

April 21, 2003

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

SUBJECT: PILGRIM NUCLEAR POWER STATION - ISSUANCE OF AMENDMENT RE:
REFUELING INTERLOCKS (TAC NO. MB6213)

Dear Mr. Bellamy:

The Commission has issued the enclosed Amendment No. 199 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station. This amendment is in response to your application dated August 16, 2002, as supplemented on March 26, April 16, and April 19, 2003.

This amendment modifies Technical Specification (TS) 3/4.10.A, "Refueling Interlocks," and TS 3/4.10.D, "Multiple Control Rod Removal." The changes modify the applicability and surveillance requirements to provide an alternative required action if the refueling interlocks become inoperable during fuel movements in the reactor vessel. In addition, the changes delete a cross-reference associated with the changes and clarify an equipment reference.

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. 199 to
License No. DPR-35
2. Safety Evaluation

cc w/encls: See next page

Pilgrim Nuclear Power Station

cc:

Resident Inspector
U. S. Nuclear Regulatory Commission
Pilgrim Nuclear Power Station
Post Office Box 867
Plymouth, MA 02360

Chairman, Board of Selectmen
11 Lincoln Street
Plymouth, MA 02360

Chairman, Duxbury Board of Selectmen
Town Hall
878 Tremont Street
Duxbury, MA 02332

Office of the Commissioner
Massachusetts Department of
Environmental Protection
One Winter Street
Boston, MA 02108

Office of the Attorney General
One Ashburton Place
20th Floor
Boston, MA 02108

Dr. Robert M. Hallisey, Director
Radiation Control Program
Commonwealth of Massachusetts
Executive Offices of Health and
Human Services
174 Portland Street
Boston, MA 02114

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

John M. Fulton
Assistant General Counsel
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360-5599

Mr. C. Stephen Brennon
Licensing Superintendent
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360-5599

Mr. Jack Alexander
Manager, Reg. Relations and
Quality Assurance
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360-5599

Mr. David F. Tarantino
Nuclear Information Manager
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360-5599

Ms. Jane Perlov
Secretary of Public Safety
Executive Office of Public Safety
One Ashburton Place
Boston, MA 02108

Mr. Stephen J. McGrail, Director
Attn: James Muckerheide
Massachusetts Emergency Management
Agency
400 Worcester Road
Framingham, MA 01702-5399

Chairman
Nuclear Matters Committee
Town Hall
11 Lincoln Street
Plymouth, MA 02360

Mr. William D. Meinert
Nuclear Engineer
Massachusetts Municipal Wholesale
Electric Company
P.O. Box 426
Ludlow, MA 01056-0426

April 21, 2003

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

SUBJECT: PILGRIM NUCLEAR POWER STATION - ISSUANCE OF AMENDMENT RE:
REFUELING INTERLOCKS (TAC NO. MB6213)

Dear Mr. Bellamy:

The Commission has issued the enclosed Amendment No. 199 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station. This amendment is in response to your application dated August 16, 2002, as supplemented on March 26, April 16, and April 19, 2003.

This amendment modifies Technical Specification (TS) 3/4.10.A, "Refueling Interlocks," and TS 3/4.10.D, "Multiple Control Rod Removal." The changes modify the applicability and surveillance requirements to provide an alternative required action if the refueling interlocks become inoperable during fuel movements in the reactor vessel. In addition, the changes delete a cross-reference associated with the changes and clarify an equipment reference.

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. 199 to
License No. DPR-35
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

J. Clifford	C. Anderson, RI	PUBLIC	C. Raynor
PDI-2 Reading	T. Tate	OGC	G. Hill (2), T-5C3
ACRS	R. Dennig	S. Richards	F. Arner, RI
J. Bobiak, RI	F. Akstlewicz	Z. Abdullahi	

Accession Number: ML031110420 (Letter), ML (TSs), ML (Package)

OFFICE	PDI-2/PM	PDI-2/LA	SRXB	RTSB	OGC	PDI-2/SC
NAME	TTate	CRaynor	JClifford (per discussion w/licensee) for FAKstlewicz	RDennig	AHodgdon	JClifford
DATE	4/21/03	4/21/03	4/21/03	4/21/03	4/21/03	4/21/03

OFFICIAL RECORD COPY

ENTERGY NUCLEAR GENERATION COMPANY

ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-293

PILGRIM NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 199
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 August 16, 2002, as supplemented on March 26, April 16, and April 19, 2003, 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. 199, 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.

