

February 28, 2000

Mr. L. W. Myers
Senior Vice President
Beaver Valley Power Station
Post Office Box 4
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY 1 AND 2 - EVALUATION OF FIRST CONTAINMENT
INSPECTION INTERVAL IWE/IWL PROGRAM REQUESTS FOR RELIEF (TAC
NOS. MA7360 AND MA7361)

Dear Mr. Myers:

By letter dated December 13, 1999, FirstEnergy Nuclear Operating Company (FENOC) submitted requests for relief (BV3-IWE1-2, Rev. 0; BV3-IWE1-3, Rev. 0; and BV3-IWL1-1, Rev 0) from, and proposed alternatives to, certain requirements of Subsection IWE and IWL of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code for the Beaver Valley Power Station, Unit Nos. 1 and 2 (BVPS-1 and BVPS-2). These relief requests were submitted as part of the first 10-year primary containment inservice inspection program interval. By letter dated January 31, 2000, FENOC withdrew request for relief BV3-IWL1-1, Rev 0, so that it may be revised to include additional details, and requested that the Nuclear Regulatory Commission (NRC) continue to review and act upon the remaining two relief requests which were included in the December 13, 1999, submittal.

Accordingly, the NRC staff has completed its review of relief requests BV3-IWE1-2 and BV3-IWE1-3 and the proposed alternatives. As described in the enclosed safety evaluation, the NRC staff has authorized the alternatives in relief requests BV3-IWE1-2, Rev. 0 and BV3-IWE1-3, Rev. 0 for the first 10-year primary containment inservice inspection program interval pursuant to 10 CFR 50.55a(a)(3)(ii) based on a determination that compliance with the Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

If you have any questions regarding this evaluation, please contact the Beaver Valley Project Manager, Daniel Collins, at (301) 415-1427.

Sincerely,

/RA/

Marsha Gamberoni, Acting Chief, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-334 and 50-412

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
REGARDING RELIEF REQUESTS FOR THE FIRST 10-YEAR PRIMARY
CONTAINMENT INSERVICE INSPECTION PROGRAM INTERVAL
PENNSYLVANIA POWER COMPANY
OHIO EDISON COMPANY
THE CLEVELAND ELECTRIC ILLUMINATING COMPANY
THE TOLEDO EDISON COMPANY
FIRSTENERGY NUCLEAR OPERATING COMPANY
BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2
DOCKET NOS. 50-334 AND 50-412

1.0 INTRODUCTION

In the Federal Register dated August 8, 1996 (61 FR 41303), the Nuclear Regulatory Commission (NRC) amended its regulations in Title 10 of the Code of Federal Regulations, Section 50.55a (10 CFR 50.55a; the rule) to incorporate by reference the 1992 edition with 1992 addenda of Subsections IWE and IWL of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (B&PV Code). Subsections IWE and IWL provide the requirements for inservice inspection (ISI) of Class CC (concrete containment), and Class MC (metallic containment) of light-water cooled nuclear power plants. The effective date for the amended rule was September 9, 1996, and it requires the licensees to incorporate the new requirements into their ISI plans and to complete the first containment inspection by September 9, 2001. However, a licensee may propose alternatives to, or submit a request for relief from, the requirements of the regulation pursuant to 10 CFR 50.55a(a)(3) and (g)(5). In order to obtain authorization or relief, the licensee must demonstrate that: (1) the proposed alternative provides an acceptable level of quality and safety; (2) compliance would result in a hardship or unusual difficulty without a compensating increase in the level or quality and safety; or (3) conformance is impractical for its facility.

By the letter dated December 13, 1999 (L-99-179), FirstEnergy Nuclear Operating Company (FENOC) proposed alternatives, BV3-IWE1-2, BV3-IWE1-3, and BV3-IWL1-1, to the requirements of Subsections IWE and IWL of Section XI of the ASME Code for the Beaver Valley Power Station, Unit Nos. 1 and 2 (BVPS-1 and 2). By letter dated January 31, 2000, FENOC withdrew request for relief BV3-IWL1-1. The NRC's findings with respect to authorizing the alternatives or denying the proposed requests are discussed in this evaluation.

