

# Maine Yankee

321 OLD FERRY RD. • WISCASSET, ME 04578-4922

August 13, 2001

MN-01-032

RA-01-125

Proposed Change No. 210  
Supplement No. 2

UNITED STATES NUCLEAR REGULATORY COMMISSION

Attention: Document Control Desk

Washington, DC 20555

- Reference:
1. License No. DPR-36 (Docket No. 50-309)
  2. MYAPC Letter MN-00-004 dated January 13, 2000, Maine Yankee License Termination Plan
  3. MYAPC Letter MN-01-023 dated June 1, 2001, Revision 1, Maine Yankee's License Termination Plan
  4. Maine Yankee Letter to Paula Craighead, State of Maine, dated July 12, 2001
  5. Maine Yankee Letter to Ray Shadis, Friends of the Coast, dated July 12, 2001
  6. Maine Yankee letter (MN-01-029) to the NRC, dated August 8, 2001

Subject: **Revision 2, Maine Yankee's License Termination Plan**

In accordance with 10 CFR 50.82(a)(9), Maine Yankee (MY) hereby submits its revised License Termination Plan (LTP). Reference 2 transmitted MY's initial LTP for NRC review and approval. Reference 3 transmitted MY's Revision 1 of the LTP that reflected changes in the approach for decommissioning and revised criteria for completion of decommissioning activities. LTP Revision 1 also incorporated MY responses to comments and questions from the State of Maine (Reference 4), Friends of the Coast (Reference 5), and the NRC (Reference 6). This revision to the LTP (Revision 2) incorporates additional changes associated with the above referenced MY responses that were not otherwise included in LTP Revision 1, as well as changes resulting from on-going stakeholder interface and internal MY review and refinement.

The revised LTP continues to demonstrate that the remainder of decommissioning activities: (1) will be performed in accordance with Title 10 Code of Federal Regulations, (2) will not be inimical to the common defense and security or to the health and safety of the public, and (3) will not have a significant effect on the quality of the environment.

Maine Yankee hereby submits, pursuant to 10 CFR 50.90, Supplement 2 to the application to amend the license to add a license condition, which requires Maine Yankee to implement and maintain in effect all provisions of the License Termination Plan. This amendment application supplements the application previously submitted in References 2 and 3 by adding statements and requirements into the license regarding how the LTP

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demonstrates compliance with 10 CFR 20.1402 by meeting 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. Attachment 1 provides the background and reason for the proposed change, a description of the proposed change, a determination of "no significant hazards consideration," and an environmental impact consideration determination. Attachment 2 provides a copy of the affected Facility Operating License No. DPR-36 pages with proposed changes annotated. Attachment 3 provides the revised Maine Yankee License Termination Plan for NRC review and approval in accordance with 10 CFR 50.82. In accordance with NRC Regulatory Issue Summary 2001-05, Maine Yankee is hereby submitting a CD-ROM containing the revised LTP (Attachment 3). The attached CD provides the LTP in the form of eleven (11) files in Adobe Acrobat® "pdf" format (one file for each of the 10 LTP sections and one file for the cover image). Per the guidance of NRC Regulatory Issue Summary 2001-05, no paper copies of the LTP are being submitted. Revised text is notated in Revision 2 by right hand margin revision bars.

Maine Yankee has included in the LTP a Preface section entitled "License Termination Plan Requirements - A Non-Technical Summary." This section is provide to the NRC for information only. It is intended to describe technical aspects of license termination in "layman's" terms. This section of the LTP is not intended to support NRC's review of the LTP pursuant to 10 CFR 50.82 and 10 CFR 20 Subpart E.

This change does not involve a significant increase in the probability or consequences of an accident previously evaluated, create the possibility of a new or different kind of accident from any accident previously evaluated, or involve a significant reduction in the margin of safety.

This proposed change has undergone an Independent Safety Review. The Independent Review and Audit Committee has also reviewed this proposed change. Representatives of the State of Maine are informed of this request by copy of this letter.

If you have any questions, please contact us.