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: April 21, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 199

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

3/4.10-1

–

3/4.10-2

Insert

3/4.10-1

3/4.10-1A

3/4.10-2

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 199 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 August 16, 2002, as supplemented by letters dated March 26, April 16, and April 19, 2003, Entergy Nuclear Operation, Inc. (Entergy or the licensee), requested changes to the Pilgrim Nuclear Power Station (Pilgrim) Technical Specifications (TSs). The supplements dated March 26, April 16, and April 19, 2003, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on December 10, 2002 (67 FR 75872).

The proposed changes would modify TS, Limiting Condition for Operation (LCO) 3.10, "Core Alterations," and the corresponding Surveillance Requirement (SR) 4.10. Specifically, the proposed changes would modify the applicability and SRs of TS 3/4.10.A to remove the requirement that the refueling interlocks be operable and the reactor mode switch be locked in the refuel position when fuel is in the vessel and core alteration is in progress. The proposed change would provide an alternative required action if the refueling interlocks become inoperable during fuel movements in the reactor vessel. The change would allow in-vessel fuel movement to continue with inoperable refueling interlocks, provided: (1) all control rods (CRs) are verified to be fully inserted; and (2) CR withdrawals are prevented. The proposed changes would also separate the operability requirements of the refueling equipment interlocks from the one-rod-out interlock into LCO 3.10.A.1 and 3.10.A.2, respectively. Consistent with NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR 4," Revision 2, (STS), LCO 3.10.A.2 would require the one-rod-out interlock to be operable and defines the Action statements required should the interlock become inoperable. The proposed changes would also modify TS 3/4.10.D to delete a cross-reference associated with the changes and clarify an equipment reference.

2.0 REGULATORY EVALUATION

The regulatory requirements on which the staff based its review are Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, General Design Criterion (GDC) 26,

“Reactivity Control System Redundancy and Capability,” and 10 CFR Part 50, Appendix A, GDC 62, “Prevention of Criticality in Fuel Storage and Handling.” GDC 26 requires that the reactivity control system be capable of holding the reactor subcritical under cold conditions. The CRs serve the function of the reactivity control system and ensure that the core is kept subcritical when the core reactivity is being changed by fuel loading or CR withdrawals. Instead of analyzing the possible reactivity-initiated events and their radiological consequence, General Electric (GE) designed the refueling interlocks in boiling water reactors (BWRs) to prevent inadvertent reactivity-initiated events. Section 15.4 of the Pilgrim Updated Final Safety Analysis Report (UFSAR) assumes that the refueling interlocks are functioning and will prevent reactivity-initiated events. GDC 62 requires that criticality in the fuel storage and handling system be prevented by physical systems or processes, preferably by use of geometrically safe configurations. During fuel handling with the reactor mode switch in the Refuel position, the refueling interlocks and the core alterations requirements in LCO 3.10 ensure the core is kept in a geometrically safe configuration.

In addition to the regulatory requirements, the staff used the STS (NUREG 1433) for comparison with the proposed changes to determine acceptance. The STS is a staff publication that contains the TSs for general applicability to GE BWRs.

The refueling interlocks are design-basis automatic features intended to prevent inadvertent reactivity-initiated events during refueling. With the reactor mode switch in the Refuel position, the refueling equipment interlocks receive and process signals from the refueling equipment. The refueling platform position indication interlock senses whether or not the platform is over or near the core; the refueling platform main hoist grapple senses whether or not fuel is loaded; and the all-rods-in interlock senses whether or not all the CRs are inserted to their full-in position. The refueling equipment interlocks combine the signals to enforce the design-basis assumptions by preventing: (1) the operation of the refueling equipment to move fuel if all CRs are not inserted; and (2) CR withdrawals if fuel loading is in progress.

