

July 21, 2003

Mr. Michael Kansler
President
Entergy Nuclear Operations, Inc.
400 Hamilton Avenue
White Plains, NY 10601

SUBJECT: PILGRIM NUCLEAR POWER STATION - ISSUANCE OF AMENDMENT RE:
RELOCATION OF COOLANT CHEMISTRY - CONDUCTIVITY AND
CHLORIDES TECHNICAL SPECIFICATION REQUIREMENT TO THE
UPDATED FINAL SAFETY ANALYSIS REPORT (TAC NO. MB5685)

Dear Mr. Kansler:

The Commission has issued the enclosed Amendment No. 202 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station. This amendment is in response to your application dated July 5, 2002, as supplemented August 13, 2002.

This amendment relocates portions of Technical Specification (TS) 3/4.6.B, "Primary System Boundary - Coolant Chemistry," to the Pilgrim Nuclear Power Station Updated Final Safety Analysis Report (UFSAR). The relocated portions of the TS involve limiting condition for operation and surveillance requirements for reactor coolant conductivity and chloride concentration. The associated Bases section will also be relocated to the UFSAR.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register Notice.

Sincerely,

/RA/

Travis L. Tate, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-293

Enclosures: 1. Amendment No. 202 to
License No. DPR-35
2. Safety Evaluation

cc w/encls: See next page

Pilgrim Nuclear Power Station

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Dear Mr. Kansler:

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Sincerely,

/RA/

Travis L. Tate, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-293

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License No. DPR-35
2. Safety Evaluation

cc w/encls: See next page

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ENTERGY NUCLEAR GENERATION COMPANY

ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-293

PILGRIM NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 202
License No. DPR-35

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:
 - A. The application for amendment filed by Entergy Nuclear Operations, Inc. (the licensee) dated July 5, 2002, as supplemented August 13, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-35 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 202, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance and shall be implemented within 60 days. The implementation of this amendment shall include the relocation of certain technical specification requirements and the associated bases to the Pilgrim Nuclear Power Station Updated Final Safety Analysis Report in accordance with 10 CFR 50.71(e), as described in the licensee's application dated July 5, 2002, as supplemented by letter dated August 13, 2002, and evaluated in the staff's Safety Evaluation attached to this amendment.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: July 21, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 202

FACILITY OPERATING LICENSE NO. DPR-35

DOCKET NO. 50-293

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

3/4.6-3

B3/4.6-4

B3/4.6-5

Insert

3/4.6-3

B3/4.6-4

B3/4.6-5

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 202 TO FACILITY OPERATING LICENSE NO. DPR-35
ENTERGY NUCLEAR GENERATION COMPANY
ENTERGY NUCLEAR OPERATIONS, INC.
PILGRIM NUCLEAR POWER STATION
DOCKET NO. 50-293

1.0 INTRODUCTION

By application dated July 5, 2002, as supplemented by letter dated August 13, 2002, Entergy Nuclear Operations, Inc. (ENO or the licensee) submitted a request for changes to the Pilgrim Nuclear Power Station (Pilgrim) Technical Specifications (TSs). The requested changes would relocate portions of TS 3/4.6.B, "Primary System Boundary - Coolant Chemistry," to the Pilgrim Updated Final Safety Analysis Report (UFSAR). Specifically, the changes would relocate TSs 3.6.B.2, 3.6.B.3, and 3.6.B.4 requirements for reactor coolant conductivity and chloride concentration to the UFSAR. The associated surveillance requirements (SRs) in TSs 4.6.B.2 and 4.6.B.3 for monitoring, sampling, and analysis of the reactor coolant would also be relocated to the UFSAR. The existing TS 3.6.B.5 would be renumbered to TS 3.6.B.2 based on the relocation of the prior sections. The associated Bases sections would also be relocated to the UFSAR.

ENO is requesting the proposed change in support of future plans for the application of Noble Metal Chemical Addition at Pilgrim.

