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

May 9, 2017

MEMORANDUM TO: Benjamin G. Beasley, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Andrew Hon, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2 – VERBAL AUTHORIZATION OF RELIEF REQUEST FOR REACTOR VESSEL CLOSURE HEAD PENETRATION NOZZLE N9 REPAIR (CAC NO. MF9561)

By letter dated April 6, 2017 (ADAMS Accession No. ML17096A619), Duke Energy Progress, LLC (the licensee) requested relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWA-4000, at the Brunswick Steam Electric Plant Unit No. 2. Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(z)(1), the licensee submitted Inservice Inspection (ISI) Program Alternative ISI-07 for the alternate repair of the degraded dissimilar metal butt weld, B211N9-RPV-FW2CRD52, of the control rod drive return line nozzle N9, on the basis that the alternate repair provides an acceptable level of quality and safety.

The NRC staff finds that the proposed weld overlay will be designed, installed, and inspected consistent with Code Cases N-504-4 and N-638-4, and ASME Code, Section XI, Appendices VIII and Q. Therefore, the NRC finds that the proposed alternative will provide reasonable assurance that the structural integrity of the subject component is acceptable for the life of the plant. During a conference call with the licensee on April 6, 2017, the NRC staff granted a verbal authorization on the use of ISI Program Alternative ISI-07 in accordance with 10 CFR 50.55a(z)(1). The script for the verbal authorization is enclosed.

NRC Participants:		Licensee Participants:	
B. Beasley	D. Alley	L. Grzeck	D. Goins
A. Hon	J. Tsao	M. Classe	J. Nolin
M. Catts		W. Murray	

Docket No. 50-324

Enclosure: Verbal Authorization Script

VERBAL AUTHORIZATION BY THE OFFICE NUCLEAR REGULATION

FOR INSERVICE INSPECTION PROGRAM ALTERNATIVE ISI-07

ALTERNATE REPAIR OF CONTROL ROD DRIVE RETURN LINE NOZZLE N9

BRUNSWICK STEAM ELECTRIC PLANT UNIT NO. 2

DUKE ENERGY PROGRESS

DOCKET NO. 50-324

APRIL 6, 2017

Technical Evaluation read by David Alley, Chief of the Component Performance, Non-Destructive Examination, and Testing Branch, Office of Nuclear Reactor Regulation

By letter dated April 6, 2017, Duke Energy Progress (the licensee) requested relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWA-4000, at the Brunswick Steam Electric Plant Unit No. 2.

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), the licensee submitted Inservice Inspection Program Alternative ISI-07 for the alternate repair of the degraded dissimilar metal butt weld, B211N9-RPV-FW2CRD52, of the control rod drive return line nozzle N9 on the basis that the alternate repair provides an acceptable level of quality and safety.

The licensee detected a circumferential indication located within the subject weld and butter. The estimated length of the indication is 6.36 inches. The depth of the indication is 0.323 inches with a remaining ligament from the outside weld surface of 0.544 inches. The indication is located 5.50 inches clockwise from top dead center (looking at the nozzle).

The licensee proposed to install a weld overlay on the subject weld using ASME Code Case N-740-2, "Dissimilar Metal Weld Overlay for Repair or Mitigation of Class 1, 2, and 3 Items." The NRC staff has not approved Code Case N-740-2. To evaluate the proposed alternative, the NRC staff used NRC-approved ASME Code Case N-504-4 "Alternative Rules for Repair of Classes 1, 2 and 3 Austenitic Stainless Steel Piping," Code Case N-638-4, "Similar and Dissimilar Metal Welding Using Ambient Temperature Machine GTAW [gas tungsten arc welding] Temper Bead Technique," and ASME Code, Section XI, Appendices VIII and Q.

The NRC staff finds that the proposed weld overlay is designed, installed, and inspected consistent with Code Cases N-504-4 and N-638-4, and ASME Code, Section XI, Appendices VIII and Q. Therefore, the NRC finds that the proposed alternative will provide reasonable assurance that the structural integrity of the subject component is acceptable for the life of the plant.

Authorization read by Benjamin G. Beasley, Chief of the Plant Licensing Branch II-2, Office of Nuclear Reactor Regulation

As Chief of the Plant Licensing Branch II-2 in the Office of Nuclear Reactor Regulation, I concur with the conclusions of the Component Performance, Non-Destructive Examination, and Testing Branch.

The NRC staff concludes that the proposed alternative provides reasonable assurance of structural integrity of the subject dissimilar metal butt weld of the control rod drive return line nozzle N9. As such, the NRC staff finds that the alternate repair provides an acceptable level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1). Therefore, as of April 6, 2017, the NRC authorizes the use of Inservice Inspection Program Alternative ISI-07 at Brunswick Steam Electric Plant Unit No. 2 for the fourth 10-Year ISI interval which ends on May 10, 2018. The NRC staff concludes that weld overlay provides acceptable structural integrity and may remain in place for the remaining life of the plant.

All other requirements in ASME Code, Section XI, 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.

This verbal authorization does not preclude the NRC staff from asking additional clarification questions regarding the proposed alternative while preparing subsequent written safety evaluation.

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2 – VERBAL AUTHORIZATION OF RELIEF REQUEST FOR REACTOR VESSEL CLOSURE HEAD PENETRATION NOZZLE N9 REPAIR (CAC NO. MF9561) DATED MAY 9, 2017

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