Entergy

Entergy Nuclear Generation Co.
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

Mike Bellamy
Site Vice President

August 16, 2002

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

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

Request for Amendment to the Technical Specifications
Deletion of Requirement from LCO 3/4.10.D, "Multiple Control Rod Removal"

REFERENCE: NUREG 1433, Standard Technical Specifications for General Electric Plants, BWR/4

LETTER NUMBER: 2.02.064

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Nuclear Operations, Inc. (Entergy) hereby proposes to amend the Pilgrim Station Operating License, DPR-35. The proposed amendment will delete an unnecessary requirement from Technical Specification 3/4.10.D, "Multiple Control Rod Removal." Deletion of this requirement will significantly reduce the number of fuel movements or valve manipulations during the upcoming refueling outage; thereby, increasing safety and reducing worker dose. Deletion of this requirement will also enhance consistency of Pilgrim's Technical Specifications with the General Electric Boiling Water Reactor Standard Technical Specifications.

Entergy has reviewed the proposed amendment in accordance with 10 CFR 50.92 and concludes it does not involve a significant hazards consideration.

Entergy requests approval of this change prior to March 31, 2003 to support the Pilgrim Refueling Outage that is scheduled to commence on April 19, 2003. Once approved, the amendment will be implemented within 60 days.

If you have any questions or require additional information, please contact Mr. Bryan Ford, Licensing Manager, at (508) 830-8403.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 16th day of August 2002.

Sincerely,

Robert M. Bellamy

Enclosure: Evaluation of the Proposed Changes - 7 pages

Attachment:
1. Proposed Technical Specification (mark-up) - 1 page
2. List of Regulatory Commitments – 1 page

cc: Mr. Travis Tate, Project Manager
Office of Nuclear Reactor Regulation
Mail Stop: 0-8B-1
U.S. Nuclear Regulatory Commission
1 White Flint North
11555 Rockville Pike
Rockville, MD 20852

U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406

Senior Resident Inspector
Pilgrim Nuclear Power Station

Mr. Steve McGrail, Director
Mass. Emergency Management Agency
400 Worcester Road
P.O. Box 1496
Framingham, MA 01702

Mr. Robert Hallisey
Radiation Control Program
Commonwealth of Massachusetts
Exec Offices of Health & Human Services
174 Portland Street
Boston, MA 02114

ENCLOSURE

Evaluation Of The Proposed Changes

Subject: Deletion of Requirement from LCO 3/4.10.D, "Multiple Control Rod Removal"

1. DESCRIPTION
2. PROPOSED CHANGES
3. BACKGROUND
4. TECHNICAL ANALYSIS
5. REGULATORY SAFETY ANALYSIS
    - 5.1 No Significant Hazards Consideration
6. ENVIRONMENTAL CONSIDERATION

1. Description

This letter is a request to amend Operating License DPR-35 for Pilgrim Nuclear Power Station. The proposed change deletes Technical Specification (TS) requirement 3/4.10.D.1.d. Deletion of this requirement will significantly reduce the number of fuel movements or valve manipulations during the upcoming refueling outage; thereby, increasing safety and reducing worker dose.

This change is consistent with NUREG 1433, Standard Technical Specifications, General Electric Plants, BWR 4, Revision 2. Entergy requests approval of this change prior to March 31, 2003 to support the Pilgrim Refueling Outage that is scheduled to commence on April 19, 2003.

In addition, Specification 3/4.10.D.1.b is corrected to make reference to Specification 3.3.B.3 (instead of 3.3.B.4), to reflect the revision made by Amendment 186 (Reference 1). This is an administrative change, with no safety impact, to comply with Amendment 186.

2. Proposed Changes

The proposed change is to delete Technical Specifications (TS) 3/4.10.D.1.d. TS 3/4.10.D.1.d is one of the requirements of TS 3/4.10.D, "Multiple Control Rod Removal."

