



FirstEnergy Nuclear Operating Company

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November 21, 2001  
L-01-119

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

**Subject: Beaver Valley Power Station, Unit No. 2**  
**BV-2 Docket No. 50-412, License No. NPF-73**  
**Supplement to License Amendment Request No. 157**

Pursuant to 10 CFR 50.90, FirstEnergy Nuclear Operating Company (FENOC) requested, by FENOC letter L-00-131 dated November 8, 2000, an amendment to the above license in the form of changes to the technical specifications. The November 8, 2000 letter submitted License Amendment Request (LAR) Nos. 259 and 157 for NRC review and approval. These LARs requested changes to Technical Specification 3.4.1.6, Reactor Coolant Pump Startup, for Beaver Valley Power Station (BVPS) Unit Nos. 1 and 2, respectively.

During the NRC review of these LARs a concern regarding the Applicability of Unit 2 Technical Specification 3.4.9.3, Overpressure Protection System, was identified. The concern is due to the Unit 2 Overpressure Protection System (OPPS) enable temperature being equal to the Mode 3 boundary temperature of 350°F. Since the concern is only applicable to BVPS Unit 2, FENOC requested (FENOC letter L-01-056, dated May 7, 2001) approval of LAR 276 for Unit 1. The NRC issued the proposed changes for Unit 1 on June 13, 2001 as Amendment 238 to the BVPS Unit 1 Technical Specifications. The May 7, 2001 letter stated that FENOC would provide additional information to resolve the Unit 2 Technical Specification 3.4.9.3 Applicability concern.

FENOC has reviewed the relationship between the OPPS enable temperature (350°F) and the Applicability of Technical Specification 3.4.9.3 and determined that conservative actions are dictated by the existing Applicability statement and thus, no change to Technical Specification 3.4.9.3 is required. The justification for this position is provided in Attachment A of this letter.

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The safety analysis, no significant hazards evaluation and environmental consideration contained in FENOC Letter L-00-031 are not affected by this position. Therefore, FENOC requests the NRC approve BVPS Unit 2 LAR 157 as submitted in letter L-00-131, dated November 8, 2000.

As specified in FENOC Letter L-00-031, an implementation period of 60 days is requested following the effective date of the amendment. If there are any questions concerning this matter, please contact Mr. Thomas S. Cosgrove, Manager, Regulatory Affairs at 724-682-5203.

I declare under penalty of perjury that the foregoing is true and correct. Executed on November 21, 2001.

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)

## **Background**

The purpose of the Overpressure Protection System (OPPS) is to protect the Reactor Coolant System (RCS) from overpressure at low temperatures by preventing a pressure increase associated with a heat injection or mass input transient from exceeding 10 CFR 50 Appendix G, "Fracture Toughness Requirements," limits. The OPPS utilizes two of the three installed power operated relief valves (PORVs) to achieve this design requirement. The specific temperature value at which the OPPS is required to be operable is determined by analysis and is called the OPPS enable temperature. This value is specified in Technical Specification 3.4.9.3, "Overpressure Protection Systems." To avoid brittle fractures at reactor vessel metal temperatures below the OPPS enable temperature, the allowable system pressure is limited to substantially less than the normal system design pressure. Therefore, overpressure mitigation provisions for the reactor vessel must be available when the RCS is at a temperature below the OPPS enable temperature. For Beaver Valley Power Station Unit 2 this temperature is 350°F.

The Applicability of Technical Specification 3.4.9.3, "Overpressure Protection Systems," for Unit 2 is:

- MODE 4 when any RCS cold leg temperature is less than or equal to an enable temperature of 350°F,
- MODE 5,
- MODE 6 when the reactor vessel head is on.

## **Concern**

The Mode 3 boundary temperature is defined by Technical Specifications as  $T_{avg}$  greater than or equal to 350°F. The Applicability of Technical Specification 3.4.9.3 is such that OPPS is required to be operable in Mode 4 when any RCS cold leg temperature is less than or equal to the enable temperature of 350°F. During Mode 4 (defined as  $350^{\circ}\text{F} > T_{avg} > 200^{\circ}\text{F}$ ),  $T_{avg}$  is normally very close to the temperature of the cold legs. Thus a cold leg temperature of 350°F would result in  $T_{avg}$  being at least 350°F. This situation would place the plant in Mode 3, outside of the Applicability of Technical Specification 3.4.9.3. Therefore, the concern was whether the existing Technical Specification 3.4.9.3 Applicability statement is adequate for this situation.

## **Assessment**

The Applicability of Technical Specification 3.4.9.3 has been assessed and found to be conservative for the following reasons:

1. The need for the OPPS exists at low temperature where the RCS could be water solid. It is during these conditions that a RCS pressure increase associated with a heat injection or mass input transient is analyzed and would be most severe. A steam bubble is required to be present in Modes 1, 2 and 3 by Technical Specification 3.4.4, "Pressurizer".
2. Technical Specification 3.0.4 requires that a system or component is made operable prior to entry into the Applicability for which it is required to be operable. This specification states that entry into an OPERATIONAL MODE or other specified

condition shall not be made when the conditions for the Limiting Conditions for Operation are not met and the associated ACTION requires a shutdown if they are not met within a specified time interval. Therefore, the OPPS is actually enabled in Mode 3 prior to entry into Mode 4 to ensure compliance with Technical Specifications 3.0.4 and 3.4.9.3.

3. OPPS is administratively enabled by procedure above 350°F to account for instrumentation uncertainty.
4. Although the Applicability states that OPPS is required to be operable when any cold leg temperature is less than or equal to 350°F, a value equal to 350°F would place the plant in Mode 3, which is not the Mode for which the OPPS is analyzed and required to be operable. Clearly the cold leg temperature can not be equal to 350°F when the plant is in Mode 4. This would mean that  $T_{avg}$  is at least 350°F, which would mean the plant is in Mode 3 and a steam bubble would be required to be present. The existence of a steam bubble substantially lessens the severity of an overpressurization event.

### **Position**

In conclusion, the existing Applicability of BVPS Unit 2 Technical Specification 3.4.9.3 is considered conservative due to the fact that OPPS is not required until the RCS temperature is at or below the enable temperature. The existing Applicability provides assurance that the OPPS is operable when required. Enabling the OPPS at the enable temperature preserves an assumption of the overpressurization analysis. This conservatism is carried to Technical Specification 3.4.1.2, "Reactor Coolant System – HOT STANDBY", by the proposed additional Note associated with starting a Reactor Coolant Pump.

Therefore, the existing Applicability of Technical Specification 3.4.9.3, the OPPS enable temperature, and the proposed additional Note for Technical Specification 3.4.1.2, are conservative and acceptable as written and no changes are required.