



FirstEnergy Nuclear Operating Company

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April 6, 2004  
L-04-046

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

**Subject: Beaver Valley Power Station, Unit No. 2**  
**Docket No. 50-412, License No. NPF-73**  
**Supplement to License Amendment Request No. 180**

Pursuant to 10 CFR 50.90, FirstEnergy Nuclear Operating Company (FENOC) requested an amendment to the above license in the form of changes to Technical Specification 3/4.3.2, "Engineered Safety Feature Actuation System Instrumentation." FENOC letter L-03-005, dated February 4, 2003 submitted the license amendment request (LAR). The February 4, 2003 submittal was supplemented by FENOC responses to an NRC Request for Additional Information dated July 28, 2003. The FENOC responses were provided by FENOC letter L-03-160 dated October 24, 2003. Specifically, the proposed change will extend the slave relay surveillance test interval from 92 days to 12 months. The proposed change is based on the methodology described in WCAP-15887, "Probabilistic Risk Analysis of the Slave-Relay Surveillance Test Interval Extension for Beaver Valley Power Station, Unit 2," Revision 2, dated December 2002. Note that the terms slave relay(s) as used in this submittal, refer to slave relay(s) required to be tested per Technical Specification 3/4.3.2

The approach used in WCAP-15887 is consistent with the NRC's method for using probabilistic risk assessment in risk-informed decisions on plant-specific changes to the current licensing basis as discussed in Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Current Licensing Basis" and Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decision Making: Technical Specifications." The approach addresses the impact on defense-in-depth and the impact on safety margins, as well as an evaluation of the impact on risk; i.e., impact on core damage frequency and large early release frequency.

On March 11, 2004 a conference call was held between the NRC and the Beaver Valley Power Station (BVPS) staff listed in Attachment 1. During this call the NRC staff stated that, since interposing relays are not specified in the BVPS Unit No. 2 Technical

Specifications, the staff was limiting their review to only the requested extension to the slave relay test requirement specified in the Technical Specifications.

Additionally, in order to provide greater assurance to the acceptability of the proposed request beyond the risk-informed basis provided with the amendment request, the staff requested the following information so that the review of the subject LAR could be completed.

- 1) Confirmation that the slave relays are either Westinghouse type AR relays or Potter & Brumfield MDR series relays which were analyzed by WCAP-13877 Revision 2-P-A, "Reliability Assessment of Westinghouse Type AR Relays Used as SSPS Slave Relays," August 2000 or WCAP-13878-P-A Revision 2, "Reliability Assessment of Potter & Brumfield MDR Relays," August 2000.
- 2) Confirmation that a satisfactory contact loading analysis of the slave relays would be completed before their surveillance test interval is extended to 12 months.
- 3) Confirmation that BVPS had assessed the service life of the slave relays and that their service life is consistent with the service life specified in WCAP-13877 Revision 2-P-A, "Reliability Assessment of Westinghouse Type AR Relays Used as SSPS Slave Relays," August 2000 or WCAP-13878-P-A Revision 2, "Reliability Assessment of Potter & Brumfield MDR Relays," August 2000, as applicable.

The following are the BVPS responses to the request made during the March 11, 2004 conference call held with the NRC.

- 1) FENOC confirms that the currently installed BVPS Unit No. 2 slave relays are either Westinghouse type AR relays or Potter & Brumfield MDR series relays which were analyzed by WCAP-13877 Revision 2-P-A, "Reliability Assessment of Westinghouse Type AR Relays Used as SSPS Slave Relays," August 2000 or WCAP-13878-P-A Revision 2, "Reliability Assessment of Potter & Brumfield MDR Relays," August 2000.
- 2) Attachment 2 provides a revision to the Technical Specification 3/4.3.2, "Engineered Safety Feature Actuation System Instrumentation," markup provided in FENOC letter L-03-005. The revised markup requires that a satisfactory contact loading analysis be completed for the slave relay being tested before the relay's surveillance test interval is extended to 12 months.
- 3) The proposed revision to Technical Specification 3/4.3.2, "Engineered Safety Feature Actuation System Instrumentation," includes an additional requirement to

establish a satisfactory service life of the slave relay being tested before the relay's surveillance test interval is extended to 12 months.

