



Entergy Nuclear Operations, Inc.
600 Rocky Hill Road
Plymouth, MA 02360

Attachment 6 contains proprietary information to be withheld from public disclosure under 10 CFR 2.390. When separated, this letter can be made public.

December 10, 2014

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Proposed Change to Pilgrim Technical Specifications Concerning the Safety Limit Minimum Critical Power Ratio

Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
Docket No. 50-293
License No. DPR-35

LETTER NUMBER: 2.14. 076

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy proposes to amend Facility Operating License DPR-35 for the Pilgrim Nuclear Power Station by modifying Technical Specification Section 2.1.2.

This application proposes to change the Safety Limit Minimum Critical Power Ratio (SLMCPR) in Technical Specification (TS) Section 2.1.2 from ≥ 1.08 to ≥ 1.10 for two recirculation loop operation and from ≥ 1.11 to ≥ 1.12 for single loop operation.

Attachment 1 contains a description of the proposed changes, a safety evaluation of the changes, the Determination of No Significant Hazards Consideration, and an Environmental Assessment.

Attachment 2 contains the current Technical Specification page marked up with the proposed revisions.

Attachment 3 contains the proposed revised Technical Specification page.

Entergy requests the NRC staff's timely review and approval of this proposed amendment to support startup from Refueling Outage (RFO)-20, on or about May 1, 2015. Therefore, in order to support Cycle 21 operation, it is requested the proposed changes be issued by April 1, 2015, to provide sufficient time to revise affected documents prior to startup from RFO-20.

ADD 1
NER

Attachment 6 contains proprietary information to be withheld from public disclosure under 10 CFR 2.390. When separated, this letter can be made public.

Following approval of the proposed amendment, the Core Operating Limits Report and applicable operating procedures will be revised prior to start-up from RFO-20.

This submittal contains no new regulatory commitments.

If you have questions regarding this subject, please feel free to contact Everett P. Perkins at (508) 830-8323.

I declare under the penalty of perjury that the foregoing information is true and correct.

Executed on the 11TH day of DECEMBER, 2014

Sincerely,



John A. Dent, Jr.
Site Vice President

JAD/mew

Attachments:

1. Description and Evaluation of Proposed Technical Specification Change to Safety Limit Minimum Critical Power Ratio (3 pages)
2. Technical Specification Marked Up Page (1 page)
3. Technical Specification Revised Page (1 page)
4. Global Nuclear Fuels Non-Proprietary Report , GNF-001N8659-R1-NP, "GNF Additional Information Regarding the Requested Changes to the Technical Specification SLMCPR, Pilgrim Cycle 21", dated September 2014 (26 pages)
5. Global Nuclear Fuels-Americas Affidavit for Withholding Proprietary Report, GNF-001N8659-R1-P, "GNF Additional Information Regarding the Requested Changes to the Technical Specification SLMCPR, Pilgrim Cycle 21" (3 pages)
6. Global Nuclear Fuels Proprietary Report , GNF-001N8659-R1-P, "GNF Additional Information Regarding the Requested Changes to the Technical Specification SLMCPR, Pilgrim Cycle 21", dated September 2014 (29 pages)

Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station

Letter Number: 2.14.076
Page 3 of 3

Attachment 6 contains proprietary information to be withheld from public disclosure under 10 CFR 2.390. When separated, this letter can be made public.

cc:

U.S. Nuclear Regulatory Commission
ATTN: Dan Dorman
Regional Administrator, Region 1
2100 Renaissance Blvd, Suite 100
King of Prussia, PA 19406-2713

Mr. John Priest, Director
Massachusetts Department of Public Health
Schraft Center Suite 1 M2A
Radiation Control Program
529 Main Street
Charlestown, MA 02129

Ms. Nadiyah Morgan, Project Manager
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
One White Flint North O-8F4
11555 Rockville Pike
Rockville, MD 20852

Mr. John Giarrusso, Jr.
Nuclear Preparedness Manager
Mass. Emergency Management Agency
400 Worcester Road
Framingham, MA 01702

NRC Senior Resident Inspector
Pilgrim Nuclear Power Station

ATTACHMENT 1

to

Entergy Letter 2.14.076

**Description and Evaluation of Proposed Technical Specification Change to
Safety Limit Minimum Critical Power Ratio**

(3 Pages)

ATTACHMENT 1

Description and Evaluation of Proposed Technical Specifications Change to Safety Limit Minimum Critical Power Ratio

BACKGROUND

Entergy is proposing to amend the Pilgrim Technical Specification (TS) Section 2.1.2 to revise the Safety Limit Minimum Critical Power Ratio (SLMCPR) for the Operating Cycle (OC) 21: OC 21 commences from the restart of Refueling Outage (RFO) 20.