As an additional safety feature, the CR design also makes it physically difficult to decouple and remove a CR blade without initially removing the fuel assemblies from the corresponding fuel cell. In addition, BWR cores are designed with sufficient shutdown margin (SDM) to ensure that the core will remain subcritical with the highest worth CR withdrawn to its full-out position. With one CR withdrawn, the one-rod-out interlock prevents the selection and the withdrawal of a second CR. The one-rod-out interlock uses the all-rod-in signal (from the CR full-in indicators) to detect if a CR is withdrawn and a rod selection signal (from the reactor manual control system) to detect if a different CR is being selected.

Core physics calculations indicate that the creation of two loaded adjacent uncontrolled fuel cells may result in prompt critical conditions. Two loaded uncontrolled fuel cells (LUFC) can be created by an inadvertent CR withdrawal adjacent to an LUFC. The inadvertent loading of fuel into defueled uncontrolled fuel cells can also result in LUFCs. The one-rod-out interlock and the refueling equipment interlocks prevent, in part, inadvertent: (1) fuel loading into de-fueled uncontrolled cells; and (2) withdrawal of a CR adjacent to or near another loaded fuel cell that already has a withdrawn CR. The refueling equipment interlocks prevent fuel loading unless all CRs are inserted and, if fuel loading is in progress, prevent CR withdrawals.

Since these interlocks are design-basis functions that prevent inadvertent fuel loading and CR withdrawal errors, the refueling LCOs in TS 3/4.10 require that the functions of the refueling

interlocks are maintained. Therefore, the refueling LCOs require the refueling interlocks be operable and ensure that CR withdrawals and fuel movements are not performed simultaneously, or that not more than one CR is withdrawn.

The staff evaluated the proposed changes to LCO 3.10, to determine if the regulatory requirements are met, if the refueling interlock functions to prevent reactivity-initiated events would be maintained, and if the alternatives that the licensee proposes provide an acceptable level of safety when compared to the current regulatory criteria.

3.0 TECHNICAL EVALUATION

The staff has reviewed the licensee's technical analysis in support of its proposed license amendment which is described in Section 4 of the licensee's submittal. The application dated August 16, 2002, as supplemented on March 26, April 16, and April 19, 2003, proposes: (1) to allow fuel movement to continue with inoperable refueling equipment interlocks; (2) to separate the refueling equipment interlocks and the one-rod-out interlock into LCO 3.10.A.1 and 3.10.A.2, respectively; (3) to define Action statements if the one-rod-out interlock is inoperable; (4) to make changes to multiple CR removal LCO 3.10.D.a; and (5) to make corresponding changes to SR 4.10.A and SR 4.10.D. The following sections evaluate the licensee's proposed changes.

A. Proposed Changes in LCO 3.10.A.1 and SR 4.10.A.1

The current TS, LCO 3.10.A, requires that:

“During core alterations when the fuel is in the vessel the reactor mode switch shall be locked in the “Refuel” position and the refueling interlocks shall be operable.”

The corresponding SR 4.10.A, currently requires that:

“Prior to any fuel handling with the head off the reactor vessel, the refueling interlocks shall be functionally tested. They shall be tested at weekly intervals thereafter until no longer required. They shall also be tested following any repair work associated with the interlocks.”

The current LCO 3.10.A applies to all of the refueling interlocks, including the one-rod-out interlock that prevents withdrawal of a second CR, if fuel loading is in progress. The amendment separates the operability requirements of the refueling equipment interlocks from the one-rod-out interlock into LCOs 3.10.A.1 and 3.10.A.2, respectively. The proposed LCO 3.10.A.1 would require that:

“During in-vessel fuel movement with equipment associated with the interlocks the refueling equipment interlocks shall be operable with the reactor mode switch locked in the “Refuel” position. If one or more required refueling equipment interlocks are inoperable:

- a. Suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s) immediately.

OR

- b. Insert a control rod withdrawal block AND verify all controls rods are fully inserted.”

