



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

June 16, 2020

Mr. John A. Krakuszeski
Vice President
Brunswick Steam Electric Plant
Duke Energy Progress, LLC
8470 River Rd., SE (M/C BNP001)
Southport, NC 28461

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 – RELIEF REQUEST
REGARDING FOURTH 10-YEAR INSERVICE INSPECTION INTERVAL (ISI-12)
(EPID L-2019-LLR-0045)

Dear Mr. Krakuszeski:

By letter dated May 9, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19142A165), Duke Energy Progress, LLC (Duke Energy or the licensee) submitted Relief Request ISI-12 to the U.S. Nuclear Regulatory Commission (NRC). It requested relief from certain provisions of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI inservice inspection (ISI) requirements at the Brunswick Steam Electric Plant (BSEP), Units 1 and 2 for the fourth 10-year ISI interval.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(g)(5)(iii), the licensee requested relief for ISI items on the basis that the code requirement is impractical.

The NRC staff determines that granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(g)(5)(iii). Therefore, the NRC staff grants the licensee's Relief Request ISI-12 at BSEP, Units 1 and 2, for the exam category B-D, B3.90; C-B, C2.21 and C2.22; C-F-2, C5.51; and R-A, R1.14 welds identified in Tables 1 and 2 in Section 3.1 of the enclosed safety evaluation for the fourth 10-year ISI interval.

All other ASME Code, Section XI requirements for which relief was not specifically requested and authorized herein by the NRC staff remain applicable, including the third-party review by the Authorized Nuclear In-service Inspector.

If you have any questions, please contact the Project Manager, Andrew Hon, at 301-415-8480 or Andrew.Hon@nrc.gov.

Sincerely,

/RA/

Undine Shoop, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-324 and 50-325

Enclosure:
Safety Evaluation

cc: Listserv



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST ISI-12 REGARDING

FOURTH 10-YEAR INSERVICE INSPECTION INTERVAL

DUKE ENERGY PROGRESS, LLC

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2

DOCKET NOS. 50-325 AND 50-324

1.0 INTRODUCTION

By letter dated May 9, 2019 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML19142A165), Duke Energy Progress, LLC (Duke Energy or the licensee) submitted Relief Request ISI-12 to the U.S. Nuclear Regulatory Commission (NRC). It requested relief from certain provisions of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI inservice inspection (ISI) requirements at the Brunswick Steam Electric Plant (BSEP), Units 1 and 2 for the fourth 10-year ISI interval.

Specifically, the licensee requested relief from the “essentially 100 percent” volumetric coverage requirements for several items pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(g)(5)(iii), because the licensee determined that the current code requirement is impractical for BSEP.

2.0 REGULATORY EVALUATION

Adherence to Section XI of the ASME Code is mandated by 10 CFR 50.55a(g)(4), which states, in part, that ASME Code Class 1, 2, and 3 components will meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in ASME Code, Section XI.

Paragraph 10 CFR 50.55a(g)(5)(iii) states that if the licensee has determined that conformance with an ASME Code requirement is impractical for its facility, the licensee must notify the NRC and submit, as specified in 10 CFR 50.4, information to support the determinations. Determinations of impracticality in accordance with this section must be based on the demonstrated limitations experienced when attempting to comply with the ASME Code requirements during the ISI interval for which the request is being submitted. Requests for relief made in accordance with this section must be submitted to the NRC no later than 12 months after the expiration of the initial or subsequent 120-month inspection interval for which relief is sought.

Enclosure

Paragraph 10 CFR 50.55a(g)(5)(iv) requires that where an examination requirement by the ASME Code or Addenda is determined to be impractical by a licensee, the basis for this determination must be demonstrated to the satisfaction of the Commission not later than 12 months after the expiration of the initial 120-month period of operation from the start of facility commercial operation and each subsequent 120-month period of operation during which the examination is determined to be impractical.

Paragraph 10 CFR 50.55a(g)(6)(i) states, in part, that the Commission will evaluate determinations, under paragraph 10 CFR 50.55a(g)(5), that ASME Code requirements are impractical. The Commission may grant such relief and may impose such alternative requirements as it determines is authorized by law.

Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request relief and the NRC to grant relief.

3.0 TECHNICAL EVALUATION

3.1 The Licensee's Relief Request

Applicable Code Edition and Addenda

The licensee's fourth ISI Interval is based on the ASME Code, Section XI, 2001 Edition through the 2003 Addenda.

Components Included in Relief Request

The relief request for BSEP, Units 1 and 2 includes the welds identified in Tables 1 and 2, respectively.

