10CFR50.90

Boston Edison

Pilgrim Nuclear Power Station
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BECo 96-042

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

License DPR-35
Docket 50-293

Proposed Technical Specification Change to Reactor Protection System, Rod Block Instrumentation and
Standby Liquid Control Requirements

Boston Edison Company (BECo) hereby proposes the attached modification to Appendix A of Operating License No. DPR-35 in accordance with 10CFR50.90. This proposed change modifies Table 3.1.1, Reactor Protection System (SCRAM) Instrumentation Requirement," Table 3.2.C.1, Instrumentation that Initiates Rod Blocks, and section 3/4.4, "Standby Liquid Control" (SLC). This change is proposed as a Cost Beneficial Licensing Action (CBLA) because it provides greater flexibility in refueling outage scheduling and reduces the number of modes requiring SLC. Either item meets the CBLA criteria.

The requested changes are described in Attachment A. The revised Technical Specification pages are provided in Attachment B. Attachment C contains marked-up pages.

E T Boulette
E. T. Boulette, PhD

ETB/PMK/pkk/NEWTS/SLC

Commonwealth of Massachusetts)
Country of Plymouth)

Then personally appeared before me, E. T. Boulette, who being duly sworn, did state that he is Senior Vice President - Nuclear 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: March 25, 1999
DATE

James D Keyes
NOTARY PUBLIC

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Attachments: A. Description of Proposed Change
B. Revised Technical Specification Pages
C. Marked-up Pages

1 signed original and 37 copies

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ATTACHMENT A: DESCRIPTION of PROPOSED CHANGES

ATTACHMENT A:

Proposed Change

Boston Edison Company (BECo) proposes to modify Note 7 to Table 3.1.1, note 6 to Table 3.2.C.1 and section 3/4.4, "Standby Liquid Control".

Bases are changed to reflect the proposed changes.

Discussion of Change

Note 7 to Table 3.1.1

Note 7 to Table 3.1.1 currently specifies that only certain scram functions are required to be operable when < 212° F, the reactor is subcritical with fuel in the vessel, and the Mode Switch is in the Refuel position. This requirement is overly restrictive in that it requires scram functions to be operable during periods in a refueling outage when the ability to scram is not necessary, (i.e., all control rods are inserted in cells containing fuel).

The proposed change removes the scram function operability requirement when the reactor vessel head is removed, all control rods are fully inserted in cells containing one or more fuel assemblies, and the Mode Switch is in the Refuel position.

This change will reduce currently imposed refueling constraints by reducing the number of trip function surveillances that must be performed during periods when all control rods are fully inserted.

Note 6 to Table 3.2.C.1

The wording of Note 7 to Table 3.1.1 is modified for Table 3.2.C.1 to specify that those Rod Blocks associated with the applicable scram functions of Table 3.1.1 are also not required when the reactor vessel head is removed, all control rods are fully inserted in cells containing one or more fuel assemblies, and the Mode Switch is in the Refuel position.

Section 3/4.4

The safety objective of the Standby Liquid Control system (SLC) is to provide a backup method, independent of the control rods, to maintain the reactor subcritical as the nuclear system cools in the event that not enough control rods can be inserted to counteract the positive reactivity effects of a colder moderator. It also provides a method to mitigate the effects of Anticipated Transients Without Scram (ATWS).

Currently, Pilgrim Technical Specifications allow the SLC to be inoperable in the Cold Shutdown condition if all operable control rods are fully inserted. This requirement affects control rod repair/replacement because SLC must be operable when control rods are withdrawn or removed for maintenance or testing. Our refueling planning uses a method that can result in the SLC system being considered inoperable at times when control rod work could otherwise proceed; this proposed change removes this obstacle, allowing control rod drive work during periods when SLC is out-of-service, thereby shortening refueling outages, adding to plant availability and reducing replacement power costs.