2.0 REGULATORY EVALUATION

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include TSs as part of the license. In Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36 (10 CFR 50.36), the Commission established regulatory requirements related to the content of TSs. This regulation requires that the TSs include items in eight specific categories. These categories include 1) safety limits, limiting safety system settings, and limiting control settings, 2) limiting conditions for operation (LCOs), 3) SRs, 4) design features, 5) administrative controls, 6) decommissioning, 7) initial notification, and 8) written reports. However, the regulation does not specify the particular requirements to be included in a plant's TSs.

The U.S. Nuclear Regulatory Commission (NRC) developed criteria, as described in the "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" (58 FR 39132), to determine which design conditions and associated surveillances should be

located in the TSs as LCOs. Four criteria were subsequently incorporated into the regulations by an amendment to 10 CFR 50.36 (60 FR 36953) and are as follows:

- (1) Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.
- (2) A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
- (3) A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
- (4) A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

The Commission's Final Policy Statement and documentation related to the revision of 10 CFR 50.36 acknowledged that implementation of these criteria may permit some requirements presently in the TSs to be relocated to other licensee-controlled documents and programs.

The NRC staff reviewed the TSs proposed to be relocated for compliance with 10 CFR 50.36 and agreement with the precedent as established in NUREG-1433, Rev. 2, "Standard Technical Specifications, General Electric Plants, BWR/4," for boiling-water reactors (BWRs). The NRC staff review also ensured that future changes to relocated TSs requirements will receive appropriate regulatory control.

3.0 TECHNICAL EVALUATION

3.1 Reactor Coolant Chemistry Requirements

Pilgrim TS 3/4.6.B provides the LCO and associated SRs for reactor coolant system chemistry for all MODES of operation. Specifically, TSs 3.6.B.2, 3.6.B.3, and 3.6.B.4 provide the required reactor coolant conductivity and chloride concentration limits for steaming rates of less than 100,000 pounds per hour (lbs/hr), for reactor startups and the first 24 hours after the reactor is in the power operating condition, and for steaming rates greater than 100,000 lbs/hr, respectively. SRs 4.6.B.2 and 4.6.B.3 provides the required frequency for obtaining reactor coolant samples and performing analysis of the conductivity and chloride content. These frequencies are specified for steaming rates, for reactor startups, and for conditions in which all continuous monitors are inoperable.

The licensee proposes to relocate TSs 3/4.6.B.2, 3/4.6.B.3, and 3.6.B.4 for the reactor coolant conductivity and chloride concentration from the TSs to the USFAR. TS 3.6.B.5 is applicable to the proposed relocated TSs; therefore, the licensee stated in its application that the requirement will be repeated in the UFSAR. The requirements of the current TS 3.6.B.5 will

remain in the TSs. The licensee's evaluation against the four criteria of 10 CFR 50.36 are addressed below:

- (1) The reactor coolant conductivity and chloride concentration limits as specified in TS 3.6.B and 4.6.B are not used to detect and indicate in the control room a significant abnormal degradation of the reactor coolant pressure boundary. The TS provides limits on particular chemical properties of the primary coolant, and surveillance requirements to monitor these properties to ensure that degradation of the reactor coolant pressure boundary is not exacerbated by poor chemistry condition. However, degradation of the reactor coolant pressure boundary is a long-term process.

Other regulations and TSs provide direct means to monitor and correct the degradation of the reactor coolant pressure boundary; for example, in-service inspection and primary coolant leakage limits.

- (2) Chemistry parameters are not used as an initial condition of a Design Basis Accident or Transient Analysis that either assumes the failure of, or presents a challenge to, the integrity of a fission product barrier.
- (3) Reactor coolant conductivity and chloride concentration are not used as part of the primary success path which functions or actuates to mitigate a Design Basis Accident or Transient.
- (4) Operating experiences or probabilistic safety assessments have not shown chemistry parameters to be significant to public health and safety.

In the application dated July 5, 2002, the licensee stated that materials in the primary system are primarily stainless steels and Zircaloy cladding. In addition, the licensee stated that abnormal chemistry conditions in the reactor coolant may be corrected through operation of the reactor water cleanup system, reducing the input of impurities, or placing the reactor in a cold shutdown condition.

