January 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) - EXTENDED POWER UPRATE (EPU) ACCEPTANCE REVIEW (TAC NOS. MC4645 AND MC4646)

Dear Mr. Pearce:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated October 4, 2004, FirstEnergy Nuclear Operating Company (FENOC, the licensee) submitted a license amendment request for BVPS-1 and 2. The proposed amendment would change the BVPS-1 and 2, operating licenses to increase the maximum authorized power level from 2689 megawatts thermal (MWt) to 2900 MWt. This change represents an increase of approximately 8 percent above the current maximum authorized power level. The proposed amendment would also change the BVPS-1 and 2 Technical Specifications (TSs) to authorize operation with replacement Model 54F steam generators (SGs) for BVPS-1 (BVPS-2 would continue to operate with Model 51M SGs) and full implementation of the Alternate Source Term for both BVPS-1 and 2, in accordance with Regulatory Guide 1.183, “Alternate Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors.” Various other miscellaneous and administrative TS changes were also proposed not related to the EPU. The purpose of this letter is to provide the results of the NRC staff's acceptance review of the EPU application for BVPS-1 and 2. The acceptance review determines whether or not there is sufficient detail to allow the NRC staff to proceed with its detailed technical review. The review also ensures that the application adequately characterizes the regulatory requirements and licensing basis of the plant.

Consistent with Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.90, an amendment to the license (including the TSs) must fully describe the changes requested, consistent with the form prescribed, to the extent applicable, for original applications. Section 50.34 of 10 CFR addresses the content of technical information required. This section stipulates that the submittal address the design and operating characteristics, unusual or novel design features, and principal safety considerations.

The NRC staff has reviewed your request and concluded that it does not provide technical information in sufficient detail to enable the staff to make an independent assessment regarding the acceptability of the proposed amendment in terms of regulatory requirements and the protection of public health and safety. Specific examples of areas which require additional information to be submitted are included in the enclosure.

Based on the examples provided, the NRC staff does not consider your application to be complete and requests that FENOC revise the EPU submittal to address the concerns contained in the enclosure. This request was discussed with Mr. Henry Hegrat of your staff on December 15, 2004, and it was agreed that a response would be provided within 60 days of the issuance of this letter. Upon receipt of information that adequately addresses these deficiencies, the NRC staff will consider your application complete, such that the detailed technical review could be initiated and a schedule for completing our review could be established. If the response cannot be provided by the agreed upon date, FENOC should notify the NRC staff in writing. Upon written notification, a new date may be established with agreement from the NRC staff. If the response is not provided within 60 days, and no new date has been agreed upon, the NRC staff may proceed on your request consistent with 10 CFR 2.108, "Denial of application," for failure to supply information.

If you have any questions, please contact the BVPS-1 and 2 Project Manager, Mr. Timothy G. Colburn, at (301) 415-1402.

Sincerely,

/RA/

Cornelius F. Holden, Director
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-334 and 50-412

Enclosure: List of Completeness
and Quality Items

cc w/encl: See next page

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cc w/encl: See next page

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DATE	1/5/05	12/16/04	12/17/04	01/04/05	12/17/04

OFFICE	PDIII-1/D	IPSB/BC	SPSB/BC	PDI-1/SC	PD-I/D
NAME	WRuland	SKlementowicz for TQuay	MTschiltz	RLaufer	CHolden
DATE	1/5/05	12/17/04	01/05/05	1/5/05	1/6/05

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LETTER TO: L. William Pearce

FROM: Cornelius F. Holden

SUBJECT: BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 (BVPS-1 AND 2) - EXTENDED POWER UPRATE (EPU) ACCEPTANCE REVIEW (TAC NOS. MC4645 AND MC4646)

Dated: January 6, 2005

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Beaver Valley Power Station, Unit Nos. 1 and 2

cc:

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EXTENDED POWER UPRATE

FIRSTENERGY NUCLEAR OPERATING COMPANY (FENOC)

LIST OF COMPLETENESS AND QUALITY ITEMS

BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 (BVPS-1 AND 2)

DOCKET NOS. 50-334 AND 50-412

The U.S. Nuclear Regulatory Commission (NRC) staff has identified the following areas that lack sufficient information for the NRC staff to begin its detailed review. FENOC should use RS-001, "Review Standard for Extended Power Uprates [EPUs]," Rev. 0, December 2003, Agencywide Documents Access and Management System (ADAMS) No. ML0033640024 and the EPU Licensing Topical Report (ELTR)-1 and ELTR-2, for guidance regarding the information needed to complete the application. The safety evaluation (SE) template provides a draft regulatory evaluation and conclusion for each review area.