Change L_1
The SLC system is not required during plant conditions where it is not possible to make the reactor core critical. With the reactor in the Hot or Cold Shutdown MODE, criticality is prohibited because the mode switch position "Shutdown" prevents rod withdrawal. In the Refuel Mode, only a single control rod can be withdrawn from a core cell containing fuel assemblies. Demonstration of adequate SDM, required by 3.3.A.1, "Reactivity Margin - core loading", ensures that the reactor will not become critical. Therefore, existing actions requiring the unit to be placed in Cold Shutdown are changed to only require the reactor to be placed in the Hot Shutdown MODE, since control rods cannot be withdrawn with the Mode switch in Shutdown. The MODEs are as defined in DEFINITION 1.0.K of the TS.

ATTACHMENT A:

Discussion of Change

Section 3/4.4 (continued)

Change L_2
The current specifications require initiation of plant shutdown immediately upon loss of both SLC subsystems. Although condition C is a new requirement, it provides for a delay of 8 hours to recover at least one subsystem before subjecting the plant to a potentially unnecessary transient.

Change L_3

The requirement for demonstrating operability of the redundant subsystems was originally specified because there was a lack of plant operating history and insufficient equipment failure data. Since that time, plant operating experience has demonstrated that testing of the redundant subsystem when one subsystem is inoperable is not necessary to provide adequate assurance of operability of the remaining subsystem. Deletion of this requirement is based on the acceptability of taking credit for normal periodic surveillances as a demonstration of operability and availability of the remaining components. This change is consistent with changes granted under Amendment No. 135.

Change L_4
The requirement to verify B–10 enrichment concentration by test anytime boron is added to the solution and each refueling outage is replaced with verifying the enrichment prior to addition. The B–10 enrichment will be independently verified upon receipt to ensure that the enrichment is as certified by the vendor. Since enrichment of the solution in the tank cannot change by any other means but chemical addition, ensuring that only properly enriched material is available for addition is adequate to maintain enrichment at the required level. The requirement to verify results by analysis within 30 days and the reporting requirements currently specified are being deleted because they are no longer applicable. The verification of enrichment will be available prior to the need to use the material.

Change M_1
A limit on the maximum time allowed for SLC subsystems to be inoperable during any single contiguous occurrence of failing to meet the LCO. This new restriction is intended to prevent exceeding the assumptions regarding out of service time for a SLC subsystem as a result of sequential inoperabilities of SLC subsystems due to boron concentration not within limits and a SLC subsystem inoperable due to other reasons. The 10 days limit the plant to one occurrence of contiguous failures in any given period.

Change M_2
Requirement to maintain solution temperature above 48°F is moved to the surveillance and added 24 hour frequency.

Change M_3
A time limit of 24 hours was incorporated into the requirement to check sodium pentaborate concentration after additions (water or boron) are made to the tank or the solution temperature is at or below 48°F. This ensures that concentration is checked on a timely basis after events that could affect the concentration rather than the current open ended specification. The addition of new requirements reflects a more restrictive change.

Change M_4
A new monthly surveillance was added to verify continuity of the explosive charge associated with the explosive valves.

Change M_5
A new surveillance was added to verify temperature of the pump suction piping. This surveillance was added to ensure the temperature remains at least 10° F above the boron precipitation value.

ATTACHMENT A:

Discussion of Change

Section 3/4.4 (continued)

Change M_6
Revises the measured parameter from enrichment to concentration, added a minimum concentration that ensures original shutdown criteria is maintained, and reduced the completion time from 7 days to 72 hours. In addition, the proposed actions for concentration of boron in solution and subsystem inoperability are modified to include a limit on the maximum time allowed for SLC subsystems to be inoperable during any single contiguous occurrence of failing to meet the LCO. This new restriction is intended to prevent exceeding the assumptions regarding out of service time for a SLC subsystem as a result of sequential inoperabilities of SLC subsystems due to boron concentration not within limits and a SLC subsystem inoperable due to other reasons

Change R_1
The requirements to verify the proper operation and setpoint of the relief valves are redundant to the Inservice Test Program. The program is required by Technical Specification 3/4.13 and is in accordance with the ASME Code.

Change R_2
The discussion of what surveillance test 4.4.A.2.b accomplishes is being relocated to the plant procedures used to perform the surveillance.