Table 1: Welds covered in Relief Request ISI-12 for Brunswick Steam Electric Plant, Unit 1

Exam Category	Component ID	Component Description	Material	Nominal Pipe Size Thickness	Percent Coverage
B-D B3.90	1B11-RPV-N1A (1-B11-1058)	Nozzle N1A to Reactor Vessel Weld (RPV)	A-508, Cl. 2 (nozzle); SA-533, Gr. B (shell)	26.125" ID (5.5" @ RPV shell)	80.35%
B-D B3.90	1B11-RPV-N1B (1-B11-1060)	Nozzle N1B to Reactor Vessel Weld (RPV)	A-508, Cl. 2 (nozzle); SA-533, Gr. B (shell)	26.125" ID (5.5" @ RPV shell)	80.35%
B-D B3.90	2B11-RPV-N5B (2-B11-1100)	Nozzle N5B to Reactor Vessel Weld (RPV)	A-508, Cl. 2 (nozzle); SA-533, Gr. B (shell)	14.25" ID (5.5" @ RPV shell)	74.2%
C-B C2.21	1E11HX-1A-SWN3 (1-E11-3814)	Heat Exchanger 1A Inlet Nozzle to Head (RHR)	SA-105 Gr. LF2 (Nozzle) SA-516 Gr. 70 (Shell Head)	20.0" (0.875" @ HX shell)	100% - MT 40.0% - UT

Exam Category	Component ID	Component Description	Material	Nominal Pipe Size Thickness	Percent Coverage
C-B 2.22	1E11HX-1A-N4NIR (1-E11-3806)	Heat Exchanger 1A Outlet Nozzle Inner Radius (RHR)	SA-105 Gr. LF2 (Nozzle) SA-516 Gr. 70 (Shell Head)	20.0" (1.125" @ HX shell)	55.5%
C-F-2 C5.51	1E1145-15-FW58 (1-E11-3483)	Valve 1-E11-F031D to Pipe (RHR)	SA-106 Gr. B (Pipe) A-216 WCC (Valve)	16" (0.375")	87.6% - UT
C-F-2 C5.51	1E1173-30-FW102 (1-E11-3616)	Pipe to Valve 1-E11-F017B (RHR)	SA-106 Gr. B (Pipe) A-216 WCC (Valve)	24" (0.562")	87.3% - UT
C-F-2 C5.51	1E215-39-FW4 (1-E21-4015)	Valve 1-E21-F001A to Pipe (CS)	SA-106 Gr. B (Pipe) A-216 WCB/WCC (Valve)	14" (0.375")	90.0% - UT
C-F-2 C5.51	1E411X226-1-FW22 (1-E41-4152)	Pipe to Valve 1-E41-F042 (HPCI)	SA-106 Gr. B (Pipe) A-216 WCB	16" (0.375")	70.5% - UT
R-A R1.14	1B11N2D-RPV-FWABA (1-RCR-011-RI)	RPV Nozzle 2D to Safe End Weld (RCR)	A-508 Cl. 2 (Nozzle) Alloy 82/182 (DM Weld) SB-166 (Safe End)	12" (0.688")	86.9%
R-A R1.14	1B11N5B-RPV-FWRNB16A (1-CS-027-RI)	RPV Nozzle N5B to Safe End Weld (CS)	A-508 Cl. 2 (Nozzle) Alloy 82/182 (DM Weld) SA-336 Cl. F8 (Safe End)	15.5" (0.9")	87.9%

Table 2: Welds covered in Relief Request ISI-12 for Brunswick Steam Electric Plant, Unit 2

Exam Category	Component ID	Component Description	Material	Nominal Pipe Size Thickness	Percent Coverage
B-D B3.90	2B11-RPV-N1A (2-B11-1078)	Nozzle N1A to Reactor Vessel Weld (RPV)	A-508, Cl. 2 (nozzle); SA-533, Gr. B (shell)	26.125" ID (5.5" @ RPV shell)	76.5%
B-D B3.90	2B11-RPV-N1B (1-B11-1080)	Nozzle N1B to Reactor Vessel Weld (RPV)	A-508, Cl. 2 (nozzle); SA-533, Gr. B (shell)	26.125" ID (5.5" @ RPV shell)	76.5%
B-D B3.90	2B11-RPV-N2B (2-B11-1084)	Nozzle N2B to Reactor Vessel Weld (RPV)	A-508, Cl. 2 (nozzle); SA-533, Gr. B (shell)	14.125" ID (5.5" @ RPV shell)	72.8%