PROPOSED CHANGES

Based upon GE calculations for Pilgrim core reload analysis for Operating Cycle 21, the calculated SLMCPR changed from ≥ 1.08 to ≥ 1.09 for two recirculation loop operation and SLMCPR changed from ≥ 1.11 to ≥ 1.12 for single recirculation loop operation. Accordingly, TS Section 2.1.2 is revised to read as follows:

- "MINIMUM CRITICAL POWER RATIO shall be ≥ 1.10 for two recirculation loop operation and ≥ 1.12 for single recirculation loop operation."

REASONS FOR THE PROPOSED CHANGES

The current required Safety Limit MCPR (SLMCPR) for Pilgrim Station is ≥ 1.08 for two loop operation and ≥ 1.11 for single loop operation. Calculations performed by Global Nuclear Fuel for Pilgrim Station Operating Cycle 21 resulted in a minimum calculated SLMCPR value of ≥ 1.09 for two loop operation and ≥ 1.12 for single loop operation.

Entergy is proposing to operate with a SLMCPR of ≥ 1.10 to account for SLMCPR variances in fuel cycle(s) subsequent to Cycle 21 for two loop recirculation loop operation and ≥ 1.12 SLMCPR for single recirculation loop operation. This is conservative.

ATTACHMENT 1 (Cont.)**SAFETY EVALUATION**

The Fuel Cladding Integrity Safety Limit is set such that no mechanistic fuel damage is calculated to occur if the limit is not violated. Since the parameters which result in fuel damage are not directly observable during reactor operation, the thermal and hydraulic conditions resulting in a departure from nucleate boiling have been used to mark the beginning of the region where fuel damage could occur. Although it is recognized that a departure from nucleate boiling would not necessarily result in damage to BWR fuel rods, the critical power at which boiling transition is calculated to occur has been adopted as a convenient limit. The uncertainties, however, in monitoring the core operating state and in the procedures used to calculate the critical power result in an uncertainty in the value of the critical power. Therefore, the Fuel Cladding Integrity Safety Limit is defined as the minimum critical power ratio (MCPR) in the limiting fuel assembly for which more than 99.9% of the fuel rods in the core are expected to avoid boiling transition considering the power distribution within the core and all uncertainties

Global Nuclear Fuel's calculation of the revised plant-specific SLMCPR value for Pilgrim's Cycle 21 was performed as part of the Reload Licensing Analysis for Pilgrim Cycle 21 and is based upon NRC approved methods specified in the Reference section of the TS BASES for Section 2.0 SAFETY LIMITS. The new Pilgrim Station SLMCPR is ≥ 1.10 for two recirculation loop operation and ≥ 1.12 for single recirculation loop operation.

Based on the above, it is concluded that the proposed SLMCPR values are appropriate for the Pilgrim Cycle 21 core. Entergy will include the Cycle 21 Power/Flow map in the Core Operating Limits Report for Cycle 21.

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS

The Code of Federal Regulations, 10 CFR 50.91, requires licensees requesting an amendment to provide an analysis, using the standards in 10 CFR 50.92, which determines whether a significant hazards consideration exists. The following analysis is provided in accordance with 10 CFR 50.91 and 10 CFR 50.92 for the proposed amendment.

1. The proposed changes to Technical Specification do not involve a significant increase in the probability of an accident previously evaluated.

The proposed Safety Limit MCPR (SLMCPR), and its use to determine the Operating Cycle 21 thermal limits, have been derived using NRC approved methods specified in the Reference section of the Technical Specification Bases Section for 2.0 SAFETY LIMITS. These methods do not change the method of operating the plant and have no effect on the probability of an accident initiating event or transient.