Change R_3
The requirement for selecting replacement charges is relocated to the BASES and plant procedures.

Changes A_1
Editorial rewording (either adding or deleting) are proposed to make Technical Specifications (TS) more readable, and therefore understandable, by plant operators as well as other users. During the rewording, no technical changes (either actual or interpretational) to the TS were made unless they were identified and justified.

Changes A_2
The requirements of specification 3.4.C.1 and 2 for volume, concentration, and temperature were incorporated into surveillance requirements 4.4.4, 4.4.5, and 4.4.9. Although additional limitations on volume and concentration were added, these are still considered administrative changes because the values are those used to establish the existing limitations.

Safety Evaluation and 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, that 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) Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

Note 7 to Table 3.1.1 and Note 6 to Table 3.2.C.1

The changes to Note 7 to Table 3.1.1 and the addition of Note 6 to Table 3.2.C.1 are proposed to clarify their requirements, the appropriate action to take, and their relationship to plant modes. This revised scram and rod block applicability is acceptable because control rods withdrawn from a core cell containing no fuel assemblies have a negligible impact on the reactivity of the core, and, therefore, these features are not required to be operable (i.e. provide the capability to scram). Provided all rods otherwise remain inserted,

ATTACHMENT A:

Safety Evaluation and Determination of No Significant Hazards Considerations (continued)

(1) Does the change involve a significant increase in the probability or consequences of an accident previously evaluated? (continued)

Note 7 to Table 3.1.1 and Note 6 to Table 3.2.C.1 (continued)

the RPS functions serve no purpose and are not required. In this condition, the required shutdown margin (Specification 3.3.A.1) and the required one-rod-out interlock (Specification 3.10.A) ensure that no event requiring the RPS or Rod Block will occur.

The Actions of Table 3.1.1 for inoperable equipment were previously revised in Amendment #147 to be consistent with the improved STS. Action (A) requires fully inserting all insertable control rods in core cells containing one or more fuel assemblies. Since Specification 3.10.A requires all control rods to be fully inserted during fuel movement, the proposed applicable conditions cannot be entered while moving fuel. In addition, Specification 3.10.D used for controlling multiple control rod removal, requires all control rods in a 3X3 array centered on the CRDs being removed to be fully inserted and electrically disarmed and all other control rods fully inserted. The only possible action is control rod withdrawal, which is addressed by Action A.

Hence operating Pilgrim in accordance with the proposed changes will not involve a significant increase in the probability or consequences of an accident previously evaluated.

Section 3/4.4

The proposed change involves reformatting, renumbering, and rewording of the existing Technical Specifications and Bases along with other changes to the Technical Specifications discussed above. The reformatting, renumbering, and rewording along with the other changes listed involves no technical changes to existing Technical Specifications, and does not impact initiators of analyzed events. It also does not impact the assumed mitigation of accidents or transient events. Therefore, the change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change relocates requirements to other sections of the Technical Specifications, to plant procedures, or to the Technical Specifications BASES. The procedure change and BASES change processes require any changes that reflect plant design as described in the FSAR be evaluated in accordance with 10 CFR 50.59. Since any changes will be evaluated per 10 CFR 50.59, no increase (significant or insignificant) in the probability or consequences of an accident previously evaluated will be allowed. Therefore, this change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change provides more stringent requirements than previously existed in the Technical Specifications. The more stringent requirements will not result in operation that will increase the probability of initiating an analyzed event. If anything the new requirements may decrease the probability or consequences of an analyzed event by incorporating the more restrictive changes discussed above. The change will not alter assumptions relative to mitigation of an accident or transient event. The more restrictive requirements will not alter the operation of process variables, structures, systems, or components as described in the safety analyses. Therefore, the change will not involve a significant increase in the probability or consequences of an accident previously evaluated,

ATTACHMENT A:

Safety Evaluation and Determination of No Significant Hazards Considerations (continued)

(1) Does the change involve a significant increase in the probability or consequences of an accident previously evaluated? (continued)

Section 3/4.4 (continued)

