



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

August 31, 1990

Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Quad Cities Nuclear Power Station Unit 1
Proposed Amendment to Technical Specification
Minimum Critical Power Ratio Limit
License No. DPR-29
NRC Docket No. 50-254

Dear Dr. Murley:

Pursuant to the provisions of 10 CFR 50.90, Commonwealth Edison Company proposes to amend Facility Operating License No. 29, Appendix A, Technical Specifications to reflect the use of generically approved fuel type GE8x8NB in the reload Unit 1 Cycle 12 and the resultant change in the Minimum Critical Power Ratio (MCPR) safety limit from 1.07 to 1.06.

Attachment 1 provides a description of the proposed Technical Specification change. Attachment 2 summarizes the proposed change. The proposed Technical Specification page change is provided in Attachment 3. Attachment 4 documents the CECO determination of No Significant Hazards Consideration based on the criteria in 10 CFR 50.92. The proposed amendment has been reviewed and approved by CECO On-Site and Off-Site Review in accordance with Company procedures.

CECO is notifying the State of Illinois of our request and our determination of No Significant Hazards Consideration by providing a copy of this letter and the attachment to the Illinois Department of Nuclear Safety.

If there are any questions regarding this matter, please direct them to me at 708/515-7283.

Very truly yours,

Rita Stols
Nuclear Licensing Administrator

- Attachments 1: Description of Proposed Amendment Request
2: Summary of Proposed Change
3: Proposed Changes to Appendix A, Technical Specification
4: Evaluation of Significant Hazards Consideration

cc: L.N. Olshan-Project Manager, NRR
A. Bert Davis-Regional Administrator, RIII
T. Taylor-Senior Resident Inspector, Quad Cities
Office of Facility Safety-IDNS

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ATTACHMENT 1

DESCRIPTION OF AMENDMENT REQUEST

General Electric (GE) has been continuously refining and improving the fuel design used in BWRs. GE's continued advancement in their fuel design has, in the past, led to Minimum Critical Power Ratio (MCPR) safety limit values unique to particular fuel types. For a given plant, the value of the MCPR safety limit in the Technical Specification may change as new fuel types are licensed.

Technical Specification Section 1.1/2.1 ("Fuel Cladding Integrity") for Quad Cities Unit 1 currently defines the Minimum Critical Power Ratio (MCPR) safety limit as 1.07. This amendment request proposes that the MCPR safety limit be revised to 1.06.

Amendment 14 to NEDE-24011-P-A-9, "General Electric Standard Application for Reactor Fuel" (GESTAR), which has received NRC approval, allows D-lattice plants to apply a MCPR safety limit of 1.04 following the second successive reload of high bundle R-factor fuel. Since the last three reloads for Unit 1 consisted of high R-factor fuel (BP8X8R and GE8X8EB), the current MCPR safety limit of 1.07 is conservative.

During Cycle 12 operation, Quad Cities Unit 1 will be using its first reload of GE8x8NB fuel. The major differences between the GE8x8EB (reload fuel for the last two cycles) and the GE8x8NB designs are the utilization of a large central water rod (LCWR), a high performance spacer and U-235 axial enrichment variation for the GE8x8NB fuel. From a thermal-mechanical standpoint, the GE8x8NB design is the same as that of the GE8x8EB. However, the hydraulic design change of using one LCWR and a high performance spacer has resulted in changes to the bundle flow area, hydraulic diameter, heated perimeter and spacer loss coefficients. The analysis of the thermal-mechanical and hydraulic portion of the GE8x8NB design has been performed using NRC approved codes and methodology, and the analysis and results have been accepted by the NRC. A new critical power correlation has also been developed and approved for use on GE8x8NB fuel. The GE8x8NB fuel has been generically approved for use by the NRC (Amendment 18 to NEDE-24011-P-A-9).

A MCPR safety limit of 1.06 for GE8x8NB fuel was determined using NRC approved methodology discussed in Section 4.3 of GESTAR. This is the same methodology used in determining the MCPR safety limit for previous GE fuel designs. This value ensures that 99.9% of the fuel rods would be expected to avoid boiling transition during steady-state or transient conditions with a 95% confidence level. For these reasons, a safety limit MCPR of 1.06 for GE8x8NB is appropriate.

Commonwealth Edison, therefore, proposes to revise the MCPR safety limit beginning with Cycle 12 to 1.06, which is the MCPR safety limit corresponding to GE8x8NB fuel. This represents the most conservative MCPR safety limit for all resident fuel types for Quad Cities 1 Cycle 12.

ATTACHMENT 2

SUMMARY OF PROPOSED CHANGES

1. Page 1.1/2.1-1 (DPR-29)

Section 1.1/2.1 "Fuel Cladding Integrity", contains a listing of Specifications which have been established to preserve the integrity of the cladding, which includes the Minimum Critical Power Ratio (MCPR) safety limit. The current value of 1.07 will be revised to a new MCPR safety limit of 1.06.