Upon request, Maine Yankee and Friends of the Coast will observe traditional split sampling protocols with interested parties.

The characterization will be accomplished via:

- Sampling and isotopic analysis of disturbed and undisturbed intertidal zone soils/sediments,
- Sampling and isotopic analysis of flora and fauna that may reasonably be considered contributors to an intertidal zone pathway dose (e.g., seaweed, shellfish, etc.), and
- Selected gamma scan employing high efficiency (e.g., sodium iodide) detectors, or best practical means, for the purpose of identifying discrete or "hot" particles.

Conditions:

Maine Yankee and Friends of the Coast will work together to define an RFP for a sampling and analysis plan for the intertidal zone, identify qualified independent contractors to receive the RFP, and select a contractor based on the bids received. Maine Yankee reserves the right to: 1) establish a reasonable ceiling on the cost of the supplemental study consistent with accomplishing the purposes of the study and re-bid as necessary to satisfy that constraint, and 2) void this agreement should issues associated with the intertidal zone, as the intertidal zone is defined in this agreement, become admissible contentions before the ASLB.

Maine Yankee and Friends of the Coast agree to develop the RFP by 12/31/2001 and implement the study following final liquid discharge from spent fuel pool operations (approximately 3/2003).

This agreement, if finalized in sufficient time, will be included in the revised License Termination Plan as an attachment to or in Section I and referenced wherever else Maine Yankee deems appropriate. If the agreement is not finalized before submittal of the revised License Termination Plan, a statement of intent will be placed in Section I and a later License Termination Plan supplement will provide the agreement when finalized.

If hot particles that would exceed remediation thresholds on-site are discovered in the "supplemental characterization", hot particle remediation will be undertaken following on-site methods and protocols.

Results of the "supplemental characterization" will be reported to Maine Yankee and Friends of the Coast. The written report will be publicly available and Friends of the Coast

will receive sufficient copies to disseminate to interested parties and members of the public who request copies.

Friends of the Coast, assisted by Maine Yankee, will provide an annotated bibliography of historical records, studies, etc. to be included as an appendix in the "supplemental study" report.

Agreed by:

Original Signed by Wayne Norton for

May 31, 2001

Maine Yankee

Date

Original Signed by Ray Shadis for

May 31, 2001

Friends of the Coast

Date

paragraph (D), taken together with any overages funded by Maine Yankee under Part II-B(5)(B), exceed a total of \$10 million.

(E) For purposes of this Part II-B(5), except as otherwise noted, all numbers shall be calculated in mid-1998 dollars (unless, in the alternative, the Settling Parties agree to nominal dollar calculations; for such purposes, the Incentive Budget is \$ 488.8 million, utilizing a 3.8% escalation rate). Reconciliation of any amounts to, or to be paid by, Maine Yankee or ratepayers shall be calculated within sixty (60) days of the NRC license termination or site release date (*i.e.*, the date the NRC approves license termination or release of the site applicable to the balance of the plant site other than the ISFSI), regardless of whether such date occurs before, on, or after December 31, 2004. The terms and timing of flow-through of any such benefits or additional payments shall be determined by the Commission pursuant to proceedings commenced by Maine Yankee, and Maine Yankee shall commence such proceedings as promptly as possible after calculating such reconciliation.

C. Site Restoration Issues.

(1) Maine Yankee and Friends of the Coast agree that Maine Yankee has been lawfully allowed to discharge low levels of radioactive waste emissions through its licensed pathways. Maine Yankee and Friends of the Coast agree to use their best efforts to reach agreement on thresholds of radiation which would be expected to be in the environment as a result of discharges at licensed limits, and to educate the public through the Community Action Panel on those expectations. Maine Yankee agrees to work with Friends of the Coast to develop a request for proposal ("RFP") for competitive bids for an environmental field survey of off-site marine sediments and a full spectrum analysis following the presumed pattern of dispersal from the Maine Yankee outflow. The RFP

will request that bidders consider use of the computer modeling of projected disposition developed by Professor Thomas Hess (University of Maine at Orono), if possible. The purpose of this survey would be to develop an isotopic picture of how licensed discharges are distributed and accumulated in the environment. Maine Yankee and Friends of the Coast agree that this study will be performed for the sole purpose of measuring and developing such an isotopic picture, and the study will compare the findings to the expected levels of radiation. Maine Yankee shall pay for the costs of the study as part of its decommissioning cost. Maine Yankee and Friends of the Coast agree that the price Maine Yankee pays shall not exceed \$165,000, and that the specific scope of the study shall be configured so that the costs of the study do not exceed \$165,000.

(2) Maine Yankee agrees to investigate with environmental organizations that are tax exempt under Section 501(c)(3) of the Internal Revenue Code, including, without limitation, colleges and universities, the development of an environmental center at the location of the so-called "Eaton Farm" property on the Maine Yankee site in Wiscasset, Maine. Maine Yankee agrees to consult with Friends of the Coast regarding organizations from which to solicit proposals. Maine Yankee agrees to convey to such an organization the Eaton Farm property, comprised of approximately 200± acres. Such donation will be provided for the purpose of creating a nature preserve and an environmental education center, and to provide public access of coastal lands in the mid-coast region of Maine. The center shall foster stewardship of the Sheepscot estuarine environment and provide a center for dialogue on environmental policy issues. Prior to making its decision and donating property, Maine Yankee agrees to seek the input of the so-called Community Advisory Panel regarding the donation. Maine Yankee's