January 5, 2006

Mr. James H. Lash
Vice President
FirstEnergy Nuclear Operating Company
Beaver Valley Power Station
P. O. Box 4
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY POWER STATION, UNIT NO. 1 (BVPS-1) - EVALUATION OF INSERVICE INSPECTION (ISI) PROPOSED ALTERNATIVE VISUAL EXAMINATION INSPECTION (BV3-IWE1-4) (TAC NO. MC7988)

Dear Mr. Lash:

By letter dated July 27, as supplemented October 31, 2005, FirstEnergy Nuclear Operating Company (the licensee) requested relief from the requirements of the American Society of Mechanical Engineers *Boiler and Pressure Vessel Code*, Section XI, Paragraph IWE-5240, visual examination requirements associated with the third 10-year interval ISI Program at BVPS-1.

The Nuclear Regulatory Commission (NRC) staff has completed its review and concludes that the licensee's request for alternative visual examination may be granted for the BVPS-1 pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative will provide an acceptable level of quality and safety.

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

Sincerely,

/RA/

Richard J. Laufer, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-334

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

ALTERNATIVE VISUAL EXAMINATION RELIEF REQUEST

FIRSTENERGY NUCLEAR OPERATING COMPANY

BEAVER VALLEY POWER STATION, UNIT NO. 1 (BVPS-1)

DOCKET NO 50-334

1.0 INTRODUCTION

By letter dated July 27, 2005 (Reference 1) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML052140314), as supplemented October 31, 2005 (ADAMS Accession No. ML053110146), FirstEnergy Nuclear Operating Company (FENOC or the licensee) proposed a relief request (BV3-IWE1-4) to conduct an alternative visual examination, in conjunction with the pneumatic leak testing of the BVPS-1 containment following repairs associated with the forthcoming steam generator (SG) replacement.

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a (Reference 3) incorporates by reference the1992 Edition and 1992 Addenda of Section XI of the American Society of Mechanical Engineers *Boiler and Pressure Vessel Code* (ASME Code) (Reference 2). As a part of the SG replacement project, FENOC is required to perform a VT-2 visual examination of the containment penetration per IWE 5240. FENOC requests relief from the requirement pursuant to 10 CFR 50.55a(a)(3)(i).

3.0 TECHNICAL EVALUATION

3.1 Code Requirements

IWE-5240 states that the requirements of IWA-5240 are applicable following repair, replacement, or modification. IWA-5240 requires a VT-2 visual examination in conjunction with the pressure test.

3.2 Specific Relief Request

The proposed alternative to the VT-2 examinations is performance of VT-1 examinations of the weld and surrounding areas of the restored containment liner plate prior to the pressure test.

Enclosure

Per Paragraph IWA-2211, VT-1 examinations are conducted to detect discontinuities and

imperfections on the surface of components, including such conditions as cracks, wear, corrosion, or erosion.

3.3 Proposed Alternative Duration

The duration of the proposed alternative is through completion and approval of all testing associated with restoration of the containment opening created to support the BVPS-1 reactor vessel closure head and/or SG replacement.

3.4 Basis for Relief

The licensee stated that paragraph IWA-5240 addresses VT-2 visual examination requirements for pressure retaining components. VT-2 examinations typically apply to systems containing fluids and are performed during the pressure test. As such, VT-2 examinations require access to the external exposed surfaces of the repaired area (otherwise, access to floor areas/equipment surfaces located underneath the tested components) to look for evidence of leakage. Access to the repaired area will not be available, nor will leakage be visible, when the 10 CFR, Part 50, Appendix J, Type A pneumatic leakage test of the containment pressure retaining boundary is performed.

The licensee further discussed that VT-1 examinations of the areas affected by the repair/replacement activity verify that there are no conditions that could affect future leak tightness of the containment vessel, such as cracks, wear, or corrosion (the portion of the liner plate surface involved is not subject to erosion mechanism). Therefore, performance of VT-1 examinations prior to a Type A test of the containment pressure boundary is an appropriate alternative to VT-2 examinations performed during the test as required by the 1992 Edition, 1992 Addenda of ASME Code, Section XI, Paragraph IWE-5240, “Visual Examination.”

The licensee asserted that the proposed alternative will continue to provide an acceptable level of quality and safety; and requested Nuclear Regulatory Commission (NRC) approval per 10 CFR 50.55a(a)(3)(i).

3.5 NRC Staff Evaluation

The containment buildings at BVPS-1 and 2 have a continuously welded carbon steel liner which acts as a leak tight membrane in the event of an accident. A VT-2 examination is performed to confirm the leak tightness of an area. The welding between the old and new liner segments which need to be tested for leak tightness will be hidden by the restored concrete. Additionally, the leakage if any, will not be visible as the testing will be pneumatic. The VT-1 examination in lieu of the VT-2 as proposed by the licensee would ensure that the weld zone does not have surface defects. The NRC staff requested additional information as follows:

(a) *The containment buildings at the BVPS have continuously welded carbon steel liners which acts as a leak tight membrane in the event of an accident. The licensee is requested to identify all in process examinations and testing sequences related to containment liner restoration to demonstrate the leak tightness and integrity of the restored* *liner and weld.*

In its letter dated October 31, 2005 (Reference 4), the licensee committed to a series of tests and examinations to verify the integrity of the liner welds prior to restoration of concrete on the containment liner exterior surface and subsequent pressure testing. The detailed examination and test sequence were included in Enclosure 2 of that letter.

The response to the request for additional information (RAI) indicates that the licensee has developed a formal procedure for addressing various situations during and after repair and replacement activity, in lieu of only VT-2 examination as required by the IWE-5240 of the 1992 Edition and the 1992 Addenda of the ASME Code. The NRC staff finds that the proposed alternative is acceptable.

4.0 CONCLUSION

On the basis of the information provided in the relief request, and in the response to the RAI, the NRC staff concludes that the proposed alternative to the requirements of IWE-5240 will provide acceptable level of quality and safety.

Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the staff authorizes the use of relief request BV3-IWE1-4 during the licensee's third 10-year interval ISI program.

5.0 REFERENCES

1. Letter from L. William Pearce (FENCO) to the NRC, Letter number L-05-127, July 27, 2005.

2. Section XI of the ASME Code, "Rules for Inservice Inspection of Nuclear Power Plant Components," 1992 Edition and 1992 Addenda.

3. Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a, "Codes and standards."

4. Letter from L. William Pearce (FENCO) to NRC, Letter number L-05-164, October 31, 2005.

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