Exam Category	Component ID	Component Description	Material	Nominal Pipe Size Thickness	Percent Coverage
B-D B3.90	2B11-RPV-N2C (2-B11-1086)	Nozzle N2C to Reactor Vessel Weld (RPV)	A-508, Cl. 2 (nozzle); SA-533, Gr. B (shell)	14.125" ID (5.5" @ RPV shell)	72.8%
B-D B3.90	2B11-RPV-N2B (2-B11-1084)	Nozzle N2B to Reactor Vessel Weld (RPV)	A-508, Cl. 2 (nozzle); SA-533, Gr. B (shell)	14.125" ID (5.5" @ RPV shell)	72.8%
B-D B3.90	2B11-RPV-N5B (2-B11-1084)	Nozzle N5B to Reactor Vessel Weld (RPV)	A-508, Cl. 2 (nozzle); SA-533, Gr. B (shell)	14.25" ID (5.5" @ RPV shell)	72.8%
B-D B3.90	2B11-RPV-N8B (2-B11-1120)	Nozzle N8B to Reactor Vessel Weld (RPV)	A-508, Cl. 2 (nozzle); SA-533, Gr. B (shell)	4.2" ID (5.5" @ RPV shell)	72.8%
B-D B3.90	2B11-RPV-N9 (2-B11-1140)	Nozzle N9 to Reactor Vessel Weld (RPV)	A-508, Cl. 2 (nozzle); SA-533, Gr. B (shell)	4.125" ID (5.5" @ RPV shell)	72.8%
C-B C2.21	2E11HX-2A-SWN3 (2-E11-3756)	Heat Exchanger 2A Inlet Nozzle to Head (RHR)	SA-105 Gr. LF2 (Nozzle) SA-516 Gr. 70 (Shell Head)	20.0" (0.875" @ HX shell)	100% - MT 50.0% - UT
C-B C2.21	2E11HX-2A-SWN4 (2-E11-3757)	Heat Exchanger 2A Outlet Nozzle to Shell (RHR)	SA-105 Gr. LF2 (Nozzle) SA-516 Gr. 70 (Shell Head)	20.0" (1.125" @ HX shell)	100% - MT 75.0% - UT
C-B C2.22	2E11HX-2A-N4NIR (1-E11-3748)	Heat Exchanger 2A Outlet Nozzle Inner Radius (RHR)	SA-105 Gr. LF2 (Nozzle) SA-516 Gr. 70 (Shell Head)	20.0" (1.125" @ HX shell)	55.0%

Applicable Code Requirements

The extent of examination requirement for Examination Category B-D, Item Number B3.90, per Table IWB-2500-1, requires a volumetric examination of essentially 100% of the weld length for nozzle-to-vessel welds as shown in Figure IWB-2500-7(b).

The extent of examination requirement for Examination Category C-B, Item Numbers C2.21 and C2.22, per Table IWC-2500-1, requires a volumetric examination of the nozzle-to-shell weld as shown in Figure IWC-2500-4(b). Item Number C2.21 requires an additional surface examination.

The extent of examination requirement for Examination Category C-F-2, Item Number C5.51 requires that 100% of each weld requiring examination receive a surface and volumetric exam as shown in Figure IWC-2500-7(a).

The extent of examination requirement for Examination Category R-A, Item Number R1.14, per Table 1 of ASME Code Case N-578-1, requires a volumetric examination of essentially 100% of the length of the Risk Informed Inservice Inspection (RI-ISI) weld.

3.2 NRC Staff Evaluation

The licensee has requested relief from the “essentially 100%” volumetric coverage requirements described in ASME Code, Section XI and their ISI program. However, the design configurations of the subject welds limit access for volumetric inspection. In order to effectively increase the examination coverage to meet ASME Code requirements, the welds would require design modifications. The NRC staff finds these limitations to be an acceptable basis for impracticality of conforming to the requirements and finds that the modification necessary to achieve the required coverage constitutes an undue burden upon the licensee.