Sincerely,



Thomas L. Williamson, Director  
Nuclear Safety and Regulatory Affairs

#### Attachments

1. Proposed Change Description and Evaluations
2. Proposed License Change - Markup
3. License Termination Plan, Revision 2 (CD-ROM)

U. S. Nuclear Regulatory Commission  
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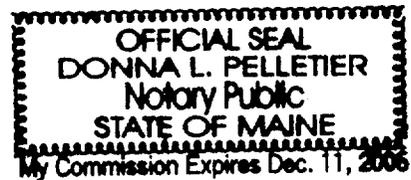
cc: Mr. R. Bellamy, NRC Region I  
Mr. E. L. Blake, Jr., Shaw-Pittman  
Ms. P. Craighead, Esq., State of Maine, Nuclear Safety Advisor  
Mr. P. J. Dostie, State of Maine, Division of Health Engineering  
Mr. J. T. Greeves, NRC Director, Division of Waste Management  
Mr. P. W. Haines, Maine Dept. of Environmental Protection  
Ms. E. Mason, Esq., USEPA New England, Office of Regional Counsel  
Mr. R. A. Gramm, NRC Section Chief, Project Directorate IV  
Mr. H. J. Miller, NRC Regional Administrator, Region I  
Mr. C.L. Pittiglio, NRC NMSS Project Manager, Decommissioning  
Mr. R. Ragland, NRC Region I  
Mr. R. Shadis, Friends of the Coast  
Mr. M. K. Webb, NRR Project Manager

STATE OF MAINE

Then personally appeared before me, Thomas L. Williamson, who being duly sworn did state that he is the Director, Nuclear Safety and Regulatory Affairs of Maine Yankee Atomic Power Company, that he is duly authorized to execute and file the foregoing request in the name and on the behalf of Maine Yankee Atomic Power Company, and that the statements therein are true to the best of his knowledge and belief.

Donna L. Pelletier

Notary Public



**Attachment I**  
**Proposed Change No. 210, Supplement No. 2**

**BACKGROUND**

On August 6, 1997, the Maine Yankee Atomic Power Co. Board of Directors voted to permanently cease operations of Maine Yankee and begin the decommissioning process. On August 7, 1997, Maine Yankee submitted certifications of permanent cessation of power operations and permanent removal of fuel from the reactor in accordance with 10 CFR 50.82(a)(1). On August 27, 1997, Maine Yankee submitted its Post Shutdown Decommissioning Activities Report (PSDAR) in accordance with 10 CFR 50.82(a)(4). In this report, Maine Yankee signaled its intention to decontaminate and dismantle the plant in a manner that results in the prompt removal of the existing nuclear plant. This approach is known as the DECON alternative. In its PSDAR, Maine Yankee provided a description and schedule of planned decommissioning activities, an estimate of expected costs and a discussion providing the reasons for concluding that the environmental impacts associated with the site-specific decommissioning activities are bounded by appropriate previously issued environmental impact statements. A public meeting was held on November 6, 1997 to solicit public comments on the PSDAR. On November 3, 1998, Maine Yankee submitted its Site Specific Cost Estimate and updated the PSDAR.

Pursuant to 10 CFR 50.82(a)(9), nuclear power reactor licensees are required to submit a license termination plan prior to or along with their application for termination of license. Pursuant to 10 CFR 50.82(a)(10), the Commission shall approve the plan if the LTP demonstrates that the remainder of decommissioning activities will be performed in accordance with the regulations in 10 CFR Chapter I, will not be inimical to the common defense and security or to the health and safety of the public, will not have a significant effect on the quality of the environment, and after notice has been provided to interested persons. Accordingly, Maine Yankee submitted its initial version of the License Termination Plan for NRC review and approval on January 13, 2000.