In the proposed SR 4.10.A.1, the licensee proposes deleting the requirement from SR 4.10.A, that, “They shall also be tested following any repair work associated with the interlocks.”

The licensee stated that it is helpful to allow refueling activities to continue in the event one or more of the refueling equipment interlocks fail, while continuing to maintain a sufficient level of protection against inadvertent criticality. Therefore, the proposed change is intended as a contingency provision for unexpected refuel equipment problems. In addition, SR 4.10.A includes a weekly surveillance frequency which is not being changed. The licensee stated that, if the weekly SR becomes due shortly before the completion of the fuel movement activities, fuel movements could continue under the proposed LCO 3.10.A.1.b instead of stopping the refueling activities to perform the SR. The licensee stated that continuing the fuel movement operation reduces the risk associated with disrupting and resuming the fuel-movement activities. In its supplement dated April 19, 2003, the licensee clarified the term “shortly,” stating that they would enter the action statement under these conditions if fuel movement was expected to be completed within 36 hours from the time that the SR interval would expire.

Further, the licensee stated that, with the proposed changes, the functions of the refueling equipment interlocks would continue to be met. When a CR withdrawal block is inserted, CRs cannot be inappropriately withdrawn because an electrical or hydraulic block to CR withdrawal is in place. Likewise, subsequently verifying that all CRs are fully inserted ensures that unacceptable operations such as loading fuel into a cell with the CR withdrawn are blocked.

The staff agrees with the licensee that successfully verifying all CRs are in their full-in position and disabling any CR withdrawal would provide an alternative method to meeting the functions of the interlocks and all regulatory requirements. However, the proposed changes would replace a design-basis automatic feature that provides protection against human error with administrative procedures and actions. Therefore, the staff focused its review extensively on the verification process required by LCO 3.10.A.1.b, since this is critical to ensuring equivalent protection from an inadvertent fuel loading error. Each CR position can be verified using: (1) the full-in green back-lighting indication in the full CR position display; and (2) the “00” CR position indication. These (full-in and “00”) CR position indications provide dual means to verify that each control rod is fully inserted, unless a position indication probe (PIP) failure leads to loss of a control rod’s position signals. For example, in the event that the reading from a PIP is suspected to be incorrect or false, the licensee is expected to use visual aids or other independent methods to ensure that all the CRs are inserted and should not rely on a reading from a potentially inoperable PIP.

The staff also agrees with the licensee that, if all control rods are successfully verified to be at their full-in position and CR withdrawals are disabled, the proposed alternative actions in LCO 3.10.A.1.b would provide a safety protection equivalent to the refueling equipment interlocks. The staff’s review considered that the proposed alternative actions provide flexibility in the event of unforeseen equipment failure.

However, the staff does not approve of the licensee's action to enter LCO 3.10.A.1.b as a means to avoid necessary maintenance. Specifically, if a refueling equipment interlock problem is known in advance, the alternative action is not intended for the licensee to enter into LCO 3.10.A.1.b, instead of performing the necessary maintenance. As proposed, SR 4.10.A.1 will require the licensee to perform functional testing of the refueling equipment interlocks before starting the in-vessel fuel movement and the SR would be performed on a weekly basis. In the April 16, 2003, supplement, the licensee confirmed that, when maintenance is performed that could affect the operability of the refueling equipment, Pilgrim procedure 8.10.1 delineates the procedural steps that are performed prior to declaring the equipment operable. The licensee stated that the practice of using the TS surveillance procedure to verify equipment operability following maintenance is not being changed by the implementation of the proposed TS requirements. Therefore, the staff's approval is based, in part, on the licensee's performance of SR 4.10.A.1, in accordance with Pilgrim procedure 8.10.1 and, if necessary, the licensee will bring any inoperable refueling equipment interlock to operable status before starting the in-vessel fuel movement. This addresses the staff's concerns regarding possible misapplication of the proposed TS that could have allowed fuel movement to start without all refueling interlocks being operable.

In its April 19, 2003, supplement, the licensee also stated that, if a refueling interlock failed and could be isolated, it would, to the extent practical, isolate the failed component rather than defeat all the refueling equipment interlocks. The staff finds that with this isolation the refueling interlocks will continue to provide protection, except for the isolated failed interlock, allowing continued fuel movement.

