April 2, 2001

Mr. Mike Bellamy
Site Vice President
Entergy Nuclear Generation Company
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

SUBJECT: PILGRIM NUCLEAR POWER STATION - ISSUANCE OF AMENDMENT RE: REACTOR VESSEL MATERIAL SURVEILLANCE INTERVAL (TAC NO. MA9908)

Dear Mr. Bellamy:

The Commission has issued the enclosed Amendment No. 188 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station. This amendment is in response to your application dated September 1, 2000.

The proposed amendment approves a change to the Pilgrim Technical Specification Table 4.6-3. The change would modify the reactor pressure vessel surveillance capsule withdrawal schedule by substituting “21 (approx)” under the column “Effective Full Power Years (EFPY)” for the current “18 (approx).”

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/

Alan B. Wang, 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. 188 to License No. DPR-35
2. Safety Evaluation

cc w/encls: See next page

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2. Safety Evaluation
cc w/encls: See next page
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			JLinville, RI
TClark	PDI-2 R/F	AWang	OGC
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Accession Number: ML010710088 *SE dated March 9, 2001, no major changes made

OFFICE	PM:PDI-2	LA:PDI-2	EMCB*	OGC	SC:PDI-2
NAME	AWang	TClark	MKhanna	CMarco	REnnis for JClifford
DATE	3/30/01	3/30/01	03/9/01	3/22/01	4/2/01

OFFICIAL RECORD COPY

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ENTERGY NUCLEAR GENERATION COMPANY

DOCKET NO. 50-293

PILGRIM NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 188
License No. DPR-35

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:

   A. The application for amendment filed by the Entergy Nuclear Generation Company (the licensee) dated September 1, 2000, 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. 188, 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 its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ R. B. Ennis for

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: April 2, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 188

FACILITY OPERATING LICENSE NO. DPR-35

DOCKET NO. 50-293

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove	Insert
3/4 6-13	3/4 6-13

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 188 TO FACILITY OPERATING LICENSE NO. DPR-35

ENTERGY NUCLEAR GENERATION COMPANY

PILGRIM NUCLEAR POWER STATION

DOCKET NO. 50-293

1.0 INTRODUCTION

By letter dated September 1, 2000, Entergy Nuclear Generation Company (Entergy/the licensee) submitted a request for U.S. Nuclear Regulatory Commission (NRC) review and approval of its proposed modification to the Pilgrim Nuclear Power Station (Pilgrim) reactor pressure vessel (RPV) surveillance capsule withdrawal schedule. The requested changes would change the Pilgrim Technical Specification (TS) Table 4.6-3. The change would substitute “21 (approx)” under the column “Effective Full Power Years (EFPY)” for the current “18 (approx).” Entergy’s submittal was made in accordance with the provision of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix H, paragraph B.3 which specifies that "[a] proposed withdrawal schedule must be submitted with a technical justification as specified in [10 CFR 50.4]. The proposed schedule must be approved prior to implementation."

2.0 REGULATORY REQUIREMENTS AND STAFF POSITIONS

Nuclear power plant licensees are required by 10 CFR Part 50, Appendix H to implement RPV surveillance programs to "monitor changes in the fracture toughness properties of ferritic materials in the reactor vessel beltline region...which result from exposure of these materials to neutron irradiation and the thermal environment." Regarding RPV surveillance program design and specimen testing, 10 CFR 50, Appendix H incorporates, by reference, the editions of the American Society for Testing and Materials (ASTM) Standard Practice E 185, "Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels," through the 1982 edition. Under 10 CFR 50, Appendix H, the licensee’s RPV surveillance program design and withdrawal schedule is required to meet the requirements of the edition of ASTM E 185 that is current on the issue date of the American Society of Mechanical Engineers (ASME) Code to which the RPV was purchased, although later editions may be used, up to and including the 1982 Edition. The test procedures and reporting requirements must meet the requirements of the 1982 Edition of ASTM E185, to the extent practical for the configuration of the specimens in the capsules.