The NRC staff has reviewed the licensee's regulatory and technical analysis in support of its proposed license amendment which are described in Sections 4.0 and 5.0 of the licensee's submittal. Degradation of the reactor coolant pressure boundary due to reactor coolant chemistry is a phenomena which occurs under favorable conditions over an extended period of time. The reactor coolant conductivity and chloride concentration limits proposed to be relocated are established to control stress corrosion cracking of the primary system component materials and to provide a means of indicating abnormal conditions or the presence of unusual materials in the reactor coolant. Engineering and industry experience shows that stress corrosion cracking of the stainless steel in the primary system components is induced by the chloride-oxygen content and the temperature of the reactor coolant. Zircaloy does not exhibit the same stress corrosion failure mechanisms as stainless steel. The conductivity and chloride concentration limits provide operating restrictions that are dependent on the conditions of the reactor coolant water. The limits are more restrictive under conditions in which the chloride-oxygen content in the reactor coolant would tend to induce corrosion of the primary system materials.

The NRC staff evaluated the licensee's proposed change against the four criteria set forth in 10 CFR 50.36(c)(2)(ii). The conductivity and chloride concentration limits are not installed instrumentation that is used to detect and indicate in the control room a significant abnormal degradation of the reactor coolant pressure boundary. Therefore, the staff determined that the concentration limits do not meet criterion 1. The conductivity and chloride concentration limits provide operating restrictions based on the conditions of the reactor coolant water which could induce corrosion. However, the concentration limits are not used as an initial condition of, or part of the primary success path which functions or actuates to mitigate, a design-basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. Therefore, the staff determined that the concentration limits do not meet criterion 2 and 3. The concentration limits are not a structure, system, or component in which operating experience or probabilistic risk assessment has shown to be significant to public health and safety. Therefore, the staff determined that the concentration limits do not meet criterion 4. The staff concludes that the requirements proposed to be relocated to the UFSAR, as discussed above, are not required to be in the TSs pursuant to 10 CFR 50.36. This proposed change is also consistent with NUREG-1433, for BWRs.

The NRC staff finds that sufficient regulatory controls exist under the regulations with regard to the relocated provisions. The facility and procedures described in the UFSAR can only be revised in accordance with the provisions of 10 CFR 50.59, which ensures records are maintained and establishes appropriate controls over changes to the requirements removed from TSs. The documentation of these changes will be maintained by the licensee as required by 10 CFR 50.59. The submittal of the updated licensee-controlled documents (e.g., UFSAR) to the Commission will be as required by, and in accordance with 10 CFR 50.71(e) for the updated UFSAR.

3.2 Administrative Changes

The relocation of TSs 3.6.B.2, 3.6.B.3, and 3.6.B.4 creates blank spaces in the existing TSs for those requirements. The licensee proposed in its application to renumber the existing TS 3.6.B.5 to TS 3.6.B.2 for number sequence consistency. No changes to the existing requirements are proposed. The staff determined that this proposed change is administrative in nature and is acceptable.

3.3 TS Bases

The licensee included the TS Bases pages and modifications associated with the proposed changes. The staff does not object to the proposed changes.

3.4 Evaluation Summary

The NRC staff concludes that the TS requirements being relocated to the UFSAR are appropriate for relocation under the criteria in 10 CFR 50.36. In addition, the staff finds that appropriate controls exist for all of the current specifications, requirements, and information that are being moved to licensee-controlled documents. The staff also concludes that, in accordance with the Final Policy Statement, sufficient regulatory controls exist under the regulations, specifically 10 CFR 50.59 and 10 CFR 50.71(e). Accordingly, these changes in specifications, information, and requirements, as described in this evaluation, are acceptable and may be relocated from the Pilgrim TSs and placed in the UFSAR.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Massachusetts State Official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes LCO requirements and SRs with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (68 FR 28850). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: T. Tate

Date: July 21, 2003