Examination Category B-D

The licensee noted that during the fourth interval, staff had approved the use of ASME Code Case N-702, “Alternative Requirements for Boiling Water Reactor (BWR) Nozzle Inner Radius and Nozzle-to-Shell Welds,” in a safety evaluation dated January 31, 2011 (ADAMS Accession No. ML110060504). In addition, the licensee invoked ASME Code Case N-613-1, “Ultrasonic Examination of Full Penetration Nozzles to Vessels, Examination Category B-D, Item Nos. B3.10 and B3.90, Reactor Nozzle-to-Vessel Welds, Figures IWB-2500-7(a), (b) and (c), Section XI, Division 1.” This code case is endorsed by the NRC in Regulatory Guide (RG) 1.147, Revision 18, and has been approved for general use without limitations. ASME Code Case N-613-1 allows a reduction of the examination volume next to the widest part of the weld from half of the vessel wall thickness to one-half (1/2) inch. The ASME Code examination requirement is a volumetric examination of essentially 100 percent. ASME Code Case N-613-1 has been superseded by ASME Code Case N-613-2, which has been approved for use without conditions in RG 1.147, Revision 18. Tables 1 and 2 above summarize the coverages the licensee achieved for each unit.

The NRC staff finds these limitations to be an acceptable basis for impracticality of conforming to the requirements and finds that the modification necessary to achieve the required coverage constitutes a burden upon the licensee.

The licensee examined the reactor pressure vessel (RPV) nozzle-to-vessel welds in Tables 1 and 2 above per the ASME Code, Section XI, Table IWB-2500-1 requirements for Examination Category B-D and ASME Code Case N-613-1. The licensee performed the required volumetric examination of the welds using ultrasonic testing (UT) to the extent practical and achieved the coverages shown in Tables 1 and 2 above. The NRC staff reviewed the scan diagrams and coverage sheets, which showed that the examined volumes included weld and base materials in the inner region where degradation is expected to occur (if it occurs) and determined that the limited coverages for these welds are acceptable. The staff reviewed the scan diagrams for the rest of the RPV nozzle-to-vessel welds in Tables 1 and 2 and finds that despite the limited coverages, the examinations were adequately performed.

The licensee invoked Figure 2 of ASME Code Case N-613-1 as an alternative examination volume for the RPV nozzle-to-vessel welds. As the NRC staff noted earlier, ASME Code Case N-613-1 has been superseded by ASME Code Case N-613-2. In accordance with RG 1.147, the older or superseded version of a code case cannot be applied by the licensee for the first time. However, a licensee that implemented the code case prior to annulment (being superseded in this case) may continue to use that code case through the end of the present ISI interval. During the fourth 10-year ISI interval, Code Case N-613-1 was the approved revision in RG 1.147. Therefore, the licensee's use of Code Case N-613-1 was appropriate for the

fourth 10-year ISI interval at BSEP, Units 1 and 2. Additionally, the NRC staff reviewed the differences between Figure 2 of ASME Code Case N-613-1 and Figure 2 of ASME Code Case N-613-2 and determined that the required examination volumes are identical. Therefore, the NRC staff determined that the licensee, by examining the required volume defined in Figure 2 of Code Case N-613-1, has examined the required volume specified in Code Case N-613-2.

Based on the above discussion, the NRC staff determined that obtaining the ASME Code-required examination volume for the reactor pressure vessel (RPV) nozzle-to-vessel welds in Tables 1 and 2 above is impractical because of the stated limitations and that the modifications necessary to obtain the required coverage would impose a burden upon the licensee. The NRC staff determined that the volumetric examination performed to the maximum extent practical provides reasonable assurance of structural integrity of the welds for the following reasons: (1) examination results were acceptable; (2) the nozzle-to-vessel welds listed in Tables 1 and 2 would leak long before the RPV is challenged, and that leakage would be detected by required visual examinations; and (3) despite the limited coverages, evidence of significant service-induced degradation in the weld, if it were to occur, would likely be detected in the portions of the welds that were examined because the examined volume is the same material as the unexamined volume, is under the same loading conditions, and is exposed to the same reactor coolant environment.

Examination Category C-B

The examinations performed were limited due to the configuration of the nozzle/shell components which restricted full examinations of the welds. The configurations also prevent alternative examination techniques from achieving greater coverage. The components were designed and fabricated prior to the examination requirements of ASME Code, Section XI being published; therefore, the plant was not designed specifically to meet the requirements. The NRC staff finds these limitations to be an acceptable basis for impracticality of conforming to the requirements and finds that the modification necessary to achieve the required coverage constitutes a burden upon the licensee.

The licensee examined these welds per the ASME Code, Section XI, Table IWC-2500-4(b) requirements for Examination Category C-B. The licensee performed the required volumetric examinations of the welds using UT, and magnetic particle testing (MT) where required, to the extent practical and achieved the coverages shown in Tables 1 and 2 above. The NRC staff reviewed the scanned diagrams and coverage sheets, which showed that the examined volumes included much of the weld and base materials in the inner region in at least one direction. These are the regions where degradation is expected to occur (if it occurs) and therefore the NRC staff determined that the limited coverages for these welds are acceptable. No unacceptable indications were found during any of the examinations.

