FENOC
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April 7, 2006
L-06-043

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

**Subject: Beaver Valley Power Station, Unit Nos. 1 and 2**
**BVPS-1 Docket No. 50-334, License No. DPR-66**
**BVPS-2 Docket No. 50-412, License No. NPF-73**
**Proposed Alternative to American Society of Mechanical Engineers Code Section XI Examination Requirements**
**(Request No. BV3-RV-2)**

Pursuant to 10 CFR 50.55a(a)(3)(i), FirstEnergy Nuclear Operating Company (FENOC) hereby requests NRC approval to use alternative weld examination requirements for certain reactor coolant pipe welds. The affected welds are to be examined with a remote automated examination tool during the third ten-year inservice inspection interval for Beaver Valley Power Station (BVPS) Unit No. 1 and second ten-year inservice inspection interval for BVPS Unit No. 2. The details of the 10 CFR 50.55a request are enclosed.

FENOC requests approval by September 2006 to support the BVPS Unit No. 2 maintenance and refueling outage, scheduled for early October 2006.

The regulatory commitment contained in this submittal is listed in the attachment to this letter. If there are any questions concerning this matter, please contact Mr. Gregory A. Dunn, Manager, Fleet Licensing at (330) 315-7243.

Sincerely,

James H. Lash

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Enclosure: 10 CFR 50.55a Request No. BV3-RV-2 - Proposed Alternative in Accordance with 10 CFR 50.55a(a)(3)(i)

Attachment: Commitment List

c: Mr. T. G. Colburn, NRR Senior Project Manager
Mr. P. C. Cataldo, NRC Senior Resident Inspector
Mr. S. J. Collins, NRC Region I Administrator
Mr. D. A. Allard, Director BRP/DEP
Mr. L. E. Ryan (BRP/DEP)

# Enclosure to Letter L-06-043
10 CFR 50.55a REQUEST No. BV3-RV-2, Revision 0

# Proposed Alternative in Accordance with 10 CFR 50.55a(a)(3)(i)

--Alternative Provides Acceptable Level of Quality and Safety--

## 1.0 ASME CODE COMPONENTS AFFECTED

**Beaver Valley Power Station (BVPS) Unit No. 1 Reactor Coolant Pipe Welds:** six reactor vessel nozzle to loop piping welds. The stainless steel welds join the carbon steel nozzle to cast stainless steel piping material A351, Gr. CF8M.

**BVPS Unit No. 2 Reactor Coolant Pipe Welds:** six reactor vessel nozzle to safe-end welds and six safe-end to loop piping welds. Inconel welds join the carbon steel nozzle to 316 stainless steel safe-end. Stainless steel welds join the 316 stainless steel safe-end to the cast stainless steel piping material SA351, Gr. CF8A.

## 2.0 APPLICABLE CODE EDITION AND ADDENDA

ASME Section XI, 1989 Edition, no Addenda.

ASME Section XI, 1995 Edition, 1996 Addenda (Appendix VIII, Supplements 2 and 10, as required by 10 CFR 50.55a(g)(6)(ii)(C))

## 3.0 APPLICABLE CODE REQUIREMENTS

Examination Category R-A, Item R1.11 (RI-ISI Program categorization), formerly Category B-F, Item Number B5.10 (nozzle to safe-end / nozzle to pipe welds) and Category B-J, Item Number B9.11 (safe-end to piping welds, BVPS Unit No. 2 only) specify volumetric examination. The volumetric examination is to be conducted in accordance with Appendix VIII, Supplements 2 and 10, in the 1995 Edition with 1996 Addenda per 10 CFR 50.55a(g)(6)(ii)(C)). Relief is requested from using Appendix VIII, Supplement 2, in the 1995 Edition with 1996 Addenda for austenitic stainless steel reactor coolant pipe welds near the reactor vessel nozzles that are examined with the remote automated reactor vessel examination tool.

