



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

March 24, 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.
1-TYP-3-IWB-2412 REGARDING THE THIRD 10-YEAR INTERVAL INSERVICE
INSPECTION PLAN (TAC NO. MD9733)

Dear Mr. Sena:

By letter dated September 24, 2008, FirstEnergy Nuclear Operating Company (FENOC, licensee), submitted a relief request for authorization of a proposed alternative to American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Section XI, paragraph IWB-2412(b) associated with the Beaver Valley Power Station, Unit No. 1 (BVPS-1) third 10-year interval inservice inspection (ISI) plan. Specifically, the licensee requested to extend the inspection period to complete a missed ISI of the area containing a flaw indication. Plant shutdown conditions are required to access the area, and therefore, the licensee proposed to perform the inspection during the BVPS-1 spring 2009 refueling outage (1R19).

The Nuclear Regulatory Commission (NRC) staff has concluded that compliance with the ASME Code Section XI, paragraph IWB-2412(b) requirement to complete the third of three required successive examinations by March 31, 2009, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, and that the proposed alternative provides reasonable assurance of structural integrity. Therefore, pursuant to Section 50.55a(a)(3)(ii) of Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR), the NRC staff authorizes the proposed alternative for the period from March 31, 2009, until the examination is performed during the 1R19.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

P. Sena

- 2 -

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, appearing to read "Mark G. Kowal". The signature is written in a cursive style with a large, looped initial "M".

Mark G. Kowal, 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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UNITED STATES
NUCLEAR REGULATORY COMMISSION
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REGARDING THE THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PLAN

FOR RELIEF REQUEST NO. 1-TYP-3-IWB-2412

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 September 24, 2008 (Agencywide Document Access and Management System (ADAMS) accession number ML082730715), FirstEnergy Nuclear Operating Company (FENOC, licensee), submitted a relief request for authorization of a proposed alternative to American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Section XI, paragraph IWB-2412(b) associated with the Beaver Valley Power Station, Unit No. 1 (BVPS-1) third 10-year interval inservice inspection (ISI) plan. Specifically, the licensee requested to extend the inspection period to complete a missed ISI of an area containing a flaw indication. Plant shutdown conditions are required to access the area, and therefore, the licensee proposed to perform the inspection during the BVPS-1 spring 2009 refueling outage (1R19).

2.0 REGULATORY EVALUATION

The ISI of ASME Code Class 1, 2 and 3 components is to be performed in accordance with Section XI, "*Rules for Inservice Inspection of Nuclear Power Plant Components*," and the applicable edition and addenda as required by Section 50.55a(g) of Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the Director of the Office of Nuclear Reactor Regulation, if the licensee demonstrates that: (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.

ENCLOSURE

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2 and 3 components (including supports) will meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b), 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The ISI ASME Code of Record for BVPS-1 is the 1989 Edition of the ASME Code.

3.0 TECHNICAL EVALUATION

3.1 System/Component Affected

Reactor Coolant System 'C' loop cold leg pipe weld identification number DLW-LOOP3-7-S-02

3.2 Applicable Code Requirements

Paragraph IWB-2420(b) of the ASME Code, Section XI, states that if flaw indications are evaluated in accordance with IWB-3132.4, and the component qualifies as acceptable for continued service, the areas containing such flaw indications shall be reexamined during the next three inspection periods listed in the schedules of the inspection programs of IWB-2410.

Paragraph IWB-2412(b) states that the inspection period may be extended by as much as one year to enable an inspection to coincide with a plant outage.

3.3 Licensee's Basis for Request

During a BVPS-1 inservice inspection of reactor coolant system piping performed in the spring 1996 refueling outage (1R11, March - May, 1996), an indication was identified on cold leg pipe weld DLW-LOOP3-7-S-02 that exceeded the ASME Code, Section XI, Subsection IWB-3500 acceptance criteria. Subsequently, an evaluation was performed to ensure that this indication would remain within ASME Code, Section XI, Appendix C evaluation acceptance standards. This evaluation concluded that the postulated flaw met the applicable requirements with significant margins of safety to the end of the service lifetime. The NRC concluded in the Safety Evaluation regarding the flaw indication in the reactor coolant system cold leg pipe weld, dated May 1, 1996 (Reference 7.1), that the reported flaw was acceptable for continued service until the end of the service lifetime, provided the weld was reexamined during each of the next three inspection periods. Paragraph IWB-2420(b) also states that areas containing such flaw indications shall be reexamined during the next three inspection periods.