TS 3.10.D.1.d is part of the Limiting Conditions for Operation for TS 3.10.D and states the following:

> "All control rods in a 3X3 array centered on each of the control rods being removed are fully inserted and electrically or hydraulically disarmed, or have the surrounding four fuel assemblies removed from the core cell."

TS 4.10.D.1.d is the Surveillance Requirement associated with 3.10.D.1.d states the following:

> "All control rods in a 3X3 array centered on each of the control rods removed or beings removed are fully inserted and electrically or hydraulically disarmed, or have the surrounding four fuel assemblies removed."

The requirements of TS 3.10.D.1.d and TS 4.10.D.1.d are deleted by the proposed change.

TS 3/4.10.D.1.b makes reference to 3.3.B.4. Specification 3.3.B.4 was revised by Amendment 186 and renumbered as 3.3.B.3. Thus, TS 3/4.10.D.1.b is corrected to make correct reference to Specification 3.3.B.3 (instead of 3.3.B.4), to reflect the revision made by Amendment 186.

3. Background

The purpose of TS 3/4.10.D is to permit the withdrawal of multiple control rods by imposing certain administrative controls. This allowance is needed to allow for the performance of control rod drive and control rod blade replacements during refueling

outages.

Refueling interlocks controlled by TS 3/4.10.A, "Refueling Interlocks," restrict the movement of control rods and operation of the refueling equipment to reinforce operational procedures that prevent the reactor from becoming critical during refueling operations. During refueling operations, no more than one control rod is permitted to be withdrawn from a core cell containing one or more fuel assemblies.

The refueling interlocks use the "full in" position indicators to determine the position of all control rods. If the "full in" position signal is not present for every control rod, "the all rods in permissive" for the refueling equipment interlocks is not present and fuel loading is prevented. Also, the refuel position one-rod-out interlock will not allow the withdrawal of a second control rod.

To allow more than one control rod to be withdrawn during refueling, these interlocks must be defeated. TS 3/4.10.D establishes the necessary administrative controls to allow bypassing the "full in" position indicators.

The functioning of the refueling interlocks ensure adequate Shutdown Margin (SDM) and will, therefore, prevent unacceptable reactivity excursions during refueling. To allow multiple control rod withdrawals, control rod removals associated with control rod drive (CRD) removal, or any combination of these, the "full in" position indication is allowed to be bypassed for each withdrawn control rod in accordance with TS 3/4.10.D.

TS 3/4.10.D allows the bypassing "full in" position indication(s) and the associated bypassing of the refueling interlocks for the removed control rod subject to the following restrictions:

A. The reactor mode switch is operable and locked in the refuel position. This requirement ensures the refueling interlocks are providing adequate SDM and, thereby, preventing unacceptable reactivity excursions during refueling.

B. The source range monitors are operable. This requirement ensures neutron monitoring information is available to the operators.

C. The Reactivity Margin requirements are met. This requirement ensures that together with having the refueling interlocks operable, adequate SDM will be maintained, thereby, preventing unacceptable reactivity excursions during refueling.

D. All control rods in a 3X3 array centered on each of the control rods being removed are fully inserted and electrically or hydraulically disarmed, or have the surrounding four fuel assemblies removed from the core cell. This requirement provides additional control on the local reactivity conditions around the withdrawn control rod.

   This requirement imposes a significant burden. The effect of this requirement by current practices is for each control rod drive or blade withdrawn for maintenance during a refueling outage, either up to 32 fuel assemblies associated with the 3X3 array must be removed and later replaced (up to 64 fuel moves) or the 8 control rods in the 3X3 array must be disarmed and later restored (3 valves per rod X 8 control rods X 2 = 48 valve manipulations). During a refueling outage in which significant

control rod drive or control rod blade maintenance is planned (e.g., during refueling outage 14 at least 34 drives are currently scheduled for replacement.). This has a significant impact of the total number of fuel movements and on personnel radiation dose.