The Pilgrim RPV surveillance program was designed to the 1966 Edition of the ASTM E 185 (ASTM E 185-66). ASTM E 185-66, Paragraph 4.6, addresses the withdrawal schedule as follows, "[i]t is recommended that sets of specimens be withdrawn at three or more

separate times. One of the data points obtained shall correspond to the neutron exposure of the component near the end of its design life." Hence, guidance is only given for the last capsule, but not for the first two capsules.

However, the NRC staff published additional guidance regarding licensee requests to obtain one cycle capsule withdrawal deferrals to support the Integrated Surveillance Program (ISP) proposed by the Boiling Water Reactor Vessel and Internals Project (BWRVIP). The ISP proposed by the BWRVIP was designed to integrate and share data from the surveillance programs from all existing BWR reactors in the United States. The BWRVIP noted that some licensees would need to obtain at least one cycle capsule deferral to support obtaining high quality data from some existing surveillance capsules. In addition, since some existing surveillance capsules would not need to be tested if the ISP were approved by the staff, licensees having such capsules desired to seek deferral of their removal and testing to reduce monetary expenditures and personnel exposure. The NRC staff has noted its general support for the ISP proposal and, by letter to the BWRVIP dated May 16, 2000, identified criteria to be addressed by licensees requesting one cycle capsule deferrals to support the ISP.

The first criterion addressed in the staff's May 16, 2000, letter requested that licensees explain how their deferral request is consistent with the ISP plan submitted in Topical Report BWRVIP-78. Specifically, this requested that licensees examine how their surveillance capsules would be used (or not used) under the proposed ISP and confirm that their request for a one-cycle deferral would not affect the ability of the ISP to meet its objectives. The second criterion requested that licensees provide a justification as to why the materials property data to be acquired from the capsule in question was not necessary to support safe operation of the facility over the period of the deferral. Several options were given in the staff's letter regarding possible responses to this criterion. The staff's third and final criterion requested that licensees explain why the dosimetry data to be acquired from the capsule in question was not necessary to support safe operation of the facility over the period of the deferral.

3.0 LICENSEE'S DETERMINATION

In its September 1, 2000, submittal, Entergy stated that its reason for requesting this deferral of the next Pilgrim surveillance capsule was to support their involvement in the ISP and, in its pursuit of life extension, to allow for a capsule removal at the end of extended life. Entergy then addressed, as described below, the three criteria cited in the NRC staff's May 16, 2000, letter.

Regarding the first criterion, Entergy noted that according to the scope of the ISP discussed in the BWRVIP-78 report, the surveillance capsules for Pilgrim are included within the scope of the ISP documented in the BWRVIP-78 report. In addition, the ISP schedule in the BWRVIP-78 report suggested that the next Pilgrim capsule should be withdrawn in accordance with the current withdrawal schedule. In subsequent discussions with NRC staff, BWRVIP representatives noted that the ISP withdrawal schedule in the BWRVIP-78 report had not been "optimized" and was, rather, simply based on the current individual plant withdrawal schedules. Therefore, Entergy determined that deferring the next scheduled capsule pull is consistent with the ISP and with the BWRVIP January 21, 1999, memorandum to its members. Entergy determined that the deferral is consistent with the current ISP proposal in that the testing of Pilgrim's second capsule at this time is not critical to achieving data of particular value to the ISP.

To address the second criterion, Entergy noted that the material test data from the capsules to be deferred was not necessary to ensure continued safe operation of the Pilgrim RPV for two reasons. First, the current Pilgrim pressure-temperature (P-T) limit curves were approved by the staff for operation through 32 effective full power years (EFPY) of operation by a safety evaluation dated July 15, 1999. Entergy further determined that none of the curves required the data from the next surveillance capsule withdrawal. Entergy's second reason was that, based on the chemical compositions of the surveillance materials and the projected capsule fluences, the surveillance materials were not expected to exhibit sufficient transition temperature shift to have the results be distinguishable from surveillance data scatter. Hence, the data acquired at approximately 18 EFPY would not be very valuable for either ensuring the integrity of the Pilgrim RPV, or for adding data to further the general state of knowledge regarding power reactor embrittlement behavior.