Based on the above review, the staff finds the proposed LCO 3.10.A.1 and SR 4.10.A.1 would assure that reactivity control during refueling operations will meet GDC 26 and is, therefore, acceptable.

B. Proposed Addition of the One-Rod-Out Interlock LCO 3.10.A.2 and SR 4.10.2

The licensee proposes to adopt a one-rod-out operability requirement equivalent to LCO 3.9.2 of the STS. The proposed one-rod-out LCO 3.10.A.2 would require:

“ When the reactor vessel head is removed and any control rod is withdrawn the one-rod-out interlock shall be operable with the reactor mode switch locked in the “Refuel” position. If the one-rod-out interlock is inoperable:

- a. Suspend control rod withdrawal immediately.

AND

- b. Initiate action to fully insert all control rods in core cells containing one or more fuel assemblies immediately.”

The corresponding SR 4.10.A.2 would require:

“When the reactor vessel head is removed and any control rod is withdrawn the one-rod-out interlock shall be functionally tested at weekly intervals. The functional test is not required to be performed until 1 hour following withdrawing a control rod.”

The licensee states that requiring the one-rod-out interlock to be operable when any CR is withdrawn makes the operability requirements of the interlock consistent with the function of the one-rod-out interlock (i.e. control combinations of CR movements). The licensee also states that the proposed LCO 3.10.A.2.b requirement (all CRs to be inserted immediately in core cells containing one or more fuel assemblies) is more restrictive, because the LCO provides "the appropriate actions if the one-rod-out interlock is inoperable by removing the potential for more than one CR to be removed from core cells containing one or more fuel assemblies."

The staff reviewed the licensee's proposal against the design requirements and objectives for reactor protection during refueling. Locking the reactor mode switch in the "Refuel Position" would activate the one-rod-out interlock. The requirement that all CR withdrawals be suspended if the one-rod-out interlock is inoperable ensures that adjacent LUFs are not created. LCO 3.10.A.2.b describes the core configuration that must be assured in order to ensure safe reactivity management during refueling. Only one CR can be withdrawn from a loaded core cell or the core cell must be defueled, even under LCO 3.10.D requirements. However, if such circumstances arise inadvertently, the staff agrees that all loaded fuel cells with a CR removed must have the CR inserted immediately. In performing LCO 3.10.A.2.b, the licensee must conduct core verification and any core configuration abnormalities must be detected and corrected.

With the one-rod-out interlock inoperable, the licensee cannot perform any further CR withdrawals. However, for those CRs already withdrawn, or with control rod drive (CRD) maintenance in progress, the licensee can continue with the refueling operation (CR insertion, CRD removal) with the one-rod-out interlock inoperable. In its supplement dated April 16, 2003, the licensee stated that all CRs must be fully inserted when fuel is being loaded into the reactor core. Thus, the licensee will exit LCO 3.10.D before starting fuel loading. This means the licensee will not perform a fuel shuffle before all CRs are inserted. Therefore, the core configuration in the event that the one-rod-out interlock is inoperable is acceptable. Moreover, the licensee submitted, concurrent with this request, an application (ML02238034043, TAC No. MB6214) dated August 16, 2002, that proposes replacing the 3x3 array with certain restrictions prohibiting fuel loading. The staff will evaluate the integrated effects of that application in its review of the referenced submittal.

The proposed SR 4.10.A.2 requires that when any CR is withdrawn, the one-rod-out is functionally tested and the SR testing is repeated on a weekly basis. This is consistent with the STS SR 3.9.2 requirements. However, the STS one-rod-out surveillance (SR 3.9.2) also requires verification that the mode switch is in the Refuel position every 12 hours. For this proposed change, the licensee's application did not propose this verification requirement. In its supplement dated April 16, 2003, the licensee stated that changes in the reactor mode position is followed by self-identifying indications, and alarms. The supplement stated, "The reactor mode switch discussed in Specification 3.10.A is monitored by the plant staff in several ways. First, when the source range monitors or intermediate range monitors are required to be operable, the position of the reactor mode switch is monitored and recorded once per shift. Also, the reactor mode switch is checked and documented as part of the control room shift turnover. In addition to these checks, inappropriate switch movement during a refueling outage would be annunciated to the control room staff by reactor protection system actuation if the reactor mode switch was moved to the RUN or SHUTDOWN positions." The staff agrees that there is sufficient identification of a mode change that unique SRs are not necessary.

