

July 6, 2005

Mr. L. William Pearce
Vice President
FirstEnergy Nuclear Operating Company
Beaver Valley Power Station
Post Office Box 4
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 (BVPS-1 AND 2) -
REQUEST FOR ADDITIONAL INFORMATION (RAI) - RELAXED AXIAL
OFFSET CONTROL (TAC NOS. MC5904 AND MC5905)

Dear Mr. Pearce:

The Nuclear Regulatory Commission (NRC) staff has reviewed the information provided in your February 11, 2005, license amendment application to implement the relaxed axial offset control and F_Q surveillance methodologies. The NRC staff has determined that the additional information contained in the enclosure to this letter is needed to complete its review. As discussed with your staff, we request your response within 30 days of receipt of this letter, in order for the NRC staff to complete its scheduled review of your submittal.

Sincerely,

/RA/

Timothy G. Colburn, Senior Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-334 and 50-412

Enclosure: RAI

cc w/encl: See next page

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ACCESSION NO. ML051810153

*Input provided. No substantive changes made.

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REQUEST FOR ADDITIONAL INFORMATION
RELATED TO FIRSTENERGY NUCLEAR OPERATING COMPANY (FENOC)
BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 (BVPS-1 AND 2)
RELAXED AXIAL OFFSET CONTROL (RAOC)
DOCKET NOS. 50-334 AND 50-412

By letter dated February 11, 2005 (Reference 1), FENOC (the licensee), proposed changes to BVPS-1 and 2 Technical Specifications (TSs) to allow implementation of the RAOC and F_Q surveillance methodologies in accordance with WCAP-10216-P-A, "Relaxation of Constant Axial Offset Control F_Q Surveillance Technical Specification" (Reference 2). FENOC currently has a pending license amendment request (LAR) for extended power uprate (EPU) (Reference 3). FENOC has requested that the LAR to implement RAOC be approved in time to allow a concurrent implementation of the EPU. The Nuclear Regulatory Commission (NRC) staff requests responses to the following information in order to complete the review of the licensee's RAOC LAR:

1. WCAP-10216-P-A, delineates a calculational procedure for determining the final RAOC limit. From the licensee's submittal it is not evident that the procedure was explicitly followed. Please provide a description of how the calculational procedure of WCAP-10216-P-A was followed. Please justify any exceptions to the calculational procedure identified in WCAP-10216-P-A.
2. On page A-16 of WCAP-10216-P-A, paragraph 2, " F_Q Analysis," it is stated, "Each power shape generated in Section C.1, above is analyzed to determine if LOCA [loss-of-coolant accident] constraints are met or exceeded. The total peaking factor, F_Q^T , is determined using standard synthesis methods as described in WCAP-8385...." Yet in the EPU LAR, the licensee is deleting WCAP-8385 from the list of approved methodologies. Please identify the replacement for WCAP-8385. Please provide the justification for that replacement.
3. FENOC's EPU LAR indicates the EPU analysis was performed assuming constant axial offset control (CAOC). Since the accident analysis submitted with EPU LAR indicates that the departure from nucleate boiling analysis assumes the most limiting axial and radial power shapes possible during the fuel cycle, how do the more limiting axial power shapes allowed by RAOC affect those analyses?
4. FENOC's EPU LAR is adding the non-loss-of-coolant accident (non-LOCA) methodology, WCAP-14565-P-A, "VIPRE-01 Modeling and Qualification for Pressurized Water Reactor Non-LOCA Thermal-Hydraulic Safety Analysis," (Reference 4) to the list of NRC-approved methodologies appearing in BVPS-1 and 2 TS 6.9.5.b. A requirement of WCAP-14565-P-A, is that reactor boundary conditions such as power shape are shown to be conservative for each use of VIPRE. As the EPU LAR utilized power shapes developed with the CAOC methodology, please show how power shapes developed using RAOC remain conservative with the use of VIPRE.

Enclosure

5. According to WCAP-14565-P-A, VIPRE predictions were found to be sensitive to axial noding but once sufficient noding detail is obtained, the results were found to be insensitive to further noding detail. Please identify whether VIPRE has any additional axial node sensitivity for power shapes generated utilizing the RAOC methodology as opposed to those generated with the CAOC methodology.
6. Please identify any other methodology constraints, conditions, or restrictions that may be impacted by the use of axial power shapes generated using the RAOC methodology as opposed to those generated using the CAOC methodology. Please provide justification for the use of RAOC generated axial power shapes for all identified impacts.

REFERENCES

7. First Energy Nuclear Operating Company (FENOC), letter dated February 11, 2005 from L. William Pearce, Site Vice President to USNRC, re: Beaver Valley Power Station, Unit No. 1 and No. 2, BV-1, Docket No. 50-334, License No. DPR-66, BV-2 Docket No. 50-412, License No. NPF-73, License Amendment Request Nos. 310 and 182.
8. WCAP-10216-P-A, "Relaxation of Constant Axial Offset Control/FQ Surveillance Technical Specification."
9. First Energy Nuclear Operating Company (FENOC), letter from L. William Pearce, Site Vice President to USNRC, re: Beaver Valley Power Station, Unit No. 1 and No. 2, BV-1 Docket No. 50-334, License No. DPR-66, BV-2 Docket No. 50-412, License No. NPF-73, License Amendment Request Nos. 302 and 173.
10. WCAP-14565-P-A, "VIPRE-01 Modeling and Qualification for Pressurized Water Reactor Non-LOCA Thermal-Hydraulic Safety Analysis."

Beaver Valley Power Station, Unit Nos. 1 and 2

cc:

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