UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 26, 2011

Mr. Paul A. Harden
Site Vice President
FirstEnergy Nuclear Operating Company
Beaver Valley Power Station
Mail Stop A-BV-SEB1
P.O. Box 4, Route 168
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 - RELIEF REQUEST VRR2 REGARDING THE 10-YEAR INSERVICE TESTING PROGRAM INTERVAL (TAC NOS. ME4643 AND ME4644)

Dear Mr. Harden:

By letter dated August 30, 2010, as supplemented by letter dated November 1, 2010, FirstEnergy Nuclear Operating Company (the licensee) requested authorization of a proposed alternative to the inservice testing (IST) programs at Beaver Valley Power Station, Unit Nos. 1 and 2 (BVPS-1 and 2) for the remainder of the BVPS-1 fourth 10-year IST program interval and the BVPS-2 third 10-year IST program interval. Specifically, the licensee requested to use an alternative test interval rather than the required interval per the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) for several BVPS-1 and 2 air-operated valve assemblies currently being tested in accordance with ASME OM Code Case OMN-12.

The Nuclear Regulatory Commission (NRC) staff has concluded that the proposed alternative in Relief Request VRR2 provides an acceptable level of quality and safety. Therefore, pursuant to Section 50.55a(a)(3)(i) of Part 50 of Title 10 of the *Code of Federal Regulations*, the NRC staff authorizes the proposed alternative for the remainder of the BVPS-1 fourth 10-year ISI interval and the BVPS-2 third 10-year ISI interval, which ends September 19, 2017 and November 17, 2017, respectively.

All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject request for relief remain applicable.

If you have any questions, please contact the Beaver Valley Project Manager, Nadiyah Morgan, at (301) 415-1016.

Sincerely,

Nancy L Salgado

Nancy L. Salgado, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-334 and 50-412

Enclosure:
As stated

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REGARDING ALTERNATIVE TO THE INSERVICE TESTING PROGRAM

FIRSTENERGY NUCLEAR OPERATING COMPANY

FIRSTENERGY NUCLEAR GENERATION CORP.

OHIO EDISON COMPANY

THE TOLEDO EDISON COMPANY

BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-334 AND 50-412

1.0 INTRODUCTION

By letter dated August 30, 2010 (Agencywide Document Access and Management System (ADAMS) Accession No. ML102450056), as supplemented by letter dated November 1, 2010 (ADAMS Accession No. ML103090281), FirstEnergy Nuclear Operating Company (the licensee) requested authorization of a proposed alternative to the inservice testing (IST) programs at Beaver Valley Power Station, Unit Nos. 1 and 2 (BVPS-1 and 2) for the remainder of the BVPS-1 fourth 10-year IST program interval and the BVPS-2 third 10-year IST program interval. Specifically, the licensee requested to use an alternative test interval rather than the required interval per the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) for several BVPS-1 and 2 air-operated valve assemblies currently being tested in accordance with ASME OM Code Case OMN-12.

2.0 REGULATORY EVALUATION

Section 50.55a(f) of Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR), "Inservice testing requirements," requires, in part, that ASME Class 1, 2, and 3 components must meet the requirements of the ASME OM Code and applicable addenda, except where alternatives have been authorized pursuant to paragraphs (a)(3)(i) or (a)(3)(ii). Paragraph (a)(3) of 10 CFR 50.55a states that alternatives to the requirements of paragraph (g) may be used, when authorized by the Nuclear Regulatory Commission (NRC), if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. 10 CFR 50.55a allows the NRC to authorize alternatives to ASME OM Code requirements upon making necessary findings. The NRC staff reviewed and evaluated the licensee's request pursuant to 10 CFR 50.55a(a)(3)(i).

3.0 TECHNICAL EVALUATION

3.1 System/Component Affected

FCV-1CH-113A	Boric Acid Supply to Blender Flow Control Valve
FCV-1CH-114A	Primary Water Supply to Blender Flow Control Valve
TV-1CC-107A	Reactor Coolant Pump 1A Thermal Barrier Reactor Plant Component Cooling Water Outlet Isolation Valve
TV-1CC-107B	Reactor Coolant Pump 1B Thermal Barrier Reactor Plant Component Cooling Water Outlet Isolation Valve
TV-1CC-107C	Reactor Coolant Pump 1C Thermal Barrier Reactor Plant Component Cooling Water Outlet Isolation Valve
PCV-1MS-101A	1A Steam Generator Atmospheric Dump Valve
PCV-1MS-101B	1B Steam Generator Atmospheric Dump Valve
PCV-1MS-101C	1C Steam Generator Atmospheric Dump Valve
TV-1MS-105A	Auxiliary Feed Water Turbine Steam Supply A Train Trip Valve
TV-1MS-105B	Auxiliary Feed Water Turbine Steam Supply B Train Trip Valve
2RHS*FCV605A	Residual Heat Removal Train A Heat Exchanger Bypass Flow Control Valve
2RHS*FCV605B	Residual Heat Removal Train B Heat Exchanger Bypass Flow Control Valve
2RHS*HCV758A	Residual Heat Removal Train A Heat Exchanger Outlet Flow Control Valve
2RHS*HCV758B	Residual Heat Removal Train B Heat Exchanger Outlet Flow Control Valve

3.2 Applicable Code Requirements

The applicable ASME OM Code edition and addenda for BVPS-1 and 2 is the 2001 Edition through the 2003 Addenda.

