UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 26, 2010

Mr. Paul A. Harden
Site Vice President
FirstEnergy Nuclear Operating Company
Beaver Valley Power Station
Mail Stop A-BV-SEB1
P.O. Box 4, Route 168
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY POWER STATION, UNIT NO. 1 - THE ASTRUM BEST-ESTIMATE LARGE BREAK LOSS-OF-COOLANT-ACCIDENT METHODOLOGY LICENSE AMENDMENT REQUEST (TAC NO. ME1776)

Dear Mr. Harden:

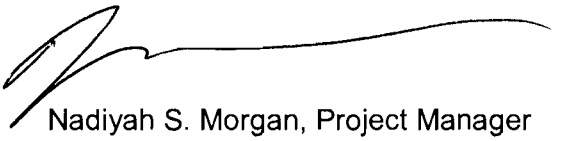
By letter dated July 6, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML091890844), FirstEnergy Nuclear Operating Company (licensee) submitted an amendment request to the operating license for Beaver Valley Power Station, Unit No. 1 (BVPS-1). The proposed amendment would revise Technical Specification 5.6.3, "Core Operating Limits Report," to allow use of the generically approved Topical Report, WCAP-16009-P-A, "Realistic Large Break LOCA [loss-of-coolant-accident] Evaluation Methodology Using Automated Statistical Treatment of Uncertainty Method (ASTRUM)," for BVPS-1.

The Nuclear Regulatory Commission (NRC) staff is reviewing the submittal and has determined that additional information is needed to complete its review. The specific questions are found in the enclosed request for additional information (RAI). The NRC staff is requesting a response to the RAI by March 8, 2010.

The NRC staff considers that timely responses to RAIs help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources.

If you have any questions regarding this issue, please contact me at (301) 415-1016.

Sincerely,



Nadiyah S. Morgan, Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-334

Enclosure:
RAI

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REQUEST FOR ADDITIONAL INFORMATION

RELATED TO THE ASTRUM BEST-ESTIMATE LARGE BREAK

LOSS-OF-COOLANT-ACCIDENT METHODOLOGY

LICENSE AMENDMENT REQUEST

FIRSTENERGY NUCLEAR OPERATING COMPANY

BEAVER VALLEY POWER STATION, UNIT NO. 1

DOCKET NO. 50-334

By letter dated July 6, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML091890844), FirstEnergy Nuclear Operating Company (licensee) submitted an amendment request to the operating license for Beaver Valley Power Station, Unit No. 1 (BVPS-1). The proposed amendment would revise Technical Specification 5.6.3, "Core Operating Limits Report," to allow use of the generically approved Topical Report, WCAP-16009-P-A, "Realistic Large Break LOCA [loss-of-coolant-accident] Evaluation Methodology Using Automated Statistical Treatment of Uncertainty Method (ASTRUM)," for BVPS-1.

During its review, the Nuclear Regulatory Commission (NRC) staff reviewed the BVPS-1 Updated Final Safety Analysis Report (UFSAR) (Revision 23) and WCAP-16009-P-A to ensure that the ASTRUM implementation was performed in a manner consistent with the BVPS-1 current licensing basis and with the generically approved methodology.

The NRC staff noticed that both the UFSAR and Westinghouse responses to the NRC staff request for additional information associated with the ASTRUM review (Westinghouse Reference LTR-NRC-04-30; NRC Reference ADAMS Accession No. ML041340596) indicate that the limiting reference large break LOCA for a 3-loop Westinghouse Nuclear Steam Supply System is a split break. However, on page 3 of the July 6, 2009, letter, the licensee stated, "WCAP-16009-P-A uses a double-ended guillotine break for plant-specific confirmatory analysis." To complete its review, the NRC staff requests the following additional information:

1. Please clarify the above statement. According to WCAP-16009-P-A, and subsequent applications of it, limiting split breaks can also result in a higher peak cladding temperature (PCT) than the double-ended guillotined break. This is also true for the BVPS-1 analysis of record (AOR), which predicts that the limiting break is split geometry.

2. For the current AOR (Code Qualification Document (CQD) method), provide a scatter plot of PCT vs. break characteristics (normalized area and discharge coefficient) that distinguishes between slot breaks and double-ended breaks.

3. Compare input parameters between the CQD and ASTRUM analyses.

4. For both the AOR and the ASTRUM analyses, provide the reference values, nominal values, and ranges for the following parameters:

   a. Reactor Coolant System (RCS) T_{avg}
   b. RCS Pressure
   c. Accumulator Pressure, Volume, and Temperature
   d. Safety Injection Temperature
   e. Peaking Factors
   f. Hot Assembly, Hot Rod, and Average Linear Heat Rates

5. Are there any rackup items incorporated in the new analysis?

6. For both the CQD AOR and the ASTRUM analysis, provide a table of sampled input parameters and their case-specific values for the four highest PCT cases for each of the split and the double-ended guillotine breaks.

If you have any questions regarding this issue, please contact me at (301) 415-1016.

Sincerely,

/RA/

Nadiyah S. Morgan, Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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ADAMS ACCESSION NUMBER: ML100120809 *See email dated 11/30/2009

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