E. All other control rods are fully inserted. This requirement ensures adequate SDM will be maintained by requiring all control rods not removed in accordance with this specification are fully inserted, thereby, preventing unacceptable reactivity excursions during refueling.

F. The four fuel assemblies are removed from the core cell surrounding each control rod or control rod drive mechanism to be removed from the core and/or the reactor vessel. The requirement that the fuel assemblies in the cell controlled by the control rod be removed from the reactor core before the interlock can be bypassed ensures that withdrawal of another control rod cannot result in inadvertent criticality. During refueling each control rod essentially provides reactivity control for the fuel assemblies in the cell associated with the control rod. Thus, removal of an entire cell (fuel assemblies plus control rod) results in a lower reactivity potential of the core.

TS 3/4.10.D.1.b makes reference to 3.3.B.4, which was revised and renumbered as 3.3.B.3 by Amendment 186. Specification 3.3.B.3 relates to source range monitors. The proposed correction does not change the requirements related to the source range monitors, instead it implements an editorial change due to Amendment 186.

4. TECHNICAL ANALYSIS

With the deletion of TS 3/4.10.D.1.d, sufficient barriers will be in place to prevent the possibility of an unacceptable reactivity excursion during multiple control rod removal activities controlled by TS 3/4.10.D.

The primary defense preventing the possibility of an unacceptable reactivity excursion during multiple control rod removal activities are plant procedures and controls. These procedures and controls are developed with the express intent of ensuring activities are not performed that could result in an unacceptable reactivity excursion. These procedures and controls contain requirements such as detailed work plans and fuel movement sequences and restrictions on control rod withdrawal. These procedures and controls are strictly followed.

As a backup to the licensee procedures and controls, the TS will continue to have two layers of controls to ensure an unacceptable reactivity excursion cannot occur. The first control is on the local reactivity effects of withdrawing the control rod while the second is on any potential core wide effects.

The local reactivity effects of removing the control rod are addressed by TS 3/4.10.D.1.f. TS 3/4.10.D.1.f requires that four fuel assemblies be removed from the core cell surrounding each control rod or control rod drive mechanism to be removed from the core and/or the reactor vessel. During refueling, each control rod essentially provides reactivity control for the fuel assemblies in the cell associated with the control rod. Thus, removal of an entire cell (fuel assemblies plus control rod) results in a lower reactivity potential of the core. Therefore, the requirement that the fuel assemblies in the cell

controlled by the control rod be removed from the reactor core ensures withdrawal of another control rod cannot result in an unacceptable reactivity excursion.

Any potential core wide effects of removing the control rod are addressed by a combination of TS 3/4.10.D.1.a, 3/4.10.D.1.c, and 3/4.10.D.1.e. 3/4.10.D.1.c requires that the Reactivity Margin requirements of TS 3.3.A.1 be met during the activity. TS 3.3.A.1 requires that the core remain sub-critical with margin with the highest worth control rod withdrawn. This requirement is met during refueling outages by procedures and analysis that control and analyze interim configurations. TS 3/4.10.D.1.e requires that all control rods not withdrawn in accordance with 3/4.10.D remain fully inserted. Finally, TS 3/4.10.D.1.a requires that the reactor mode switch be operable and locked in the refuel position. This requirement ensures the refueling interlocks are ensuring no more than one control rod could be inadvertently withdrawn. These requirements together ensure an operator error which resulted in the withdrawing of a control rod from a fueled cell would not result in an unacceptable reactivity excursion and the operator cannot withdraw a second control rod in error. Therefore, these requirements ensure adequate SDM will be maintained, thereby, preventing unacceptable reactivity excursions during refueling.

In addition to these two barriers preventing an unacceptable reactivity excursion, TS 3/4.10.D.1.b provides another layer of protection. TS 3/4.10.D.1.b requires the source range monitors be operable. This requirement ensures neutron monitoring information is available to the operators providing them with the information necessary to identify that an unacceptable reactivity excursion is occurring and take action to terminate the event.