On May 17, 2000, the NRC published a notice in the Federal Register regarding Maine Yankee's submittal of the License Termination Plan and the request for license amendment mandating implementation of the LTP. On June 15 and 16, 2000 respectively, Friends of the Coast – Opposing Nuclear Pollution Inc. and the State of Maine filed requests for a hearing and petitions to intervene. The NRC established a Licensing Board to preside over the proceeding. On July 20, 2000 Maine Yankee notified the Licensing Board that it intended to submit a revised LTP addressing changes in plans for decommissioning and changes in criteria included in Maine Public Law LD 2688-SP1084. Accordingly, on June 1, 2001, Maine Yankee submitted Revision 1 to the LTP. By order dated June 11, 2001, the Licensing Board granted a joint request from MY, the State of Maine, and Friends of the Coast to further extend the period allowed for settlement discussions prior to the commencement of hearing proceedings. Per the order, a conference call will be arranged between the Licensing Board and all parties in late August 2001 (to report on the status of discussions).

This revised LTP (Revision 2) is being submitted to provide further refinement and clarifications to the decommissioning activities required to be described in the LTP.

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Revision 2 incorporates comments received from stakeholders, including the State of Maine, and Friends of the Coast. The revised LTP is submitted as a supplement to the FSAR or equivalent (i.e., the Defueled Safety Analysis Report, in this case) in accordance with 10 CFR 50.82(a)(9)(i). Maine Yankee is not submitting at this time its application for termination of license. Pursuant to 10 CFR 50.82(a)(10), the Commission's approval of the plan shall be executed by license amendment, subject to such conditions and limitations, as it deems appropriate and necessary. This approval will authorize the implementation of the LTP. Attached is a proposed change to the license authorizing the implementation of the LTP and providing appropriate and necessary conditions regarding the licensee's authority to make changes to it without prior NRC review and approval.

In addition, the proposed change to the license adds statements and requirements into the license regarding how the LTP demonstrates compliance with 10 CFR 20.1402 by meeting 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 drinking water.

**DESCRIPTION OF CHANGES**

Maine Yankee proposes to amend the license to incorporate a new license condition: 2.B.(9). Attachment II provides a copy of the affected Facility Operating License No. DPR-36 pages with the proposed changes annotated.

**2.B.(9) License Termination**

- (i) The Maine Yankee 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 licensee shall implement and maintain in effect all provisions of the approved License Termination Plan submitted on August 13, 2001 as supplemented and as approved in the SER dated \_\_\_\_\_, subject to and as amended under the following stipulations:

The licensee may make changes to the License Termination Plan 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);

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- (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 ( $\alpha$ ) of making a Type I decision error.

The licensee shall submit an updated License Termination Plan in accordance with 10 CFR 50.71(e).

- (ii) The licensee shall certify in its application for Part 50 license termination that it has met 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 in accordance with the approved License Termination Plan. The licensee shall at that time request NRC to confirm this certification.

A method is proposed to allow Maine Yankee to make changes to the License Termination Plan without prior NRC approval similar to the flexibility afforded operating nuclear power plant licensees to make changes to the facility or procedures as described in the updated safety analysis report. This method includes five change criteria elements. The first two elements regarding 10 CFR 50.59 and 50.82(a)(6) are established in current regulation. The third element regarding the coverage requirements for scan measurements is established in LTP Section 5.4.1, Table 5-3. The fourth element 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. The fifth element limits the probability of releasing a survey unit, which contains residual radioactivity above the release criterion. This value is discussed in LTP Section 5.4.2 and 5.8.1.

Maine Yankee proposes to add statements and requirements to the license to clarify how the License Termination Plan will demonstrate compliance with the radiological criteria for unrestricted use, as defined by 10 CFR 20.1402. The LTP demonstrates this compliance 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. When NRC approves the License Termination Plan, it is Maine Yankee's expectation that NRC will have verified that the dose modeling methods, pathways and parameters are appropriate to produce proper derived concentration guideline levels (DCGL's) for a given dose based release criteria and that the final radiation survey methods described in the LTP will properly demonstrate compliance with the DCGL's. The dose based release criteria used in the Maine Yankee License Termination Plan 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

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with state law.<sup>1</sup> 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 demonstrated by meeting this site release criteria. This is discussed in LTP Section 1.4.1.