1.0 Environmental Review

EPUs currently do not meet the categorical exclusion criteria in Title 10 of the *Code of Federal Regulations* (10 CFR), Part 51, Section 51.22(c)(9). Therefore, the NRC staff must obtain sufficient information to support an Environmental Assessment. FENOC needs to resubmit the environmental sections of the EPU application to include detailed information as requested in Regulatory Guide (RG) 4.2. In addition, FENOC needs to submit a biological assessment of the facility. The September 10, 2003, Vermont Yankee Nuclear Power Station EPU application, ADAMS No. ML032580089, and its associated biological assessment provides a good example of the level of detail of environmental data that should be provided.

2.0 Probabilistic Safety Review

The licensee stated that its EPU Licensing Report presents information consistent with RS-001. However, the licensee did not provide key risk information described in RS-001.

The licensee stated in the amendment request: "There is the potential that the EPU may affect certain PRA [probability risk assessment] success criteria and timing of some modeled human actions, due to the increased decay heat level and other factors previously discussed. Based on a qualitative evaluation of these potential impacts, it is concluded that the risk increases due to these impacts of the EPU conditions will be small and within the acceptance guidelines of RG 1.174. The magnitude of any such impacts will be determined when the quantitative analysis of the EPU and containment conversion changes is performed." The licensee did not provide a quantitative risk assessment to support the EPU application. Below, portions of RS-001 are listed that were not provided in the license amendment request. This information is required for the NRC staff to begin its review using the guidance of RS-001, and has been provided on other dockets to support NRC staff review of EPU requests. The following information, described in RS-001, Attachment 1 to Matrix 13, was not provided in the FENOC EPU amendment request or, if discussed, lacked sufficient detail to support a technical review:

a. Address the risk impacts of the power uprate on operator response times and associated error probabilities. Include an explanation of why the impacts occur and, where applicable, the quantification of these impacts.

b. Address the risk impacts of the power uprate on internal events core damage frequency (CDF) and large early release frequency (LERF). Include an explanation of why the impacts occur and, where applicable, the quantification of these impacts.

c. Address the potential impacts on PRA results from changes in the plant caused by the power uprate or implemented in parallel with the power uprate, e.g., emergency operating procedures, maintenance practices or approaches, turbine trip setpoints, increased burnup, and longer fuel cycles.

d. Address vulnerabilities, weaknesses, or review findings identified in the individual plant examination (IPE) safety evaluation report (SER) or technical evaluation report (TER), or in an industry peer review.

e. If the licensee's IPE/PRA took credit for modifications or improvements that had not been implemented, then these conditions need to be explicitly addressed. Either indicate that the modifications or improvements were in fact implemented, or provide justification for the acceptability of the existing situations for the post-power uprate plant conditions.

f. If a licensee has performed evaluations before fully determining the plant modifications that will be implemented, the licensee needs to justify their evaluations. If some modifications or improvements are proposed that may not be implemented, then a sensitivity calculation of the risks should be performed. If the design of a modification or improvement has not been established, then the licensee needs to justify that the assumed design features and resulting failure probabilities bound the proposed modifications. Again, more sensitivity calculations should be performed. If sensitivity calculations are performed, the licensee needs to consider items in combination, i.e., worst-case sensitivity.

g. If the change in CDF and/or LERF, or base CDF and/or LERF, exceeds RG 1.174 guidelines, including the results of any sensitivity calculations, then the licensee should provide a more detailed justification to support the acceptability of implementing the power uprate. Information needs to be sufficient for the staff to conclude that the risk impact from internal events is acceptable and does not create special circumstances.

h. Address vulnerabilities, weaknesses, or review findings identified in the IPE for external events (IPEEE) SER or TER, or in any industry peer review.

i. If the estimated risk contributions exceed the RG 1.174 guidelines, including the consideration of the existence of a potential vulnerability that is identified in a margins-type analysis, or if new potential vulnerabilities are introduced by the power uprate, the licensee should provide a more detailed justification to support the acceptability of implementing the power uprate. Information needs to be sufficient for the staff to conclude that the risk impact from external events is acceptable and does not create special circumstances.

j. The licensee needs to address the risk impacts on shutdown operations associated with implementing the power uprate.

l. Describe the plant's shutdown risk management philosophies, processes, and controls relied upon to ensure that the risk impacts of the power uprate on shutdown operations are not significant.

m. For shutdown risk, consider impacts due to greater decay heat loads, which may cause longer times to reach shutdown, shorter times to boiling, and/or shorter times for operator responses.

n. The licensee needs to address the scope, level of detail, and quality of the shutdown PRA and/or other relied-upon evaluations, e.g., outage management guidance.