Enclosure

2.0 EVALUATION

2.1 Relief Request BV3-IWE1-2: IWE-2420(b) and (c), Successive Examinations After Repair

2.1.1 Code Requirement:

ASME B&PV Code, Section XI, 1992 Edition, 1992 Addenda, requires in Paragraph IWE-2420(b) that repairs of Class MC components are to be reexamined during the next inspection period. Paragraph IWE-2420(c) further requires that the repaired areas be examined in accordance with the augmented examination requirements of Examination Category E-C, for three consecutive periods.

2.1.2 Specific Relief Requested:

In accordance with 10 CFR 50.55a(a)(3)(ii), the licensee requests relief from performing successive inspections of Class MC repairs as required by paragraphs IWE-2420(b) and (c).

2.1.3 Licensee's Basis for Requesting Relief (as stated):

"When a repair restores a component to an acceptable condition, successive examinations are not warranted. The requirements of Class 1, 2, or 3 components in Paragraphs IWB-2420(b), IWC-2420(b), or IWD-2420(b) do not require a repair to be subjected to successive examinations. Thus, the successive examination requirement for repairs in accordance with IWE-2420(b) and (c) constitute a burden without a compensating increase in quality or safety."

2.1.4 Licensee's Proposed Alternative (as stated):

"Repairs of Class MC components will be performed in accordance with IWA-4000 without performing successive examinations in accordance with IWE-2420(b) and (c)."

2.1.5 Licensee's Proposed Implementation Schedule (as stated):

This relief request is applicable to the initial interval of the Containment Inspection Program.

2.1.6 Staff Evaluation of BV3-IWE1-2:

In lieu of meeting ASME Section XI, Subarticles IWE-2420(b) and (c) that require successive examinations of repaired areas in accordance with Table IWE-2500-1, the licensee proposes that repairs of Class MC components will be performed in accordance with IWA-4000.

The staff realizes that when repairs are complete, IWA-4150 requires licensees to evaluate, by examination, the suitability of the repair including consideration of the cause of failure. Under the licensee's proposal, when the post-repair examination indicates the

repair is acceptable, the component will have been restored to compliance with the Code. If, however, the examination indicates the repair is not suitable, then the repair does not meet Code requirements and the component is not acceptable for continued service until appropriate corrective action is taken. The staff also realizes that if the repaired area is subject to accelerated degradation, it would still require augmented examination in accordance with Table IWE-2500-1, Examination Category E-C. This approach is consistent with the successive examination requirements of Class 1, 2, and 3 components per Paragraphs IWB-2420(b), Paragraph IWC-2420(b), or IWD-2420(b) and provides reasonable assurance of component integrity.

Accordingly, since the proposed alternative will return components to Code compliance, the NRC staff finds that imposition of the Code requirement for successive examination of repairs in accordance with Paragraphs IWE-2420(b) and IWE-2420(c) of ASME Code Section XI, 1992 Edition, Subsection IWE, for Class MC and CC components would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety. Therefore, the licensee's proposed alternative contained in Relief Request BV3-IWE1-2 is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the first 10-year primary containment inservice inspection program interval.

2.2 Relief Request BV3-IWE1-3: ASME Section XI, Subsection IWE-2500(a), Table IWE-2500-1, Examination Category E-G, Item Number E8.20, Bolt Torque/Tension Test of Pressure Retaining Bolted Connections

2.2.1 Code Requirements:

ASME B&PV Code, Section XI, 1992 Edition with the 1992 Addenda, Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item E8.20, requires bolt torque/tension testing on bolted connections that have not been disassembled and reassembled during the inspection interval, be subject to a torque/tension test once each interval to ensure leak tight integrity.