**EVALUATION FOR SIGNIFICANT HAZARDS CONSIDERATION**

The proposed change to the Technical Specifications, has been evaluated against the standards of 10 CFR 50.92 and has been determined not to involve a significant hazards consideration. An evaluation against these standards is provided below:

The proposed change does not:

1. Involve a significant increase in the probability or consequence of an accident previously evaluated.

The requested license amendment does not authorize any plant activities beyond those allowed by 10 CFR Chapter I or beyond those considered in the DSAR. The bounding accident described in the Defueled Safety Analysis Report (DSAR) for potential airborne activity is the postulated resin cask drop accident in the Low Level Radioactive Waste Storage Building. This accident is expected to contain more potential airborne activity than can be released from other decommissioning events. The radionuclide distribution assumed for the spent resin cask has more transuranics (the major dose contributor) than the distribution in the components involved in other decommissioning accidents. The other accidents considered in the DSAR include: 1) Explosion of Liquid Petroleum Gas (LPG) Leaked from a Front End Loader or Forklift; 2) Explosion of Oxyacetylene During Segmenting of the Reactor Vessel Shell; 3) Release of Radioactivity from the RCS Decontamination Ion Exchange Resins; 4) Gross Leak During In-Situ Decontamination; 5) Segmenting of RCS Piping with Unremoved Contamination; 6) Fire Involving Contaminated Clothing or Combustible Waste; 7) Loss of Local Airborne Contamination Control During Blasting or Jackhammer Operations; 8) Temporary Loss of Services, 9) Dropping of Contaminated Concrete Rubble; 10) Natural Phenomena; and 11) Transportation Accidents. The probabilities and consequences for these accidents are estimated in the basis documentation for DSAR Section 7. No systems, structures, or components that could initiate or be required to mitigate the consequences of an accident are affected by the proposed change in any way not previously evaluated in the DSAR. Since Maine Yankee does not exceed the salient parameters associated with the plant referenced in the basis documentation in any material respects, it is concluded that these

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

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probabilities and consequences are not increased. Therefore, the proposed change to the Maine Yankee License does not involve any increase in the probability or consequences of any accident previously evaluated.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

The requested license amendment does not authorize any plant activities that could precipitate or result in any accidents beyond those considered in the DSAR. The accidents previously evaluated in the DSAR are described above. These accidents are described in the basis documentation for DSAR Section 7. The proposed change does not affect plant systems, structures, or components in any way not previously evaluated in the DSAR. Since Maine Yankee does not exceed the salient parameters associated with the plant referenced in the basis documentation in any material respects, it is concluded that these accidents appropriately bound the kinds of accidents possible during decommissioning. Therefore, the proposed change to the Maine Yankee License would not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Involve a significant reduction in a margin of safety.

The margin of safety defined in Maine Yankee's license basis for the consequences of decommissioning accidents has been established as the margin between the bounding decommissioning accident and the dose limits associated with the need for emergency plan offsite protection, namely the Environmental Protection Agency Protective Action Guidelines EPA-PAGs. As described above, the bounding decommissioning accident is the postulated resin cask drop accident in the Low Level Radioactive Waste Storage Building. Since the bounding decommissioning accident is expected to contain more potential airborne activity than can be released from other decommissioning events and since the radionuclide distribution assumed for the spent resin cask has more transuranics (the major dose contributor) than the distribution in the components involved in other decommissioning accidents, the margin of safety associated with the consequences of decommissioning accidents cannot be reduced. The margin of safety defined in the statements of consideration for the final rule on the Radiological Criteria for License Termination is described as the margin between the 100 mrem/yr public dose limit established in 10 CFR 20.1301 for licensed operation and the 25 mrem/yr dose limit to the average member of the critical group at a site considered acceptable for unrestricted use. This margin of safety accounts for the potential effect of multiple sources of radiation exposure to the critical group. Since the license termination plan was designed to

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comply with the radiological criteria for license termination for unrestricted use, the margin of safety cannot be reduced. Therefore, the proposed changes to the Maine Yankee License would not involve a significant reduction in any margin of safety.

