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

May 15, 2018

MEMORANDUM TO: Brian W. Tindell, Acting Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Natreon J. Jordan, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1 – VERBAL AUTHORIZATION OF RELIEF REQUEST FOR INSERVICE INSPECTION PROGRAM ALTERNATIVE ISI-10 ALTERNATE REPAIR OF FEEDWATER NOZZLE WELDS (EPID L-2018-LLR-0030)

By letter dated March 19, 2018, 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-4411, at the Brunswick Steam Electric Plant, Unit No. 1. Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(z)(1), the licensee submitted Inservice Inspection Program Alternative ISI-10 for the repair of the degraded nickel-based Alloy 82/182 dissimilar metal butt welds, 1B21N4A-2-SW1-2 and 1B21N4D-5-SW1-2, of the feedwater N4A and N4D nozzles, respectively, on the basis that the alternate repair provides an acceptable level of quality and safety.

The NRC staff finds that the proposed full structural weld overlay is designed, installed, and inspected consistent with Code Case N-504-4 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 overlaid welds is acceptable for the remaining life of the plant or their design life, whichever is shorter.

During a conference call with the licensee on March 23, 2018, the NRC staff granted a verbal authorization on the use of Inservice Inspection Program Alternative ISI-10 at Brunswick Steam Electric Plant Unit No. 1 in accordance with 10 CFR 50.55a(z)(1) for the design life of the repair or the life of the plant, whichever is shorter. The script for the verbal authorization is enclosed.

NRC Participants:		Licensee Participants:	
B. Tindell	D. Alley	L. Grzeck	C. Winslow
A. Hon	J. Tsao		
A. Rezai	B. Collins		
J. Stewart	N. Jordan		

Docket No. 50-325

Enclosure: Verbal Authorization Script

VERBAL AUTHORIZATION BY THE OFFICE NUCLEAR REGULATION

FOR INSERVICE INSPECTION PROGRAM ALTERNATIVE ISI-10

ALTERNATE REPAIR OF FEEDWATER NOZZLE WELDS

BRUNSWICK STEAM ELECTRIC PLANT UNIT NO. 1

DUKE ENERGY PROGRESS

DOCKET NO. 50-325

MARCH 23, 2018

Technical Evaluation read by David Alley, Chief of the Piping and Head Penetration Branch, Office of Nuclear Reactor Regulation

By letter dated March 19, 2018, 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-4411, at the Brunswick Steam Electric Plant Unit No. 1.

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), the licensee submitted Inservice Inspection Program Alternative ISI-10 for the repair of the degraded nickel-based Alloy 82/182 dissimilar metal butt welds, 1B21N4A-2-SW1-2 and 1B21N4D-5-SW1-2, of the feedwater N4A and N4D nozzles, respectively, on the basis that the alternate repair provides an acceptable level of quality and safety.

During the 2018 refueling outage, the licensee detected circumferential indications located within each of the two subject welds. The maximum depth and length of the indications are 0.32 inches and 6.40 inches, respectively.

The licensee proposed to install a full structural weld overlay on the subject welds 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," and ASME Code, Section XI, Appendices VIII and Q as bases for its review.

The NRC [Nuclear Regulatory Commission] staff finds that the proposed full structural weld overlay is designed, installed, and inspected consistent with Code Case N-504-4 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 overlaid welds is acceptable for the remaining life of the plant or their design life, whichever is shorter.

Authorization read by Brian Tindell, Acting 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 Piping and Head Penetration Branch.

As set forth above, the NRC staff determines that the proposed alternative provides 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 March 23, 2018, the NRC authorizes the use of Inservice Inspection Program Alternative ISI-10 at Brunswick Steam Electric Plant Unit No. 1 for the design life of the repair or the life of the plant, whichever is shorter.

All other requirements in ASME Code, Section XI, for which relief was not specifically requested and approved in this proposed alternative 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 the subsequent written safety evaluation.

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1 – VERBAL AUTHORIZATION OF RELIEF REQUEST FOR INSERVICE INSPECTION PROGRAM ALTERNATIVE ISI-10 ALTERNATE REPAIR OF FEEDWATER NOZZLE WELDS (EPID L-2018-LLR-0030) DATED MAY 15, 2018

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