The remaining controls provide sufficient assurance an unacceptable reactivity excursion will not occur during these activities. In addition, the deletion of the unnecessary requirements of 3/4.10.D.1.d will result in fewer irradiated fuel movements and the associated risk to the public or fewer valve manipulations with the associated reduction in risk to the public due to fewer potential valve manipulation errors and lower dose to the workers. Therefore, it is prudent to delete the requirements of TS 3/4.10.D.1.d.

TS 3/4.10.D.1.b incorrectly makes reference to Specification 3.3.B.4. Amendment 186 (Reference 1) revised Specification 3.3.B.4 to become 3.3.B.3. The prior requirement related to the source range monitors is now included in Specification 3.3.B.3. Accordingly, TS 3/4.10.D.1.b is revised to make the correct reference to Specification 3.3.B.3. This is an administrative change, with no safety impact, to comply with Amendment 186.

5. REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

Entergy Nuclear Operations, Inc. (Entergy) proposes changes to Technical Specifications (TS) Section 3/4.10.D, "Multiple Control Rod Removal," to remove a requirement that all control rods in a 3X3 array centered on each of the control rods being removed be fully inserted and electrically or hydraulically disarmed, or have the surrounding four fuel assemblies removed from the core cell. This change is consistent with NUREG 1433, Standard Technical Specifications, General Electric Plants, BWR 4, Revision 2. Entergy has evaluated whether

a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   Following the deletion of the requirement that all control rods in a 3X3 array centered on each of the control rods being removed be fully inserted and electrically or hydraulically disarmed, or have the surrounding four fuel assemblies removed from the core cell, sufficient barriers will be in place to prevent the possibility of an unacceptable reactivity excursion.

   As a backup to licensee procedures and controls to prevent an unacceptable reactivity excursion, the Technical Specifications (TS) will continue to have two layers of controls to ensure that an unacceptable reactivity excursion cannot occur. The first layer of control is on the local reactivity effects of withdrawing the control rod while the second is on any potential core wide effects.

   The local reactivity effects of removing the control rod are addressed by the requirement that the four fuel assemblies be removed from the core cell surrounding each control rod or control rod drive mechanism to be removed from the core and/or the reactor vessel. The requirement that the fuel assemblies in the cell controlled by the control rod be removed from the reactor core ensures withdrawal of another control rod cannot result in an unacceptable reactivity excursion.

   Any potential core wide effects of removing the control rod will also continue to be controlled by the TS. The TS will continue to require control rods that are not withdrawn in accordance with 3/4.10.D remain fully inserted, the core remain sub-critical with margin with the highest worth control rod withdrawn, and no more than one control rod can be inadvertently withdrawn. These requirements together ensure an operator error that resulted in the withdrawing of a control rod from a fueled cell would not result in an unacceptable reactivity excursion and the operator cannot withdraw a second control rod in error. Therefore, these requirements ensure that adequate SDM will be maintained, thereby, preventing unacceptable reactivity excursions during refueling.

   In addition to these two barriers preventing an unacceptable reactivity excursion, the TS will continue to require that the source range monitors be operable. This requirement ensures that neutron monitoring information is available to the operators providing them with the information necessary to identify an unacceptable reactivity excursion is occurring and take action to terminate the event.

   The controls remaining provide sufficient assurance an unacceptable

reactivity excursion will not occur during these activities. Therefore, the probability of an accident previously evaluated is not significantly increased.

The control being deleted did not mitigate the consequences of any accident. Therefore, consequences of an accident previously evaluated are not significantly increased.

2. Does the proposed change create the possibility of a new or different kind of accident for any accident previously evaluated?