The successive weld examinations were performed during each of the two subsequent 40-month periods. However, the third successive examination was inadvertently deleted from the schedule during a program revision associated with the implementation of the risk-informed inservice inspection methodology, and was not performed within the third

40-month period, which ended on March 31, 2008. Implementation of the one year period extension permitted in ASME Code Section XI, paragraph IWB-2412(b), extends the required completion date of this examination to March 31, 2009. Examination of this weld requires plant shutdown conditions. The next BVPS-1 refueling outage (1R19) is currently scheduled to begin April 20, 2009, 20 days after the end of the extended period.

3.4 Licensee's Proposed Alternative

The proposed alternative is to extend the third 40-month inspection interval as necessary to enable the final successive examination on weld DLW-LOOP3-7-S-02 during the spring 2009 outage (1R19), which is scheduled to begin 20 days after the one year inspection period extension permitted by paragraph IWB-2412(b). The examination would be performed during 1R19, when plant conditions allow access to this reactor coolant loop pipe weld.

The initial analytical evaluation of the identified flaw concluded that the indication was acceptable for further service without repair. A subsequent analytical evaluation of the flaw was performed recently, in association with BVPS-1 license renewal application. This evaluation likewise concluded the reported flaw was acceptable for continued service through the end of the extended license period (ADAMS accession number ML082550501). The analytical evaluations are supported by the results of the two successive examinations that found no evidence of flaw growth. Based on the above, completion of the examination prior to startup from 1R19 would provide an acceptable level of quality and safety.

3.5 Staff Evaluation

The licensee requested approval of an alternative to extend the inspection period so that inservice inspection of the area containing the flaw indication can be performed during the BVPS-1 1R19. Since compliance without relief from the ASME Code requirements would require an unscheduled mid cycle shutdown of the plant, this request was examined as a hardship in accordance with 10 CFR 50.55a(a)(3)(ii).

The licensee noted that the initial analytical evaluation of the identified flaw concluded that the indication was acceptable for the remaining 40-year service life of the plant until 2016 without repair. A subsequent analytical evaluation of the flaw was performed to support BVPS-1's request for license renewal. This evaluation likewise concluded the reported flaw was acceptable for continued service for the duration of plant life including the license renewal period. These analytical evaluations are supported by the results of the two successive examinations that found no evidence of flaw growth. These evaluations provided reasonable assurance of the structural integrity of the weld.

In order to perform the third examination of this weld within the current regulatory requirement, the licensee would be required to shut down for a mid-cycle inspection. A mid-cycle shutdown places BVPS-1 unnecessarily in an unfavorable condition. Based on this and the information above, the licensee has demonstrated hardship without a compensating increase in safety. Therefore, the Nuclear Regulatory Commission (NRC) staff finds that a limited extension of the

requirement to perform a third inspection of this weld to validate the flaw analysis, until the inspection can be performed during the BVPS-1 scheduled spring 2009 refueling outage (1R19) will provide reasonable assurance of structural integrity.

4.0 CONCLUSION

Based on the above discussion, the NRC staff has concluded that compliance with the ASME Code Section XI, paragraph IWB-2412(b) requirement to complete the third of three required successive examinations by March 31, 2009, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, and that the proposed alternative provides reasonable assurance of structural integrity. Therefore, pursuant to Section 50.55a(a)(3)(ii) of Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR), the NRC staff authorizes the proposed alternative for the period from March 31, 2009, until the examination is performed during the 1R19.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Principle Contributor: M. Audrain

Date: March 24, 2009

P. Sena

- 2 -

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

Sincerely,

/ra/

Mark G. Kowal, 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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