3.0 Electrical Distribution

The licensee addressed all the electrical areas, i.e., main generator, isolated phase (iso-phase) bus, main transformer, unit auxiliary transformer, station service transformer, emergency diesel generators (EDGs), motors, cables, low voltage system, grid stability, station blackout (SBO), and equipment qualification (EQ), as required by RS-001. However, the NRC staff acceptance review finds that the submittal was lacking in the following areas:

a. An analysis of the EPU impact on the 125 V DC system was not completed.

b. An analysis of the impact of the load increases, e.g., condensate pump, reactor coolant pumps (RCPs) and charging pumps, on the degraded voltage relay settings was not addressed.

c. The iso-phase bus rating is 28,000 amperes (forced air-cooled). However, the bus could see a current of 29,557 amperes under EPU conditions with 95% of rated voltage ((1070 x 1000)/(1.7321 x 22 x 0.95)). Please justify why the iso-phase bus rating is adequate.

d. The EDG loading will increase due to the EPU. The increased loading will reduce the spare load capacity. FENOC utilizes emergency AC power from the other unit as its alternate AC (AAC) power source. The impact of a reduced capacity being available as the AAC power source was not addressed.

e. The adequacy of the DC system for the first hour of an SBO event was not addressed.

4.0 Testing

The application has only partially addressed the review criteria of RS-001, Section 14.2.1. Section 13, "Testing," of Enclosure 2 to the application only provides a general overview of the program and lacks sufficient detail for the NRC staff to perform its review. Therefore, the staff is unable at this time to begin the review.

Based on the limited review during the acceptance phase, the staff identified, at a minimum, the need for the information identified below. This list is not all inclusive and may need to be supplemented with requests for additional information after the review begins. The licensee needs to provide the following:

a. A comparison of EPU tests versus initial startup testing.

b. A list and description of the modifications necessary to support the EPU.

c. A justification/explanation for any original startup tests which are proposed to be excepted.

d. A discussion of the licensee's position on performance of large transient testing, including the basis for not performing any specific large transient tests.

e. A copy of the original startup test report for both BVPS-1 and 2.

f. Detailed information/justification for parameter and setpoint changes required for EPU.

g. A description of the test plans for modifications that could impact the plants' response to anticipated operational occurrences.

5.0 Plant Systems

The following information is needed for the NRC staff to begin its review.

a. The licensee did not provide a markup of the Regulatory Evaluation Section of the SE template contained in RS-001, Section 3.3. This information is required for the staff to complete the SE inputs and begin its review

b. Enclosure 2 of the submittal, "Beaver Valley Power Station Extended Power Uprate Licensing Report," Section 1.4 (second paragraph) states "For each topic addressed in this report, the current licensing basis is retained **unless a change is specifically identified**" (emphasis added). Any changes to the plant licensing basis that require NRC review and approval must be specifically identified in the amendment request so that all proposed changes can be properly noticed in the Federal Register and evaluated by the NRC. This would also apply to plant modifications that require NRC review and approval, and to new or more challenging demands being placed on plant operators.

c. Some of the proposed TS changes are being made in part to establish "consistency" between the two units and are categorized as "editorial." For example, the basis for TS Change 21 states, "A statement regarding the cooldown capability of the tank is deleted from the Unit 1 TS Bases to provide consistency with the Unit 2 TS Bases." Establishing "consistency" between the two units does not justify proposed changes and the plant-specific licensing basis must be considered and addressed.

6.0 Ventilation Systems

The heating, ventilation and air conditioning system (HVAC) portions of the proposed amendments do not provide sufficient information for the NRC staff to begin its review. The NRC staff reviewed Section 9.22 of Enclosure 2 of the licensee's EPU application (where the ventilation systems are discussed). However, there was insufficient detail to review the effect of the EPU upon these systems. The detail provided by the licensee was not of the same level the NRC staff typically observes in EPU submittals. The September 10, 2003, EPU application for the Vermont Yankee Nuclear Power Station provides a recent example of the level of detail that is expected.

The licensee needs to provide additional information regarding the potential impact of the EPU on those HVAC systems discussed in RS-001, Sections 6.4, 6.5.1, 9.4.1, 9.4.2, 9.4.3, 9.4.4 and 9.4.5. This should include a discussion of the impact, if any, during both normal and post-accident operations resulting from increases in heat loads due to the EPU and the bases for the licensee's determination of system acceptability post-EPU implementation.