2.2.2 Specific Relief Requested:

In accordance with 10 CFR 50.55a(a)(3)(ii), the licensee requests relief from performing the torque/tension tests required by Examination Category E-G, Item E8.20, and to permit verification of leak tight integrity of bolted connections with the 10 CFR Part 50, Appendix J, Primary Containment Leakage Program.

2.2.3 Licensee's Basis for Requesting Relief (as stated)

"Performing a bolt torque/tension test requires that the bolted connection be retorqued or retensioned. This activity is considered maintenance and requires a 10 CFR Part 50, Appendix J, leak rate test upon completion of the activity. The performance of the 10 CFR Part 50, Appendix J test alone indicates the adequacy of the bolt torque or tension to maintain leakage within acceptable limits. Also, performance of Appendix J testing and visual inspection is adequate to demonstrate that the design function is met and verification of torque/tension is not required by other ASME B&PV Code, Section XI, Class 1, 2, or 3 pressure retaining bolted connections, as part of the inservice inspection program."

2.2.4 Licensee's Proposed Alternative (as stated):

"The leak tight integrity of bolted connections is verified by the 10 CFR Part 50, Appendix J, Primary Leakage Testing Program."

2.2.5 Licensee's Proposed Implementation Schedule (as stated):

This relief request is applicable to the initial interval of the Containment Inspection Program.

2.2.6 Staff Evaluation of BV3-IWE1-3:

In lieu of meeting the code requirements that bolted connections which have not been disassembled and reassembled during the inspection interval be subject to a torque/tension test once each interval to ensure leak tight integrity, the licensee proposes to verify the leak-tight integrity of bolted connections by use the 10 CFR Part 50, Appendix J, Primary Leakage Testing Program.

Bolt torque or tension testing on bolted connections that have not been disassembled and reassembled during the inspection interval would require the bolting be un-torqued and then re-torqued or re-tensioned, whereas the leak testing as required by 10 CFR Part 50, Appendix J, would adequately verify the leak-tight integrity of the containment. The staff finds that the alternative approach proposed by the licensee (the test required by 10 CFR Part 50, Appendix J, to verify the leak-tight integrity of bolted connections for containment vessel leak-tight integrity together with visual examinations) will provide reasonable assurance of the containment pressure boundary integrity. Any bolted connections which fail an Appendix J test are required to be repaired and successfully pass a post-maintenance Appendix J test prior to being returned to service; bolt torque or tension will be verified during the repair process. The staff also finds that un-torquing and subsequent re-torquing bolted connections would involve unnecessary radiation exposure and costs to perform the work. Hence, the NRC staff finds that imposition of the Code requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety. Therefore, the licensee's proposed alternative contained in Relief Request BV3-IWE1-3 is acceptable and is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the first 10-year primary containment inservice inspection program interval.

2.3 Relief Request BV3-IWL1-1:

By letter dated January 31, 2000, the licensee withdrew Relief Request BV3-IWL1-1.

3.0 CONCLUSION

The NRC staff has evaluated the licensee's December 13, 1999, and January 31, 2000, submittals for BVPS-1 and 2. Based on the information provided in the requests for relief, the staff concludes that for BV3-IWE1-2 and BV3-IWE1-3, compliance with the Code requirements would result in a burden without a compensating increase in the level of quality and safety, and that the licensee's proposed alternatives will provide reasonable assurance of containment pressure integrity. Therefore, the proposed alternatives in Relief Requests BV3-IWE1-2 and BV3-IWE1-3 are authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the first 10-year primary containment inservice inspection program interval.

Principal Contributors: T. Cheng
D. Collins

Date: February 28, 2000

REFERENCES

- Letter from Lew W. Myers, FENOC, to NRC, "Inservice Inspection Program Relief Request - Beaver Valley Power Station, Units 1 and 2," dated December 13, 1999
- Letter from Lew W. Myers, FENOC, to NRC, "Inservice Inspection Program Relief Request Withdrawal - Beaver Valley Power Station, Units 1 and 2," dated January 31, 2000