



BOSTON EDISON

Pilgrim Nuclear Power Station
Rocky Hill Road
Plymouth, Massachusetts 02360

George W. Davis
Senior Vice President - Nuclear

February 6, 1991

BECO 91-013

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

License DPR-35
Docket 50-293

PROPOSED TECHNICAL SPECIFICATION
SAFER/GESTR Loss-of-Coolant Accident Analysis

References: (1) NRC Letter, C.O. Thomas (NRC) to J. F. Quirk (GE), "Acceptance for Referencing of Licensing Topical Report NEDE-23785, Revision 1 Volume III (p), "The GESTR-LOCA and SAFER Models for the Evaluation of the Loss-of-Coolant Accident", June 1, 1984

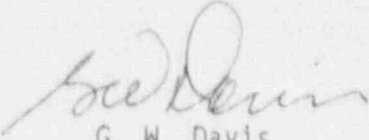
(2) BECo Letter No. 90-154, dated December 10, 1990

Boston Edison Company proposes the attached modification to the Technical Specifications, Appendix A of Operating License DPR-35 for the Pilgrim Nuclear Power Station in accordance with 10CFR50.90.

The proposed modification to the Technical Specifications establishes a revised basis for the safety analyses of the Pilgrim Nuclear Power Station based upon the results of the Loss-of-Coolant Accident (LOCA) analysis performed using General Electric's SAFER/GESTR-LOCA Application Methodology. This methodology was approved by the NRC in Reference (1). The Pilgrim specific LOCA analysis was submitted for NRC review and approval by Reference (2). The proposed modification substitutes the reference to the LOCA analyses report in T.S.6.9.A.4.b with the revised LOCA analyses report.

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The cycle 9 reload fuel (General Electric fuel, GE8) was analyzed using the SAFER/GESTR-LOCA Application Methodology. The approval of the proposed Technical Specifications is required for plant operation with cycle 9 reload fuel following Refueling Outage #8.


G. W. Davis

Attachments & cc: See next page
Commonwealth of Massachusetts)
County of Plymouth)

Then personally appeared before me, George W. Davis, 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:

April 3, 1994
DATE


NOTARY PUBLIC

Attachments: A. Description of Proposed Changes
B. Replacement Technical Specification Pages
C. Marked-Up Technical Specification Pages



I signed original and 37 copies

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ATTACHMENT A TO BECo 91-013
DESCRIPTION OF PROPOSED CHANGE

PROPOSED CHANGE

Boston Edison Company proposes to modify the Pilgrim Nuclear Power Station (PNPS) Technical Specifications, 6.9.A.4.b to substitute the reference for Loss-of-Coolant Accident (LOCA) Analysis Report.

This change involves no physical modification to Pilgrim Nuclear Power Station (PNPS). The change affects the Plant Technical Specifications and the Final Safety Analysis Report (FSAR). An evaluation of the LOCA for PNPS was performed using General Electric's (GE) improved SAFER/GESTR-LOCA Application Methodology. The SAFER/GESTR-LOCA Application Methodology was approved by the NRC in Reference (1). The revised Pilgrim specific analysis using SAFER/GESTR-LOCA Application Methodology is described in NEDC-31852P, "Pilgrim Nuclear Power Station SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis", September, with Errata and Addenda Sheet No. 1, dated October, 1990. The proposed Technical Specification modification substitutes the reference from the current GE Report NEDO-21696 to the new GE Report NEDC-31852P.

BASIS FOR CHANGE

The bases for the change allowing the use of SAFER/GESTR-LOCA analyses for Pilgrim are described in the GE Report, NEDC-31852P. This report was submitted for NRC review and approval by Reference (2).

EFFECTS ON SAFETY FUNCTION

This proposed modification changes the basis for fuel operating limits due to LOCA analysis in the Plant Technical Specifications. Consequently, this modification also updates the basis for the LOCA safety analyses of the plant. The methodology currently referenced in the Technical Specifications and in the Pilgrim's Final Safety Analysis Report (FSAR) is overly conservative. This methodology is being replaced throughout the nuclear industry by the later NRC approved improved SAFER/GESTR methodology. The fuel operating limits in the Plant Technical Specifications are determined by fuel design using the improved SAFER/GESTR methodology. The analysis with SAFER/GESTR-LOCA Application Methodology affirms that these limits also apply to the new General Electric GEB reload fuel being introduced into Pilgrim for use in cycle 9.