## 4.0 REASON FOR REQUEST

ASME Code Case N-696, "Qualification Requirements for Appendix VIII Piping Examinations Conducted From the Inside Surface, Section XI, Division 1," was approved by the ASME Main Committee on May 21, 2003, but has not been published in Regulatory Guide 1.147. Code Case N-696 addresses the combined qualification for Supplements 2, 3 and 10 when examinations are conducted for the inside surface. Although examination vendors have been qualified for detection and length sizing on these welds, no examination vendor has yet to meet the established root mean squared error (RMSE) criteria for depth sizing. FirstEnergy Nuclear Operating Company's (FENOC) contracted vendor has demonstrated ability for depth sizing

qualification with an RMSE of 0.245 inches instead of the 0.125 inches required by the Code Case.

## 5.0 PROPOSED ALTERNATIVE AND BASIS FOR USE

FENOC proposes to use Code Case N-696 with an RMSE of 0.245 inches instead of the 0.125 inches specified for depth sizing in the Code Case. In the event an indication is detected that requires depth sizing, the 0.120 inch difference between the required RMSE and the demonstrated RMSE (0.245 inches minus 0.125 inches = 0.120 inches) will be added to the estimated through-wall extent for comparison with applicable acceptance criteria. If the examination vendor demonstrates an improved depth sizing RMSE prior to the examination, then the difference between the demonstrated RMSE and the required 0.125 inch RMSE requirement, if any, will be added to the measured value for comparison with applicable acceptance criteria.

The activities included in this relief are subject to third party review by the Authorized Nuclear Inservice Inspector.

The proposed alternative assures that the subject reactor coolant piping welds will be fully examined by procedures, personnel, and equipment qualified by demonstration to Code Case N-696 requirements in all aspects except depth sizing. For depth sizing, the difference between the required and demonstrated sizing tolerance will be added to any flaw required to be sized to compensate for the variance in depth sizing as demonstrated by the examination vendor. Use of Code Case N-696, with the stated compensation for depth sizing, provides an acceptable level of quality and safety. Therefore, in accordance with 10 CFR 50.55a(a)(3)(i), FENOC proposes the specified alternative.

## 6.0 DURATION OF THE PROPOSED ALTERNATIVE

The proposed alternative is requested for the remainder of the third 10-Year Inservice Inspection Interval at BVPS Unit No. 1 and the second 10-Year Inservice Inspection Interval at BVPS Unit No. 2.

## 7.0 PRECEDENT

The NRC granted the proposed alternative on October 26, 2005 in response to a similar request from Pacific Gas and Electric Company. Reference to the NRC letter authorizing the alternative is provided below.

Diablo Canyon Power Plant, Unit Nos. 1 and 2
Docket Nos. 50-275 and 50-323
Letter dated October 26, 2005
TAC Nos. MC6693 and MC6694

ATTACHMENT
(To Letter L-06-043)

Commitment List

The following list identifies those actions committed to by FirstEnergy Nuclear Operating Company (FENOC) for Beaver Valley Power Station (BVPS) Unit Nos. 1 and 2 in this document. Any other actions discussed in the submittal represent intended or planned actions by FENOC. They are described only as information and are not regulatory commitments. Please notify Mr. Gregory A. Dunn, Manager, Fleet Licensing at 330-315-7243 of any questions regarding this document or associated regulatory commitments.

| Commitment | Due Date |
| --- | --- |
| Note: The following commitment applies to six reactor vessel nozzle to loop piping welds at Unit No. 1, and six reactor vessel nozzle to safe-end welds and six safe-end to loop piping welds at Unit No. 2. | |
| In the event an indication is detected that requires depth sizing, the 0.120 inch difference between the required RMSE and the demonstrated RMSE (0.245 inches minus 0.125 inches = 0.120 inches) will be added to the estimated through-wall extent for comparison with applicable acceptance criteria. If the examination vendor demonstrates an improved depth sizing RMSE prior to the examination, then the difference between the demonstrated RMSE and the required 0.125 inch RMSE requirement, if any, will be added to the measured value for comparison with applicable acceptance criteria. | Examinations conducted during the remainder of the third 10-Year Inservice Inspection Interval at Unit No. 1 and second 10-year Inservice Inspection Interval at Unit No.2. |