The staff has determined that proposed LCO 3.10.A.2 would appropriately prohibit CR withdrawals when the one-rod-out interlock is inoperable and that all control cells loaded with one or more fuel assemblies will be inserted. Also, the proposed SR 4.10.A.2, in conjunction with the reactor mode switch position being verified through shift checks and annunciation if it is mispositioned, assures that the one-rod-out functionality is maintained. These proposed LCOs and SRs are consistent with the STS. The staff finds the proposed one-rod-out LCO and SR satisfies all regulatory requirements of GDC 26 and 62 and is, therefore, acceptable.

C. Proposed Change in LCO 3.10.D.1.a.

The current LCO 3.10.D.1.a states:

“The reactor mode switch is operable and locked in the Refuel position per Specification 3.10.A, except that the Refuel position “one-rod-out” interlock may be bypassed, as required, for those control rods and/or control rod drive mechanisms to be removed after the fuel assemblies have been removed as specified below.”

The licensee proposed the following change to LCO 3.10.D.1.a to state:

“The reactor mode switch is operable and locked in the Refuel position, except that the position indication may be bypassed, as required, for those control rods and/or control rod drive mechanism to be removed after the fuel assemblies have been removed as specified below.”

Since LCO 3.10.A is separated into LCO 3.10.A.1 (refueling equipment interlock) and 3.10.A.2 (one-rod-out interlock), the licensee made the above administrative changes to delete the unnecessary cross-reference. More importantly, it explicitly states that individual CRs in the defueled cells selected for maintenance can be bypassed, but the one-rod-out interlock would not be totally bypassed. Thus, the one-rod-out interlock would provide protection for the rest of the loaded core cells, whose full-in indications are not bypassed. The staff finds the proposed change meets GDC 26 and 62 and is, therefore, acceptable.

D. Proposed change to SR 4.10.D.1.a

The current SR 4.10.D states:

“The reactor mode switch is operable and locked in the Refuel position per Specification 3.10.A.”

The licensee proposed the following change to SR 4.10.D.1.a. to state:

“The reactor mode switch is operable and locked in the Refuel position.”

Since LCO 3.10.A is separated into LCO 3.10.A.1 (refueling equipment interlock) and 3.10.A.2 (one-rod-out interlock), the licensee made the above administrative change to delete the unnecessary cross-reference. The staff finds this proposed change administrative in nature and acceptable.

3.1 Conclusion

The staff evaluated the licensee's proposal to: (1) allow fuel movement to continue with inoperable refueling equipment interlocks; (2) separate the refueling equipment interlocks and the one-rod-out interlock into LCO 3.10.A.1 and 3.10.A.2, respectively; (3) define the Action statements if the one-rod-out interlock is inoperable; (4) make changes to LCO 3.10.D.1.a; and (5) make changes to SR 4.10.A and SR 4.10.D.1.a.

Based on the above discussion, the staff finds the proposed changes meet GDC 26 and 62 and are acceptable, because:

1. The proposed changes will adequately compensate for the safety functions of the inoperable refueling equipment and the one-rod-out interlocks;
2. The proposed one-rod-out interlock operability requirement is consistent with the requirements in the STS;
3. The licensee will perform SR 4.10.1, before starting in-vessel fuel movements, which ensures that any fuel loading operation is started with operable refueling equipment interlocks.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the staff attempted to notify the Massachusetts State Official of the proposed issuance of the amendment. The staff was not able to reach the Massachusetts State Official. The staff is not aware of any concerns the state may have with this amendment.

5.0 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 SRs. 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 (67 FR 75872). 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: Zena Abdullahi

Date: April 21, 2003