



**BOSTON EDISON**

Pilgrim Nuclear Power Station  
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Plymouth, Massachusetts 02360

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BECO 92- 116

U. S. Nuclear Regulatory Commission  
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Docket 50-293

Technical Specification Temporary Relief Request

The Boston Edison Company requests a temporary change to Pilgrim Nuclear Power Station Technical Specification sections 3.7.B.1.C, 3.7.B.1.e, 3.7.B.2.a, and 3.7.B.2.C. These sections require both trains of the Standby Gas Treatment System (SGTS) and Control Room High Efficiency Air Filtration System (CRHEAF) to be operable for the initiation of fuel movement and during fuel handling operations involving irradiated fuel. The relief supports a planned sequencing of safety systems maintenance and/or refurbishment during our next refueling outage, RFO #9. Attachment A, "Comparison of Existing And Proposed Requirements for SGTS and CRHEAF" summarizes existing and proposed requirements.

The requested changes are described in Attachment B. Revised technical specification pages are included in Attachment C, and existing pages marked up to show the proposed changes are included in Attachment D. A single line diagram depicting a portion of the station electrical 4.16 KV and 480 V distribution system is included as Attachment E, and a summary of refueling outage activities is included as Attachment F.

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*E. T. Boulette*  
E. T. Boulette

Commonwealth of Massachusetts)  
County of Plymouth)

Then personally appeared before me, E. T. Boulette, who being duly sworn, did state that he is Vice President - Nuclear Operations and Station Director of Boston Edison Company and that he is duly authorized to execute and file the submittal contained herein in the name and on behalf of Boston Edison Company and that the statements in said submittal are true to the best of his knowledge and belief.

My commission expires: October 15, 1995  
DATE

*Peter M. Kahler*  
NOTARY PUBLIC

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ATTACHMENT A

COMPARISON OF EXISTING AND PROPOSED TECHNICAL SPECIFICATION REQUIREMENTS FOR SGTS AND CRHEAF

<u>EQUIPMENT</u>	<u>EXISTING TECH SPECS DURING REFUELING</u>	<u>PROPOSED TECH SPECS DURING REFUELING IF "B" SAFETY BUS 0.0.5</u>	<u>PROPOSED TECH SPECS DURING REFUELING IF "A" SAFETY BUS 0.0.5</u>
"A" SGTS/CRHEAF	<p>ALL NECESSARY NORMAL AND EMERGENCY POWER SOURCES</p> <p align="center"><u>NORMAL</u></p> <ul style="list-style-type: none"> <li>- STARTUP TRANSFORMER</li> <li align="center">OR</li> <li>- UNIT AUXILIARY (BACK-FEED MODE)</li> </ul> <p align="center"><u>EMERGENCY</u></p> <ul style="list-style-type: none"> <li>- "A" EDG</li> </ul>	<p>1 NORMAL AND 2 OUT OF 3 EMERGENCY POWER SOURCES, AS LISTED BELOW:</p> <p align="center"><u>NORMAL</u></p> <ul style="list-style-type: none"> <li>- STARTUP TRANSFORMER</li> <li align="center">OR</li> <li>- UNIT AUXILIARY (BACK-FEED MODE)</li> </ul> <p align="center"><u>EMERGENCY</u></p> <ul style="list-style-type: none"> <li>- "A" EDG</li> <li align="center">AND EITHER</li> <li>- S/D TRANSFORMER</li> <li align="center">OR</li> <li>- BLACKOUT D/G</li> </ul>	<p>1 NORMAL POWER SOURCE</p> <p align="center"><u>NORMAL</u></p> <ul style="list-style-type: none"> <li>- STARTUP TRANSFORMER</li> <li align="center">OR</li> <li>- UNIT AUXILIARY (BACK-FEED MODE)</li> </ul>
"B" SGTS/CRHEAF	<p>ALL NECESSARY NORMAL AND EMERGENCY POWER SOURCES AS LISTED BELOW:</p> <p align="center"><u>NORMAL</u></p> <ul style="list-style-type: none"> <li>- STARTUP TRANSFORMER</li> <li align="center">OR</li> <li>- UNIT AUXILIARY (BACK-FEED MODE)</li> </ul> <p align="center"><u>EMERGENCY</u></p> <ul style="list-style-type: none"> <li>- "B" EDG</li> </ul>	<p>1 NORMAL POWER SOURCE</p> <p align="center"><u>NORMAL</u></p> <ul style="list-style-type: none"> <li>- STARTUP TRANSFORMER</li> <li align="center">OR</li> <li>- UNIT AUXILIARY (BACK-FEED MODE)</li> </ul>	<p>1 NORMAL AND 2 OUT OF 3 EMERGENCY POWER SOURCES, AS LISTED BELOW:</p> <p align="center"><u>NORMAL</u></p> <ul style="list-style-type: none"> <li>- STARTUP TRANSFORMER</li> <li align="center">OR</li> <li>- UNIT AUXILIARY (BACK-FEED MODE)</li> </ul> <p align="center"><u>EMERGENCY</u></p> <ul style="list-style-type: none"> <li>- "B" EDG</li> <li align="center">AND EITHER</li> <li>- S/D TRANSFORMER</li> <li align="center">OR</li> <li>- BLACKOUT D/G</li> </ul>