The proposed change deletes the requirements for Standby Liquid Control (SLC) System operability during Hot Shutdown, Cold Shutdown, and Refueling. The SLC System is not assumed in the initiation of any previously evaluated events and therefore the proposed change will not increase the probability or consequence of a previously analyzed accident. The SLC System is not assumed to operate in the mitigation of any previously analyzed accidents which are assumed to occur during Hot Shutdown, Cold Shutdown or Refueling. This change will not result in operation that will increase the probability of initiating an analyzed event. This change will not alter assumptions relative to mitigation of an accident or alter the operation of process variables, structures, systems, or components as described in the safety analyses. Therefore, this change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change adds an action for both SLC subsystems inoperable that delays the requirement to initiate plant shutdown immediately and allows time to recover at least one subsystem before subjecting the plant to a potentially unnecessary transient. Allowing a short period of time to recover one subsystem is acceptable because of the large number of independent control rods available to shut down the reactor and the diversity of means available to cause control rod insertion. This change will not alter assumptions relative to mitigation of an accident or alter the operation of process variables, structures, systems, or components as described in the safety analyses. Therefore, this change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change deletes requirements for demonstrating operability of the redundant subsystems which eliminates excessive and unnecessary testing of safety significant equipment. This is consistent with guidance 10.1 of Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirement for Testing During Power Operations". The change does not affect the ability of the SLC system to perform on demand, and by actually lowering the number of demands to demonstrate operability, reduces the probability of equipment failure. Since the change will not alter assumptions relative to mitigation of an accident or alter the operation of process variables, structures, systems, or components as described in the safety analyses, the change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change replaces the requirement to verify B–10 enrichment concentration by test anytime boron is added to the solution and each refueling outage with verifying the enrichment prior to addition. Since enrichment of the solution in the tank cannot change by any other means but chemical addition, ensuring that only properly enriched material is available for addition is adequate to maintain enrichment at the required level. This change will not alter assumptions relative to mitigation of an accident or alter the operation of process variables, structures, systems, or components as described in the safety analyses. Therefore, this change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

Safety Evaluation and Determination of No Significant Hazards Considerations (continued)

(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.

Notes 7 to Table 3.1.1 and Note 6 to Table 3.2.C.1

The changes to Note 7 to Table 3.1.1, and the addition of Note 6 to Table 3.2.C.1 are proposed to clarify their requirements, the appropriate action to take, and their relationship to plant modes. This revised scram and rod block applicability is acceptable because control rods withdrawn from a core cell containing no fuel assemblies have a negligible impact on the reactivity of the core, and, therefore, are not required to be operable. Provided all rods otherwise remain inserted, the RPS functions serve no purpose and are not required. In this condition, the required shutdown margin (Specification 3.3.A.1) and the required one-rod-out interlock (Specification 3.10.A) ensure that no event requiring the RPS or Rod Block will occur.

The Actions of Table 3.1.1 for inoperable equipment were previously revised in Amendment #147 to be consistent with the improved STS. Action (A) requires fully inserting all insertable control rods in core cells containing one or more fuel assemblies. Since Specification 3.10.A requires all control rods to be fully inserted during fuel movement, the proposed applicable conditions cannot be entered while moving fuel. In addition, Specification 3.10.D, used for controlling multiple control rod removal, requires all control rods in a 3X3 array centered on the CRDs being removed to be fully inserted and electrically disarmed and all other control rods fully inserted. The only possible action is control rod withdrawal, which is addressed by Action A.

Hence, operating Pilgrim in accordance with the proposed changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

Section 3/4.4

The proposed change involves reformatting, renumbering, and rewording of the existing Technical Specifications and Bases along with other changes to the Technical Specifications discussed above, The reformatting, renumbering, and rewording along with the other changes listed involves no technical changes to existing Technical Specifications. These changes are administrative and do not impact the assumed mitigation of accidents or transient events. Therefore, these change do not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change relocates requirements to other Technical Specification sections, to plant procedures, or to the Technical Specification BASES. Relocating requirements will not alter the plant configuration (no new or different type of equipment will be installed) or changes in methods governing normal plant operation. Relocating requirements will not impose different requirements and adequate control of information will be maintained. Relocating requirements will not alter assumptions made in the safety analysis and licensing basis. Therefore, these changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes make some existing requirements more restrictive and add additional requirements to the Technical Specifications but will not alter the plant configuration (no new or different type of equipment will be installed) or change methods governing normal plant operation. These changes do impose different requirements, however, they are consistent with assumptions made in the safety analyses. Therefore, these changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed change relaxes the modes of applicability for the SLC. Relaxing the applicability will not involve a physical alteration of the plant (no new or different type of equipment will be installed) or changes in methods governing normal plant operation, Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

