FENOC
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June 15, 2001
L-01-082

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Subject: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
License Amendment Request No. 288, Supplemental Information No. 2

On March 28, 2001, pursuant to 10 CFR 50.90, FirstEnergy Nuclear Operating Company (FENOC) submitted License Amendment Request (LAR) No. 288 to the Nuclear Regulatory Commission (NRC) for review. The proposed Technical Specification change would modify the Technical Specification limits for boron concentration in the Refueling Water Storage Tank (RWST), Accumulators, Boron Injection Tank (BIT), and the Reactor Coolant System/Refueling Canal during Mode 6. FENOC requested the NRC to review and approve LAR No. 288 in sufficient time to support implementation during the Beaver Valley Unit 1 14th refueling outage (1R14) which is planned for the fall of 2001.

In response to a telephone request on June 8, 2001, additional information is provided in Attachment A to supplement License Amendment Request No. 288. This information does not affect the proposed changes provided in LAR No. 288 or the conditions of the no significant hazards evaluation.

If you have any questions regarding this matter, please contact Mr. Thomas S. Cosgrove, Manager, Regulatory Affairs at 724-682-5203.

Sincerely,

Lew W. Myers

c: Mr. L. J. Burkhart, Project Manager
Mr. D. M. Kern, Sr. Resident Inspector
Mr. H. J. Miller, NRC Region I Administrator
Mr. D. A. Allard, Director BRP/DEP
Mr. L. E. Ryan (BRP/DEP)

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Central File - *Keywords: LAR*

Subject: **Beaver Valley Power Station, Unit No. 1**
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I, Lew W. Myers, being duly sworn, state that I am Senior Vice President of FirstEnergy Nuclear Operating Company (FENOC), that I am authorized to sign and file this submittal with the Nuclear Regulatory Commission on behalf of FENOC, and that the statements made and the matters set forth herein pertaining to FENOC are true and correct to the best of my knowledge and belief.

FirstEnergy Nuclear Operating Company

Lew W. Myers
Senior Vice President - FENOC

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF BEAVER

Subscribed and sworn to me, a Notary Public, in and for the County and State above named, this 15 th day of June, 2001.

Sheila M. Fattore

My Commission Expires:

Notarial Seal
Sheila M. Fattore, Notary Public
Shippingport Boro, Beaver County
My Commission Expires Sept. 30, 2002
Member, Pennsylvania Association of Notaries

Attachment A

Beaver Valley Power Station, Unit No. 1
License Amendment Request No. 288, Supplemental Information No. 2
Revised RWST/Accumulator/BIT Boron Concentration Limits

[redacted]

Question
How does the potential for core designs with higher energy requirements affect the modeling of fuel enrichment in the control rod ejection analysis as described in Section 14.2.6 and Table 14.2-3 of the BVPS Unit 1 UFSAR?

Response
License Amendment Request No. 288 is not proposing any changes to the current BVPS Unit 1 Technical Specification 5.3.1.2 limit for new fuel assemblies containing maximum U-235 enrichment of 5.00 weight percent (w/o).

The results of a rod ejection analysis, as described in Section 14.2.6 and Table 14.2-3 of the BVPS Unit 1 UFSAR, are dependent on the pellet power distribution used. Pellet distributions that are peaked to the outside give higher peak clad temperatures (PCTs), while flatter distributions result in higher centerline temperatures. Pellet power distributions are sensitive to burnup and enrichment. Sensitivity studies for all four rod ejection cases have been run in order to determine which enrichment and burnup should be used for each case.

All hot full power (HFP) cases were run at 0 MWD/MTU, since low burnups maximize the centerline temperatures (melting is a concern at HFP). All of the pellet power distributions are relatively flat at 0 MWD/MTU. Several enrichments were studied, and the results of the study showed that the pellet power distribution corresponding to 3.0 w/o enrichment was the most limiting and conservative for the HFP cases (enrichments lower and higher than 3.0 w/o resulted in slightly lower centerline temperatures and less fuel melting. Therefore, up to 5 w/o enrichment fuel is conservatively bounded by the use of the pellet power distribution corresponding to 3 w/o at 0 MWD/MTU (HFP cases).

Hot zero power (HZP) cases were run at ~45,000 MWD/MTU, since high burnups maximize PCT. The pellet power distributions are skewed to varying degrees at ~45,000 MWD/MTU, and several enrichments were studied to determine which ones provided the most conservative PCT results. The results of the study demonstrated that the pellet power distribution corresponding to 3.0 w/o enrichment was the most limiting and conservative for BOL rod ejection, and the pellet power distribution corresponding to 1.9 w/o enrichment was the most limiting and conservative for EOL rod ejection. Pellet power distributions obtained at high burnups (~45,000 MWD/MTU) are conservative since the fuel hot-spot will occur in lower burnup fuel. Therefore, up to 5 w/o enrichment fuel is conservatively bounded by the use of the pellet power distributions identified above for the HZP cases for BVPS Unit 1.