



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

May 22, 2009

Mr. Peter P. Sena III
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 NO. 1 - RELIEF REQUEST NO.
BV1-IWE-2-2 REGARDING VISUAL EXAMINATION OF THE CONTAINMENT
LINER (TAC NO. ME1166)

Dear Mr. Sena:

By letter dated April 28, 2009, FirstEnergy Nuclear Operating Company (licensee) submitted a relief request for authorization of a proposed alternative for implementation during the current Beaver Valley Power Station, Unit No. 1 (BVPS-1) maintenance and refueling outage. Specifically, the licensee proposed a visual examination (VT-1) of the containment liner pressure boundary repair weld as an alternative to the detailed visual examination requirement of American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, sub-article IWE-5240 during the pressure test.

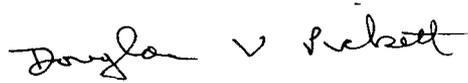
On May 4, 2009, the Nuclear Regulatory Commission (NRC) staff granted, pursuant to Section 50.55a(a)(3)(i) of Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR), verbal authorization for the alternative VT-1, as described in Relief Request No. BV1-IWE-2-2, on the basis that the proposed alternative would provide an acceptable level of quality and safety. The NRC staff final written authorization, including the results of its review, is provided in the enclosed safety evaluation.

P. Sena

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

Sincerely,

A handwritten signature in black ink that reads "Douglas V. Pickett". The signature is written in a cursive style with a checkmark-like flourish between the first and last names.

Douglas V. Pickett, Acting Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-334

Enclosure:
As stated

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REGARDING VISUAL EXAMINATION OF THE CONTAINMENT LINER

FOR RELIEF REQUEST NO. BV1-IWE-2-2

FIRSTENERGY NUCLEAR OPERATING COMPANY

FIRSTENERGY NUCLEAR GENERATION CORP.

BEAVER VALLEY POWER STATION, UNIT NO. 1

DOCKET NO. 50-334

1.0 INTRODUCTION

By letter dated April 28, 2009 (Agencywide Document Access and Management System (ADAMS) Accession No. ML091210113), FirstEnergy Nuclear Operating Company (licensee), submitted a relief request for authorization of a proposed alternative for implementation during the current Beaver Valley Power Station, Unit No. 1 (BVPS-1) maintenance and refueling outage (1R19). Specifically, the licensee proposed a visual examination (VT-1) of the containment liner pressure boundary repair weld as an alternative to the detailed visual examination requirement of American Society of Mechanical Engineers Boiler and Pressure Vessel (ASME Code) Section XI, Sub-article IWE-5240 during the pressure test.

2.0 REGULATORY EVALUATION

Section 50.55a(g)(4) of Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR) requires inservice inspection (ISI), repair, and replacement of the pressure retaining components of the steel and concrete containments, set forth in Section XI of the ASME Code and Addenda that are incorporated by reference in Paragraph (b) of 10 CFR 50.55a, subject to the limitation listed in Paragraph (b)(2)(vi), and modifications listed in Paragraphs (b)(2)(viii) and (b)(2)(ix) of the regulations.

10 CFR 50.55a(a)(3) permits two alternatives to the requirements of 50.55a(g): (i) the proposed alternative 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.

3.0 TECHNICAL EVALUATION

3.1 System/Component Affected

The affected component for this request is the BVPS-1 containment liner. The containment liner is not an ASME Code pressure vessel. However, the containment liner is included in the BVPS-1 ASME Code, Section XI ISI Program and Section XI Repair/Replacement Program.

3.2 Applicable Code Requirements

Article IWE-5000, "System Pressure Tests," Sub-article IWE-5240, "Visual Examination," states, "During the pressure test required by IWE-5220, a detailed visual examination (IWE-2310) shall be performed on areas affected by repair/replacement activities."

3.3 Licensee's Basis for Request

During the 2009 maintenance and refueling outage for BVPS-1, a scheduled examination of the containment liner plate identified a surface defect on the containment side of the painted surface of the containment liner plate. Subsequent surface cleaning revealed the surface defect as a through-wall hole in the containment liner plate. The shape of the through-wall hole was rectangular, approximately 1-inch long and 3/8-inch high. The repairs include removing the degraded portion of the liner plate and welding a replacement plate in place.

Following the repairs, a pneumatic leakage test is required in accordance with Sub-article IWE-5221. A local leak rate test is planned to be performed on the repaired area. The local leak rate test requires the use of a test rig. However, the test rig will make the areas affected by the repair activities inaccessible during the local leak rate test. The outside surface of the repair area is covered with concrete.

Relief is requested from the direct [detailed] visual examination requirement specified in Sub-article IWE-5240 during the leakage test required by Sub-article IWE-5221.

3.4 Licensee's Proposed Alternative

In accordance with 10 CFR 50.55a(a)(3)(i), the licensee requests approval of an alternative to the detailed visual examination requirement of ASME Code, Section XI, Sub-article IWE-5240 during the pressure test. The licensee proposes to perform the VT-1 of the affected area, both prior to and following the local leak rate test.

The VT-1 prior to the performance of the local leak rate testing provides assurance that the affected area has been properly prepared for testing and no abnormalities exist in the affected area. The local leak rate test will provide an accurate and direct method of assuring the leak-tight integrity of the repair welds. The post leak rate test VT-1 provides assurance that the tested area is free of abnormalities that may be exposed by the local leak rate test.

The required nondestructive examinations (NDEs) of the repair will provide additional assurance of the integrity of the repair welds. The proposed VT-1 provides an adequate level of quality and safety prior to and following the local leak rate test, even though the concrete side of the repair area is not accessible.

3.5 Staff Evaluation

In accordance with the provisions of 10 CFR 50.55a(a)(3)(i), the licensee requested authorization of an alternative, VT-1, to the detailed visual examination requirement of ASME Code, Section XI, sub-article IWE-5240 during the pressure test that would give an acceptable level of quality and safety. Sub-article IWE-5240 requires that during the pressure required by IWE-5220, a detailed visual examination shall be performed on areas affected by repair/replacement activities.

The advantage of performing the detailed visual examination during a leak test (if feasible) is that a qualified VT-1 examiner can see any leakage (e.g. bubbling of soap) originating from the defective weld. However, in this case, as the test rig employed to perform the local leak rate test will cover the repaired areas of the plate, the licensee cannot perform the required detailed visual examination during the leak test. After the containment liner plate welding is completed, the licensee will perform the following examinations:

- (1) NDE of the repaired weld as required by the construction specification,
- (2) VT-1 prior to the local leak test, and
- (3) VT-1 of the weld after the leak test is completed.

The NRC staff finds that implementation of the proposed alternative during the current BVPS-1 1R19 is acceptable, as it will provide an acceptable level of quality and safety.

4.0 CONCLUSION

Based on the above discussion, the NRC staff has concluded that the licensee's proposed alternative to the ASME Code detailed visual examination requirements is authorized pursuant to 10 CFR 50.55a(a)(3)(i), on the basis that the proposed alternative provides an acceptable level of quality and safety. The alternative is authorized for the current BVPS-1 1R19.

Principal Contributor: H. Ashar

Date: May 22, 2009

P. Sena

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

Sincerely,

/RA/

Douglas V. Pickett, Acting Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-334

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As stated

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