The basis of the SLMCPR is to ensure no mechanistic fuel damage is calculated to occur if the limit is not violated. The new SLMCPR preserves the margin to transition boiling, and the probability of fuel damage is not increased.

Therefore, the proposed changes to Technical Specifications do not involve an increase in the probability or consequences of an accident previously evaluated.

ATTACHMENT 1 (Cont.)

- 2. The proposed changes to Technical Specifications do not create the possibility of a new or different kind of accident from any accident previously evaluated.**

The proposed changes result only from the analysis for the Cycle 21 core reload using methods described in NEDE24011P-A (GESTAR II). These methods have been reviewed and approved by the NRC, do not involve any new or unapproved method for operating the facility, and do not involve any facility modifications. No new initiating events or transients result from these changes.

Therefore, the proposed changes to technical specifications do not create the possibility of a new or different kind of accident from any accident previously evaluated.

- 3. The proposed changes to Technical Specifications do not involve a significant reduction in a margin of safety.**

The margin of safety as defined in the TS bases will remain the same. The new SLMCPR was derived using NRC approved methods which are in accordance with the current fuel design and licensing criteria. The SLMCPR remains high enough to ensure that greater than 99.9% of all fuel rods in the core will avoid transition boiling if the limit is not violated, thereby preserving the fuel cladding integrity.

Therefore, the proposed changes to technical specifications do not involve a significant reduction in the margin of safety.

The proposed changes have been reviewed and recommended for approval by the Pilgrim Station On-site Safety Review Committee (OSRC).

ENVIRONMENTAL IMPACT

The proposed Technical Specification changes were reviewed against the criteria of 10 CFR 51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, a significant increase in the amounts of effluents that may be released offsite, or a significant increase in individual or cumulative occupational radiation exposure. Based on the foregoing, Entergy concludes the proposed Technical Specifications meet the criteria in 10 CFR 51.22(c)(9) for a categorical exclusion from the requirements for an Environmental Impact Statement.

ATTACHMENT 2

to

Entergy Letter 2.14.076

Technical Specification Marked Up Page

(1 Page)

2.0 SAFETY LIMITS

2.1 Safety Limits

2.1.1 With the reactor steam dome pressure < 785 psig or core flow < 10% of rated core flow:

THERMAL POWER shall be \leq 25% of RATED THERMAL POWER.

2.1.2 With the reactor steam dome pressure \geq 785 psig and core flow \geq 10% of rated core flow:

MINIMUM CRITICAL POWER RATIO shall be \geq ~~1.08~~ 1.10 for two recirculation loop operation or \geq ~~1.11~~ 1.12 for single recirculation loop operation.

2.1.3 Whenever the reactor is in the cold shutdown condition with irradiated fuel in the reactor vessel, the water level shall not be less than 12 inches above the top of the normal active fuel zone.

2.1.4 Reactor steam dome pressure shall be \leq 1340 psig at any time when irradiated fuel is present in the reactor vessel.

2.2 Safety Limit Violation

With any Safety Limit not met within two hours the following actions shall be met:

2.2.1 Restore compliance with all Safety Limits, and

2.2.2 Insert all insertable control rods.

ATTACHMENT 3

to

Entergy Letter 2.14.076

Technical Specification Revised Page

(1 Page)

2.0 SAFETY LIMITS

2.1 Safety Limits

2.1.1 With the reactor steam dome pressure < 785 psig or core flow < 10% of rated core flow:

THERMAL POWER shall be $\leq 25\%$ of RATED THERMAL POWER.

2.1.2 With the reactor steam dome pressure ≥ 785 psig and core flow $\geq 10\%$ of rated core flow:

MINIMUM CRITICAL POWER RATIO shall be ≥ 1.10 for two recirculation loop operation or ≥ 1.12 for single recirculation loop operation.

2.1.3 Whenever the reactor is in the cold shutdown condition with irradiated fuel in the reactor vessel, the water level shall not be less than 12 inches above the top of the normal active fuel zone.

2.1.4 Reactor steam dome pressure shall be ≤ 1340 psig at any time when irradiated fuel is present in the reactor vessel.

2.2 Safety Limit Violation

With any Safety Limit not met within two hours the following actions shall be met:

2.2.1 Restore compliance with all Safety Limits, and

2.2.2 Insert all insertable control rods.