Provided that the NRC approves the requested amendment with the revised wording provided in Attachment 2, FENOC will implement the extended test interval for the slave relays on a relay specific basis after;

- (a) completing a contact loading analysis which confirms that the slave relay's contact loading is satisfactory and
- (b) establishing the slave relay's service life per WCAP-13877 Revision 2-P-A or WCAP-13878-P-A Revision 2, as applicable.

End of life replacement of slave relays, prior to exceeding their established service life, will be controlled through the BVPS Preventative Maintenance Program.

The revised Technical Specification (Attachment 2) and Technical Specification Bases (Attachment 3) markups replace the markups transmitted by L-03-005. As stated in FENOC letter L-03-005, the proposed Technical Specification Bases change does not require NRC approval. The BVPS Technical Specification Bases Control Program controls the review, approval and implementation of Technical Specification Bases changes. The Technical Specification Bases change is provided for information only.

Since the revised proposed Technical Specification change imposes additional conditions on the original proposed Technical Specification change, FENOC has determined that the no significant hazards consideration transmitted by FENOC letter L-03-005 remains valid.

It is FENOC understanding that with this submittal the NRC staff can complete their review and approval of the subject LAR. FENOC requests approval of the proposed amendment by April 23, 2004 so that the slave relay surveillance test interval may be extended to 12 months during the upcoming test cycle. Once approved, the amendment shall be implemented within 60 days.

Attachment 4 provides a list of the regulatory commitments made in this submittal. If there are any questions concerning this matter, please contact Mr. Larry R. Freeland, Manager, Regulatory Affairs/Performance Improvement at 724-682-5284.

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I declare under penalty of perjury that the foregoing is true and correct. Executed on  
April 6, 2004.

Sincerely,



L. William Pearce

Attachments:

1. March 11, 2004 Telephone Conference Participants
  2. Revised Proposed Technical Specification Change
  3. Revised Proposed Technical Specification Bases Change
  4. List of Commitments
- c: Mr. T. G. Colburn, NRR Senior Project Manager  
Mr. P. C. Cataldo, NRC Sr. Resident Inspector  
Mr. H. J. Miller, NRC Region I Administrator  
Mr. D. A. Allard, Director BRP/DEP  
Mr. L. E. Ryan (BRP/DEP)

## **L-04-046 Attachment 1**

March 11, 2004 Conference Call Participants

### **NRC**

T. G. Colburn

A. G. Howe

E. C. Marinos

H. C. Garg

S. C. Rohw

### **FENOC**

B. F. Sepelak

C. P. Keller

S. J. Sarver

P. W. Dearborn

F. S. Pajak

**L-04-046 Attachment 2**

**Beaver Valley Power Station, Unit No. 2  
Revised Proposed Technical Specification Changes**

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## INSTRUMENTATION

### 3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

#### SURVEILLANCE REQUIREMENTS

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4.3.2.1.1 Each engineered safety feature actuation system instrumentation channel and interlock and the automatic actuation logic with master and slave relays shall be demonstrated OPERABLE by the performance of the ESFAS Instrumentation Surveillance Requirements<sup>(1)</sup> during the MODES and at the frequencies shown in Table 4.3-2.

4.3.2.1.2 The logic for the interlocks shall be demonstrated OPERABLE during the at power CHANNEL FUNCTIONAL TEST of channels affected by interlock operation. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation.

4.3.2.1.3 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESF function shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESF function as shown in the "Total No. Of Channels" Column of Table 3.3-3.