**Conclusion**

Maine Yankee has concluded that the proposed change to the Technical Specifications does not involve a significant hazards consideration as defined by 10 CFR 50.92.

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**ENVIRONMENTAL IMPACT DETERMINATION**

This amendment request meets the criteria specified in 10 CFR 51.22(c)(9) for a categorical exclusion from the requirements to perform an environmental assessment or to prepare an environmental impact statement. The specific criteria of 10 CFR 51.22(c)(9) are discussed below:

1. The amendment involves no significant hazards consideration. As demonstrated above, this requested amendment does not involve any significant hazards considerations.
2. There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite. The environmental impacts associated with doses to members of the public as a result of decommissioning activities and site release for unrestricted use were considered in the Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities (NUREG-0586) and the Generic Environmental Impact Statement in Support of the Rulemaking on Radiological Criteria for License Termination ("GEIS," NUREG-1496). In Maine Yankee's PSDAR, Maine Yankee concluded that the environmental impacts associated with the site-specific decommissioning activities will be bounded by appropriate previously issued environmental impact statements. In particular, the decommissioning activities covered by the LTP will result in radiation doses to the public below a comparable level when the plant was operating. Radiation dose to the public will be minimal. The release of effluents will continue to be controlled by plant procedures throughout decommissioning. Maine Yankee will continue to operate in accordance with the Offsite Dose Calculation Manual (ODCM) during the decommissioning activities. In addition, because of the decay of short-lived radionuclides, the types of nuclides that could potentially be released in effluents have decreased.
3. There is no significant increase in individual or cumulative occupational radiation worker exposure. The environmental impacts associated with individual or cumulative occupational radiation exposure were also considered in the Generic Environmental Impact Statements referred to above. It was similarly concluded that the GEIS appropriately bounded the environmental impacts associated with the Maine Yankee site-specific decommissioning activities. Radiation dose to decommissioning workers will be a small fraction of the operating experience. The total decommissioning dose including exposure from decontamination and dismantlement activities and the exposure during transportation of the low-level wastes is estimated to be less than the total dose that was found acceptable for decommissioning the reference PWR in the GEIS on decommissioning of nuclear facilities. Radiation protection principles used during plant operation remain in effect during decommissioning to

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ensure that protective techniques, clothing, and breathing apparatus are used as appropriate.

On the basis of the preceding discussion, it has been concluded that the proposed amendment is acceptable and meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22 (c)(9), and thus no environmental impact statement or environmental assessment need to be prepared in connection with issuance of this amendment.

**Attachment II**  
**Proposed License Change - Markup**

Maine Yankee  
Proposed License Change  
Pages 5 & 6

2.B.(7) This amended license is subject to the following conditions for protection of the environment:

- (a) Deleted
- (b) Deleted

2.B.(8) This amended license is effective as of the date of issuance and shall expire at midnight October 21, 2008.

2.B.(9) License Termination

- (i) The Maine Yankee 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 licensee shall implement and maintain in effect all provisions of the approved License Termination Plan submitted on August 13, 2001 as supplemented and as approved in the SER dated \_\_\_\_\_, subject to and as amended under the following stipulations:

The licensee may make changes to the License Termination Plan 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 ( $\alpha$ ) of making a Type I decision error.

The licensee shall submit an updated License Termination Plan in accordance with 10 CFR 50.71(e).

2.B.(9) License Termination (continued)

- (ii) The licensee shall certify in its application for Part 50 license termination that it has met 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 in accordance with the approved License Termination Plan. The licensee shall at that time request NRC to confirm this certification.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed by A. Giambusso

A. Giambusso, Deputy Director  
For Reactor Projects  
Directorate of Licensing

Attachments:  
Appendices A & B - Technical Specifications

Date of Issuance: June 29, 1973

Amendment No. 131, 164

**Attachment III**  
**License Termination Plan, Revision 2**

**MAINE YANKEE LICENSE TERMINATION PLAN  
REVISION 2**