Ref. (1): NRC Letter, C.O. Thomas (NRC) to J. F. Quirk (GE), "Acceptance for Referencing of Licensing Topical Report NEDE-23785, Revision 1, Volume III (p), 'The GESTR-LOCA and SAFER Models for the Evaluation of the Loss-of-Coolant Accident'", June 1, 1984

(2): BECo Letter No. 90-154 to the NRC, dated December 10, 1990

The new General Electric GE8 fuel operating limits were determined using the SAFER/GESTR-LOCA Application Methodology. The fuel operating limits derived from the SAFER/GESTR-LOCA analysis will be incorporated into the Pilgrim's Core Operating Limits Report after this proposed change is approved. Use of existing fuel is enveloped by the SAFER/GESTR-LOCA Analysis and the fuel operating limits will continue to satisfy 10CFR10, Appendix K requirements for that fuel. This includes rated conditions, off-normal operating conditions, and alternate operating modes.

The analysis results predict that the safety limits for fuel (peak clad temperature, cladding oxidation, and hydrogen generation) will not be exceeded, coolable geometry will be maintained throughout the core, and long term cooling will not be degraded following postulated breaks in the primary coolant piping during normal and off-normal operating conditions.

The basis for the Average Planar Linear Heat Generation Rate in the Plant Technical Specification for peak cladding temperature (PCT) makes reference to 10CFR50, Appendix K. The PCT acceptance limit is defined in 10CFR50.46 (b) (1) as 2200°F. The local fuel cladding oxidation (<17%) and core wide hydrogen production (<1%) acceptance limits are also defined in 10CFR50.46. Since the results of the SAFER/GESTR analysis meet these acceptance limits, the margin of safety has not been reduced. The PCT calculated based upon the NRC approved SAFER/GESTR methodology is less than the previously calculated limit as follows:

Current PCT - 2140°F
SAFER/GESTR PCT - 1825°F <2200°F acceptance limit

The results of the SAFER/GESTR analysis for Cladding Oxidation and Hydrogen Production are far below the acceptance limit as follows:

Cladding Oxidation - <0.3% vs <17% acceptance limit
Hydrogen Production - <0.1% vs <1% acceptance limit

Furthermore, when operating at 100% rated power and 85% core flow, the calculated PCT's were also below licensing limits. Thus, there is no reduction of the margin of safety for low core flow conditions.

The LOCA results for 100% power at 100% flow and 100% power at 85% flow are bounded by the operating region for PNPS, and the licensing limits for LOCA is met for all operating conditions allowed for PNPS. Hence, this change does not reduce the margin of safety as defined in the basis of any Pilgrim Technical Specifications. The NRC approved methodology confirms the safe operation of PNPS with lower PCT's following the unlikely occurrence of a LOCA event.

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 to Pilgrim's Technical Specification for making reference to the revised Loss of Coolant Accident Analysis performed by using the NRC approved SAFER/GESTR Application Methodology.

- A. This change involves no physical modification to the plant nor would require any different operator action during any operating condition. Thus, there would be no increase in the probability of occurrence of an accident previously evaluated in the PNPS safety analysis report; therefore this change does not increase the consequences of an accident previously evaluated in the safety analysis report.
- B. This change involves no new equipment. It does not relax current Technical Specification requirements. It does not violate 10CFR50, Appendix K limits. Hence, this change does not increase the probability of occurrence or the consequences of a malfunction of equipment important to safety previously evaluated in the safety analysis report.
- C. We have determined the new approved methodology for LOCA evaluations does not affect the safe operation of Pilgrim. The requirements of 10CFR50, Appendix K are met by the new methodology; hence the operation of Pilgrim in accordance with the proposed change does not involve a significant reduction in the margin of safety.

REQUESTED SCHEDULE

The proposed Technical Specification changes are planned to be used during Pilgrim's cycle 9 operation. NRC approval of this proposed Technical Specification change is therefore required during Refueling Outage #8, prior to the cycle 9 operation with GE8 fuel.