   Response: No

   The proposed change does not involve a change to the plant design or a new mode of equipment operation. As a result, the proposed change does not affect parameters or conditions that could contribute to the initiation of any new or different kind of accident. Therefore, this proposed changes does not create the possibility of a new or different kind of accident form any accident previously evaluated.

3. Does the change involve a significant reduction in a margin of safety?

   Response: No

   Following the deletion of the requirement that all control rods in a 3X3 array centered on each of the control rods being removed be fully inserted and electrically or hydraulically disarmed, or have the surrounding four fuel assemblies removed from the core cell, sufficient barriers will be in place to prevent the possibility of an unacceptable reactivity excursion.

   The TS will continue to have controls as a backup to licensee procedures and controls to prevent an unacceptable reactivity excursion. The requirement that the fuel assemblies in the cell controlled by the control rod be removed from the reactor core ensures withdrawal of another control rod cannot result in an unacceptable reactivity excursion. Also the TS will ensure that an operator error which results in the withdrawing of a control rod from a fueled cell will not result in an unacceptable reactivity excursion and that the operator cannot withdraw a second control rod in error.

   In addition to these two barriers preventing an unacceptable reactivity excursion, the TS will continue to require that the source range monitors be operable. This requirement ensures that neutron monitoring information is available to the operators providing them with the information necessary to identify that an unacceptable reactivity excursion is occurring and take action to terminate the event.

   The controls remaining provide sufficient assurance an unacceptable reactivity excursion will not occur during these activities. Therefore, the proposed changes do not involve a significant reduction in the margin of

safety.

Based on the above, Entergy concludes that the proposed license amendment presents no significant hazards consideration under the standards set forth in 10CFR50.92(c), and accordingly a finding of "no significant hazards consideration" is justified.

6. ENVIRONMENTAL CONSIDERATIONS

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant change in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10CFR51.2(c)(9). Therefore, pursuant to 10CFR51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7. REFERENCE

1. Pilgrim Nuclear Power Station – Issuance of Amendment 186 RE- Compliance with the Operating Requirements Derived from NEDO-21231 (TAC NO. MA6107), dated October 16, 2000.

ATTACHMENT 1

MARKUP SHOWING THE PROPOSED CHANGES TO THE TECHNICAL SPECIFICATION

(1 page)

LIMITING CONDITIONS FOR OPERATION

3.10 CORE ALTERATIONS (Cont)

D. Multiple Control Rod Removal (Cont)

b. The source range monitors (SRM) are operable per Specification 3.3.B.4.3.

c. The Reactivity Margin requirements of Specification 3.3.A.1 are satisfied.

Deleted

d. ~~All control rods in a 3x3 array centered on each of the control rods being removed are fully inserted and electrically or hydraulically disarmed, or have the surrounding four fuel assemblies removed from the core cell.~~

e. All other control rods are fully inserted.

f. The four fuel assemblies are removed from the core cell surrounding each control rod or control rod drive mechanism to be removed from the core and/or reactor vessel.

SURVEILLANCE REQUIREMENTS

4.10 CORE ALTERATIONS (Cont)

D. Multiple Control Rod Removal (Cont)

b. The SRM channels are operable per Specification 3.3.B.4.3.

c. The Reactivity Margin requirements of Specification 3.3.A.1 are satisfied.

Deleted

d. ~~All control rods in 3x3 array centered on each of the control rods removed or being removed are fully inserted and electrically or hydraulically disarmed, or have the surrounding four fuel assemblies removed.~~

e. All other control rods are fully inserted.

f. The four fuel assemblies surrounding each control rod and/or control rod drive mechanism that is to be removed from the reactor vessel at the same time are removed from the core and/or reactor vessel.

ATTACHMENT 2

LIST OF REGULATORY COMMITMENTS

List of Regulatory Commitments

The following table identified those actions committed to by Pilgrim in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

REGULATORY COMMITMENT	DUE DATE
Implement changes to the Technical Specifications within 60 days of approval.	60 days following approval of the amendment.