ATTACHMENT A:

Safety Evaluation and Determination of No Significant Hazards Considerations (continued)

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

Notes 7 to Table 3.1.1 and Note 6 to Table 3.2.C.1

This revised scram and rod block applicability is acceptable because control rods withdrawn from a core cell containing no fuel assemblies have a negligible impact on the reactivity of the core, and, therefore, are not required to be operable (provide a scram). Provided all rods otherwise remain inserted, the RPS functions serve no purpose and are not required. In this condition, the required shutdown margin (Specification 3.3.A.1) and the required one-rod-out interlock (Specification 3.10.A) ensure that no event requiring the RPS or Rod Block will occur.

The Actions of Table 3.1.1 for inoperable equipment were previously revised in Amendment #147 to be consistent with the improved STS. Action (A) requires fully inserting all insertable control rods in core cells containing one or more fuel assemblies. Since Specification 3.10.A requires all control rods to be fully inserted during fuel movement, the proposed applicable conditions cannot be entered while moving fuel. In addition, Specification 3.10.D, used for controlling multiple control rod removal, requires all control rods in a 3X3 array centered on the CRDs being removed to be fully inserted and electrically disarmed and all other control rods fully inserted. The only possible action is control rod withdrawal, which is adequately addressed by Action A.

Therefore, operating Pilgrim in accordance with the proposed changes will not involve a significant reduction in a margin of safety.

Section 3/4.4

The administrative changes involve no technical changes. These proposed changes will not reduce a margin of safety because there is no impact on any safety analysis assumptions. Also, because the change is administrative in nature, no question of safety is involved. Therefore, these change do not involve a significant reduction in a margin of safety.

The change relocates requirements to other Technical Specification sections, to plant procedures, or to the Technical Specification BASES. These changes will not reduce a margin of safety since there is no impact on any safety analysis assumptions. In addition, the requirements to be transposed are the same as the existing Technical Specifications. Since any changes to plant procedures and Technical Specification BASES are required to be evaluated per 10 CFR 50.59, no reduction (significant or insignificant) in a margin of safety will be allowed. Therefore, these changes will not involve a significant reduction in a margin of safety.

The addition of new requirements and making existing ones more restrictive either increases or does not affect the margin of safety. These changes do not impact any safety analysis assumptions. As such, no question of safety is involved. Therefore, these change will not involve a significant reduction in a margin of safety.

The proposed change would remove a backup (in the Hot Shutdown, Cold Shutdown, and Refueling Modes) to the available systems for reactivity control; however, this backup is not considered in the margin of safety when determining the required reactivity for shutdown and refueling events. This change will have no impact on any safety analysis assumptions. As such, no question of safety is involved. Therefore, this change does not involve a significant reduction in a margin of safety.

The SLC system is not assumed to function in any DBA or transient and is not the primary success path of a safety sequence analysis. It is a backup to the CRD scram function, therefore, allowing a short period of time to recover one subsystem will have no impact on any safety analysis assumptions. As such, no question of safety is involved. Therefore, this change does not involve a significant reduction in a margin of safety.

Safety Evaluation and Determination of No Significant Hazards Considerations (continued)

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

Section 3/4.4 (continued)

The change does not alter the requirements for enrichment/concentration of the boron solution necessary to satisfy 10 CFR 50.62. Since enrichment of the solution in the tank cannot change by any other means but chemical addition, this change does not involve a significant reduction in a margin of safety.

The 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

The change will become effective 30 days following BECO's receipt of the Commission's approval.