Finally, regarding the third criterion, Entergy concluded that the dosimetry information from the capsules to be deferred was not necessary to ensure continued safe operation of the Pilgrim RPVs. Entergy noted that the operating time for the Pilgrim RPV at the end of the proposed deferral period will be 21 EFPY. Since the current Pilgrim P-T limits were approved through 32 EFPY, this indicates that the unit will still be at less than the P-T limit boundary exposure level at the end of the deferral period. Entergy concluded that this provided sufficient margin to ensure that the current 32 EFPY fluence projection would not be exceeded during the deferral period.

Based on the above, Entergy concluded that their request to defer withdrawal of the next Pilgrim surveillance capsules was justified and consistent with their intent to support the BWRVIP ISP.

4.0 STAFF EVALUATION

The NRC staff has reviewed the information supplied by the licensee and the regulatory requirements and guidance stated in Section 2.0. Regarding the requirements of ASTM E185-66, the staff concluded that Entergy's requested modifications to their surveillance capsule withdrawal schedules would be acceptable because it still meets the recommendations of ASTM E 185-66. The staff's conclusions on the technical justifications provided in response to the three criteria given in the NRC staff's May 16, 2000, letter are given below.

First, the staff accepts that deferral of the next Pilgrim capsule is consistent with the BWRVIP ISP plan. Based on the NRC staff's discussions with the BWRVIP, some modifications to the withdrawal schedule proposed as part of the ISP are expected. In addition, the ISP is intended to improve the quality of data acquired to assess the embrittlement of BWR RPVs. Recalling that Entergy concluded that if the capsules were not deferred the Charpy shifts obtained from the surveillance materials would not be distinguishable from data scatter, the staff would expect that a deferral of these capsules would be, in fact, necessary to support the ISP.

Since the licensee's rationale to address the second and third criterion depends on an evaluation of the Pilgrim P-T limits, some discussion of the most recently approved Pilgrim P-T limits is provided here. By letter dated July 15, 1999, the NRC approved new P-T limit curves for up to 32 EFPY of operation for Pilgrim. The NRC staff concluded that, based on several considerations addressed in the P-T limit safety evaluation, use of these P-T limit curves would ensure safe plant operation through 32 EFPY.

The period of the requested surveillance capsule deferral is, therefore, less than the period over which the most recently approved P-T limits remain valid. Hence, the staff has concluded that, through the period of the requested capsule deferral, the most recently approved Pilgrim P-T limits will continue to ensure that the integrity of the RPV will be maintained for heatup, cooldown, normal power operation, and leak rate testing. Further, the additional materials test data and dosimetry from the capsule would not be expected to lead to significant modification of the Pilgrim P-T limit curves if the capsules were tested in accordance with the current withdrawal schedule since the data obtained would likely not be differentiable from data scatter. Therefore, in this case, no additional material test (i.e, Charpy impact test) data or dosimetry data is required to ensure, nor would be expected to contribute to the evaluation of, the integrity of the Pilgrim RPV through the period of the deferral.

The NRC staff has concluded that deferral of the withdrawal of the next Pilgrim surveillance capsule for one cycle is acceptable because it meets ASTM E185-66 and the three criteria of the May 16, 2000, letter. This approved change modifies the withdrawal of the next surveillance capsule from 18 EFPY to 21 EFPY for Pilgrim. Thus the staff concludes that modifying the withdrawal schedule given in the TS Table 4.6-3 to reflect these changes is acceptable.

3.0 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.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. 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 (65 FR 65342). 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.

5.0 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.

6.0 REFERENCES

1. M. Bellamy (Entergy) to U.S. Nuclear Regulatory Commission Document Control Desk, "Request for Technical Specification Change Concerning Vessel Material Surveillance Interval," dated September 1, 2000.

2. U.S. NRC to M. Bellamy (Entergy), "Pilgrim - Issuance of Amendments - Revised Pressure-Temperature Limits" dated July 15, 1999.

Principal Contributor: M. Khanna

Date: April 2, 2001