ISTC-3310, "Effects of Valve Repair, Replacement, or Maintenance on Reference Values," states that, "When a valve or its control system has been replaced, repaired, or has undergone maintenance that could affect the valve's performance, a new reference value shall be determined or the previous value reconfirmed by an inservice test run before the time it is returned to service or immediately if not removed from service. This test is to demonstrate that performance parameters that could be affected by the replacement, repair, or maintenance are within acceptable limits. Deviations between the previous and new reference values shall be identified and analyzed. Verification that the new values represent acceptable operation shall be documented in the record of tests (see ISTC-9120). Safety and relief valves and non-reclosing pressure relief devices shall be tested as required by the replacement, repair, and maintenance requirements of Mandatory Appendix I."

ISTC-3700, "Position Verification Testing," states that, "Valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated. Where practicable, this local observation should be supplemented by other indications such as use of flow meters or other suitable instrumentation to verify obturator position. These observations need not be concurrent. Where local observation is not possible, other indications shall be used for verification of valve operation."

ASME OM Code Case OMN-12, Section 4.2.2 "Periodic Test Requirements," Paragraph 4.2.2.2 states that "If insufficient data exist to determine the inservice test frequency in accordance with Paragraph 4.4, the valve assembly inservice testing shall be conducted every two refueling cycles or 3 years (whichever is longer) until sufficient data exist to determine a more appropriate test frequency."

3.3 Licensee's Proposed Alternative

BVPS-1 and 2 have implemented OMN-12 diagnostic testing for the high-safety significant valves listed above. Currently, the position verification testing for these air-operated valves (AOVs) is required to be performed once every 2 years in accordance with ISTC-3700, "Position Verification Testing," which does not coincide with the diagnostic test frequency specified in paragraph 4.2.2 under OMN-12. The proposed position verification test frequency will be developed based on the OMN-12 diagnostic test frequency outlined in Paragraph 4.2.2.2 under OMN-12, which states, "the valve assembly inservice testing shall be conducted every two refueling cycles or 3 years (whichever is longer) until sufficient data exist to determine a more appropriate test frequency."

Implementing the diagnostic test frequency specified in OMN-12 as an alternative to the position verification test frequency specified in ISTC-3700 will avoid positioning an operator at the valve at least once every 2 years to perform position verification testing. Instead, the position verification testing will occur when maintenance personnel are positioned at the valve to perform diagnostic testing in accordance with OMN-12.

The following information supports the use of the OMN-12 diagnostic test frequency, in lieu of, the 2-year test frequency specified in ISTC-3700 as an acceptable level of quality and safety for the determination of valve position indication and operational readiness:

a) A review of the IST program trending database concluded that in the past 10 years there have been no position verification failures.

b) In accordance with the BVPS-1 and 2 IST programs, valve exercising is performed at least once per cycle. Assurance of valve position may be supplemented by other indications such as verification of flow or pressure during normal operation.

c) In accordance with ISTC-3310, "Effects of Valve Repair, Replacement, or Maintenance on Reference Values," if a maintenance activity that has the potential to affect position indication is performed between diagnostic tests, then position verification testing will be performed as a post-maintenance test.

d) Following the criteria as specified in OMN-12, Paragraph 4.4.2, "Performance test data trends (including allowance for uncertainties) shall be established to predict when data points may approach parameter limits," and data evaluation shall validate the test frequency.

Valve assemblies listed in Section 3.1 were selected to be tested in accordance with OMN-12 since they are safety-related, active, and of high safety significance. Currently at BVPS -1 and 2, only high-safety significant valve assemblies have been selected to apply the OMN-12 test methods.

3.4 NRC Staff's Evaluation

The purpose of ASME OM Code Section ISTC-3700 is to verify valve operation is accurately indicated for those valves that have remote position indication. In other words, the valve stem and disc assembly is intact and accurately indicating remotely. Where practicable, this local observation should be supplemented by other indications such as flow and pressure indications. The required observation interval of ISTC-3700 is once every 2 years.

The licensee has implemented a risk-informed alternative program, OMN-12, for testing the AOV assemblies. ASME OM Code Case OMN-12, Paragraph 4.2.2 provides an alternative approach to the testing frequency. The alternative approach uses risk insight, test data, maintenance history, operation history, and engineering analysis to determine an appropriate test frequency, with the maximum interval not to exceed 10 years. NRC Regulatory Guide 1.192 "Operation and Maintenance Code Case Acceptability, ASME OM Code" approved the use of OM Code Case OMN-12, Revision 0, with conditions of the interval not to exceed 5 years or three refueling outages (whichever is longer).

The licensee has requested to align the test interval requirements of ISTC-3700 to the same schedule as the test interval requirements determined by OMN-12, Paragraph 4.2.2.2. Historical performance data show that there have been no failures with the valve remote position verification over the past 10 years. In addition, BVPS-1 and 2 IST programs stroke the valves once per cycle with valve position verification being supplemented with observation of other indicators such as flow or pressure changes. The valve maintenance history, coupled with the proposed alternative of applying OMN-12 program attributes of engineering analysis of test data, risk insights, operation history and once per cycle valve stroking, provides an acceptable level of quality and safety.

4.0 CONCLUSION

Based on the above evaluation, the NRC staff has concluded that the proposed alternative in Relief Request VRR2 provides an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the NRC staff authorizes the proposed alternative for the remainder of the BVPS-1 fourth 10-year ISI interval and the BVPS-2 third 10-year ISI interval, which ends September 19, 2017, and November 17, 2017, respectively.

All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject request for relief remain applicable.

Principal Contributor: M. Farnan

Date: April 26, 2011

If you have any questions, please contact the Beaver Valley Project Manager, Nadiyah Morgan, at (301) 415-1016.

Sincerely,

/ra/

Nancy L. Salgado, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
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ADAMS Accession No.: ML110770551 *see memo dated March 11, 2011

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