## ATTACHMENT B

### Proposed Changes

The proposed changes to Sections 3.7.B.1.c, 3.7.B.1.e, 3.7.B.2.a, and 3.7.B.2.c add an asterisk referenring a footnote granting relief to allow only one train of the Standby Gas Treatment System (SGTS) and one train of the Control Room High Efficiency Air Filtration System (CRHEAF) operable prior to or during activities involving irradiated fuel movement or operations conducted over irradiated fuel during RFO #9.

### Reason for Change

The Pilgrim Station Technical Specifications require both trains of the SGTS and CRHEAF systems to be operable during irradiated fuel handling operations. In addition, the definition of "operable" requires both normal and emergency electrical power sources be available to support the SGTS and CRHEAF function(s).

During RFO #9 we are implementing an outage work management concept for Pilgrim Station that takes an entire equipment loop out of service for maintenance activities. After work is completed on that loop it will be returned to service and the other equipment loop will be removed from service for maintenance. Attachment F provides a summary schedule of these activities.

The outage work management concept conflicts with Technical Specifications when handling irradiated fuel because removal of an equipment loop makes related emergency electric power source (diesel generator and associated 4kV bus) unavailable to supply power to the associated trains of SGTS and CRHEAF. The existing LCO allows a 7 day period to restore the system to operable or discontinue activities involving irradiated fuel. Relief is requested to address this conflict by allowing irradiated fuel activities to commence and continue for a period greater than 7 days with the emergency power source out of service.

### Safety Considerations

The SGTS is one of four subsystems of the Secondary Containment System (SCS). The other subsystems are the Reactor Building, the Reactor Building Isolation and Control System (RBICS), and the main stack. The SCS surrounds the refueling facilities and is designed to provide primary containment for the postulated refueling accident.

The SCS uses four different features to mitigate the consequences of a postulated fuel handling accident. The first feature is a negative pressure barrier which minimizes the ground level release of fission products by exfiltration. The second feature is a low leakage containment volume which provides a holdup time for fission product decay prior to release. The third feature is the removal of particulates and iodines by filtration prior to release.

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The fourth feature is the exhausting of the secondary containment atmosphere through an elevated release point which aids in dispersion of the effluent by atmospheric diffusion. Each of the features is provided by a different combination of subsystems: the first by the Reactor Building, the RBICS, and the SGTS exhaust fans; the second by the Reactor Building and the RBICS; the third by the SGTS filters; and the fourth by the main stack.

The safety objective of the SCS is to limit the release of radioactive materials to the environs ensuring offsite doses from a postulated DBA will be below the guideline values of 10CFR100.

The safety design bases of the SCS satisfying this safety objective states that the SCS shall be designed to be sufficiently leaktight to allow the Standby Gas Treatment System (SGTS) to reduce the Reactor Building pressure to a minimum subatmospheric pressure of 0.25 inch of water, under neutral wind conditions, when the SGTS fans are exhausting Reactor Building atmosphere at a maximum of 4,000 ft<sup>3</sup>/min.

PNPS Technical Specifications Bases state that only one of the two Standby Gas Treatment Systems is needed to maintain the secondary containment at a 0.25 inch of water negative pressure upon containment isolation. During RFO #0 intend to maintain at least one train of SGTS operable with both normal and emergency safety related power sources available, satisfying the need for secondary containment. The other train will be available using non-safety related power sources but will not have an emergency backup source.

SGTS is only required for fuel handling accidents during refueling operations. During refueling operations the most limiting postulated event is the worst case fuel handling accident coincident with a loss of offsite power and a random failure of a SGTS component in the train being fed from the emergency diesel generator. The probability of this combination of events is extremely low.

We have restricted fuel movement for 5 days following reactor shutdown as a condition of employing this relief. The 5 day restriction provides decay time for the irradiated fuel.

The CRHEAF system's safety function is to maintain Control Room habitability after an event that releases radioactive material. During fuel movement operations, damage to irradiated fuel would be the event CRHEAF addresses.

The compensatory measures described below apply to both SGTS and CRHEAF and will be adhered to in support of this proposed temporary relief. These compensatory measures give added assurance SGTS and CRHEAF will not be needed or will perform their designed function although one train will not be operable within the strict application of existing Technical Specification requirements.

### Compensatory Measures

- Fuel movement will not occur until 5 days following reactor shutdown.
- Fuel movement will not occur until the reactor vessel is flooded up to elevation 114' to provide an enlarged constant inventory.