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(1) For the automatic actuation logic, the surveillance requirements shall be the application of various simulated input conditions in conjunction with each possible interlock logic state and verification of the required logic output including, as a minimum, a continuity check of output devices. For the actuation relays, the surveillance requirements shall be the energization of each master and slave relay and verification of OPERABILITY of each relay. The test of master relays shall include a continuity check of each associated slave relay. The test of slave relays (to be performed at least once per 92 days in lieu of at least once per 31 days) shall include, as a minimum, a continuity check of associated actuation devices that are not testable. The slave relay test frequency can be extended to once per 12 months provided a satisfactory contact loading analysis has been completed, and a satisfactory slave relay service life has been established, for the slave relay being tested.

**L-04-046 Attachment 3**

**Beaver Valley Power Station, Unit No. 2**

**Revised Proposed Technical Specification Bases Changes**

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### 3/4.3 INSTRUMENTATION

#### BASES

#### 3/4.3.1 and 3/4.3.2 REACTOR TRIP SYSTEM AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

The frequency is based on operating experience that demonstrates channel failure is rare. Thus, performance of the CHANNEL CHECK ensures that undetected overt channel failure is limited to 12 hours. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

When the control rods are fully inserted and are not capable of withdrawal, inadvertent control rod withdrawal is not a concern and one source range detector can adequately monitor the core.

#### CHANNEL FUNCTIONAL TEST

The alternate source range detectors are modified by a note to indicate they are not subject to the source range detector surveillance requirements until they have been connected to the applicable circuits and are required to be OPERABLE. This complies with the testing requirements for components that are required to be OPERABLE.

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure the entire channel will perform the intended function. Setpoints must be within the Allowable Values. The frequency of 92 days is justified for certain channels in WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.

The slave relay test frequency can be extended to once per 12 months provided a satisfactory contact loading analysis has been completed and a satisfactory slave relay service life has been established for the slave relay being tested. The frequency of 12 months is justified in WCAP-15887-NP, Revision 2, dated December 2002.

This surveillance is modified by a Note that specifies testing when below P-6 and is clarified to address the transition from MODE 2 to MODE 3. A transition into MODE 3 with the reactor trip breakers closed is often made for a short period of time during plant shutdown. During a normal shutdown, the reactor trip breakers are opened shortly after entering MODE 3. The transition time in MODE 3 from when the reactor trip breakers are closed to when they are opened is less than the time required to perform the CHANNEL FUNCTIONAL TEST prior to entering MODE 3. Therefore, an allowance to enter MODE 3 without first performing the source range CHANNEL FUNCTIONAL TEST is warranted.

When performing the CHANNEL FUNCTIONAL TEST for manual initiation functions, the injection of a simulated signal into the channel as close to the primary sensor as practicable is accomplished by manually operating the function's manual switch(es).

## L-04-046 Attachment 4

### Commitment List

The following list identifies those actions committed to by FirstEnergy Nuclear Operating Company (FENOC) for Beaver Valley Power Station (BVPS) Unit No. 2 in this document. Any other actions discussed in the submittal represent intended or planned actions by FENOC. These other actions are described only as information and are not regulatory commitments. Please notify Mr. Larry R. Freeland, Manager, Regulatory Affairs/Performance Improvement, at Beaver Valley Power Station on (724) 682-5284 of any questions regarding this document or associated regulatory commitments. Note that the terms slave relay(s) as used below, refer to slave relay(s) required to be tested per BVPS Unit No. 2 Technical Specification 3/4.3.2, Engineered Safety Feature Actuation System Instrumentation.

<u>Commitment</u>	<u>Due Date</u>
Complete a contact loading analysis, which confirms that the slave relay's contact loading is satisfactory for the slave relay being tested.	Prior to extending the test interval of the slave relay being tested to 12 months.
Establish the Westinghouse type AR or Potter & Brumfield MDR slave relay's service life per WCAP-13877 Revision 2-P-A or WCAP-13878-P-A Revision 2, as applicable, for the slave relay being tested.	Prior to extending the test interval of the slave relay being tested to 12 months.
End of life replacement of slave relays, prior to exceeding their established service life, will be controlled through the BVPS Preventative Maintenance Program.	Prior to extending the test interval of the slave relay being tested to 12 months.