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- The train of SGTS and CRHEAF without its safety-related bus and without its emergency diesel generator will have power supplied from a normal offsite source via a non safety-related bus. The normal offsite sources consist of either the Startup Transformer or Unit Auxiliary Transformer (Back-feed Mode).
- Prior to and during fuel movement, the Station Blackout (SBO) Diesel Generator or the Shutdown Transformer will be required to be operable. This will provide another source of emergency power to the safety-related bus still in service, should normal sources of offsite power become unavailable.

### Determination of No Significant Hazards Consideration

The Code of Federal Regulations (10CFR50.91) requires licensees requesting an amendment to provide an analysis using the standards in 10CFR50.92, that determines whether a significant hazards consideration exists. The following analysis is provided in accordance with 10CFR50.91 and 10CFR50.92 for the proposed amendment requesting temporary relief from Technical Specification sections 3.7.B.1 and 3.7.B.2 during activities involving irradiated fuel.

1. The operation of Pilgrim Station in accordance with the proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated

Technical Specifications 3.7.B.1 and 3.7.B.2 restrict the movement of irradiated fuel when only one train of SGTS or one train of CRHEAF are operable. Irradiated fuel movement may not begin and may only continue for seven days when the Limiting Condition of Operation is entered.

The temporary relief from these restrictions does not involve a significant increase in the probability or consequences of an accident previously evaluated because compensatory measures will be in place and because the relief is for a finite, relatively short period.

During the requested relief period, fuel movement will not commence until 5 days following plant shutdown and the reactor vessel will be flooded-up to elevation 114'. The 5 day period provides decay-time before irradiated fuel movement begins. Flooding-up to elevation 114' provides an enlarged inventory reducing the possibility of a loss-of-coolant event exposing fuel such that radioactive gases are produced, an event SBGTS and CRHEAF could mitigate.

Other compensatory measures include requiring the SBO diesel or the shutdown transformer to be operable prior to and during fuel movement. This adds defense-in-depth by making available another power supply to the in-service safety-related bus. Also, the substitution of a non-safety power supply to the SGTS and CRHEAF "inoperable" systems while their safety-grade bus is out-of-service for maintenance will provide offsite power to the "inoperable" train. While this electrical supply is not safety-grade, it is reliable and capable of powering the SGTS and CRHEAF systems. The components of the "inoperable" trains will be available with power from an alternate power source. The compensatory connection to the non-safety grade bus gives added confidence these trains can perform their design function although they are not "operable" as defined by Technical Specifications.

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Operating Pilgrim in accordance with this relief request does not involve a significant increase in the probability or consequences of an accident previously analyzed because the relief is effective for a limited time and because compensatory measures will be in force to: restrict the commencement of irradiated fuel handling or new fuel handling over the spent fuel or core until 5 days following reactor shutdown; provide a reliable source of power to the "inoperable" SGTS and CRHEAF systems; provide an enlarged coolant inventory to protect irradiated fuel from the effects of an inadvertent draindown of the vessel; and provide an additional source of emergency power to the active SGTS and CRHEAF systems by ensuring the operability of the SBO diesel generator or the Shutdown Transformer.

2. The operation of Pilgrim Station in accordance with the proposed amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

Planned maintenance activities require removing a safety-related bus and emergency diesel generator powering a train of SGTS and CRHEAF from service. The redundant trains are not affected. The affected trains of SGTS and CRHEAF will be connected to a non-safety bus, allowing them to operate but not allowing them to be considered operable under the purview of Technical Specifications. The relief requested by this amendment allows refueling activities to commence with one train of SGTS and CRHEAF fully operable and the other train available but not powered by its safety grade bus and associated emergency diesel generator. Compensatory measures will be in effect during refueling activities. The proposed relief does not create the possibility of a new or different kind of accident from the fuel-drop accident previously analyzed. Therefore, operating Pilgrim in accordance with this change will not create the possibility of a new or different kind of accident from any accident previously analyzed.

3. The operation of Pilgrim Station in accordance with the proposed amendment will not involve a significant reduction in the margin of safety.

SGTS and CRHEAF contribute to the margin of safety by supporting the Secondary Containment System during fuel-handling by mitigating the consequences of a fuel-handling event. Relief from the requirements to have both trains of SGTS and CRHEAF operable prior to or during fuel movement activities for a limited time period does not involve a significant reduction in the margin of safety because the first line of defense, i.e. other SGTS and CRHEAF trains, will be operable. The redundant trains will also be powered and operable in all ways except the "operable" concept required by Technical Specification.

Hence, the actual condition of the equipment allowing it to meet its design function except by the Technical Specification concept of operable, the limited time period allowed by the relief, and the described compensatory measures that will be in effect when the relief is employed, constrain the potential impact on the margin of safety by using the relief; therefore, operating Pilgrim in accordance with this proposed Technical Specification relief request does not involve a significant reduction in the margin of safety.

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This proposed change has been reviewed and recommended for approval by the Operations Review Committee, and reviewed by the Nuclear Safety Review and Audit Committee.

Schedule of Change

This change will be implemented within 30 days following BECo's receipt of its approval by the NRC.