In addition to the ASME Code required volumetric examinations, VT-2 visual examinations associated with the Class 2 leakage test are periodically performed on all of these components. The NRC staff finds that the coverage obtained with the UT examinations combined with ongoing leakage tests provides reasonable assurance that any significant service-induced degradation would be observed and mitigated in a timely manner to maintain structural integrity.

Examination Category C-F-2

The licensee invoked ASME Code Case N-663, "Alternative Requirements for Class 1 and 2 Surface Examinations, Section XI, Division 1," which is endorsed by the NRC in RG 1.147, Revision 18, and has been approved for general use without limitations. ASME Code Case N-663 states that in lieu of the surface examination requirements for the piping welds of Examination Category B-F (NPS 4 and larger), B-J (NPS 4 and larger), C-F-1, and C-F-2, surface examinations may be limited to areas identified by the owner as susceptible to outside surface attack. In accordance with Table 1 of Code Case N-663, the licensee had an evaluation performed and determined that neither unit had areas that were susceptible and thus did not require surface examination. Table 1 above summarizes the coverages the licensee achieved for each unit.

The examinations performed were limited due to the configuration of the components, which restricted examinations on the upstream and/or downstream sides of the welds. The configurations also prevented alternative examination techniques from achieving greater coverage. The components were designed and fabricated prior to the examination requirements of ASME Code, Section XI being published; therefore, the plant was not designed specifically to meet the requirements. The NRC staff finds these limitations to be an acceptable basis for impracticality of conforming to the requirements and finds that the modification necessary to achieve the required coverage constitutes a burden upon the licensee.

The licensee examined each of these welds per the ASME Code, Section XI, Table IWC-2500-7(a) requirements for Examination Category C-F-2. The licensee performed the required volumetric examination of the welds using UT to the extent practical and achieved the coverages shown in Table 1. The NRC staff reviewed the scanned diagrams and coverage sheets, which showed that the examined volumes included weld and base materials in the inner region where degradation is expected to occur (if it occurs) and determined that the limited coverages for these welds are acceptable. No unacceptable indications were found during the examinations of the residual heat removal (RHR) valve-to-pipe weld, pipe-to-valve weld, and high-pressure coolant injection (HPCI) pipe-to-valve weld.

During the examination of the core spray (CS) valve-to-pipe weld, indications were found that verified previous interval data. During the previous ISI interval, a 1/8" indication was observed at the intersection of the heat-affected zone and the weld. The indication was not connected to the inner diameter (ID) or outer diameter (OD) of the component. Subsequent radiographic testing (RT) of the weld showed 3 pores of porosity at the indication. The examinations performed in the current interval showed that there were no changes to what was discovered prior and no additional indications were discovered. The NRC staff finds that the indications observed were acceptable considering there is no evidence of crack formation or growth, there were no changes in the indications from the last interval, and the indications are neither connected to the ID or OD.

In addition to the ASME Code-required volumetric examinations, VT-2 visual examinations associated with the Class 2 leakage test are periodically performed on all of these welds except for the HPCI pipe-to-valve weld which is exempt from periodic system pressure testing. However, the HPCI pipe-to-valve weld is subject to an integrated leak test in accordance with BSEP Technical Specification 5.5.2 every 24 months. The NRC staff finds that the coverage obtained with the UT examinations combined with ongoing leakage tests provides reasonable

assurance that any significant service induced degradation would be observed and mitigated in a timely manner to maintain structural integrity.

Examination Category R-A

The licensee noted that during the fourth interval, the NRC staff had approved Relief Request ISI-02 in a Safety Evaluation dated November 4, 2018 (ADAMS Accession No. ML082600075) requesting the use of the risk-informed ISI (RI-ISI) methodology contained in Electric Power Research Institute (EPRI) Topical Report (TR) 112657, Revision B-A, as supplemented by ASME Code Case N-578-1. Table 1 above summarizes the coverages the licensee achieved for each unit.

The examinations performed were limited due to the configuration of the nozzles which restricted full examinations of the welds. The configurations also prevent alternative examination techniques from achieving greater coverage. The components were designed and fabricated prior to the examination requirements of ASME Code, Section XI being published; therefore, the plant was not designed specifically to meet the requirements. The NRC staff finds these limitations to be an acceptable basis for impracticality of conforming to the requirements and finds that the modification necessary to achieve the required coverage constitutes a burden upon the licensee.

The licensee examined the reactor coolant recirculation (RCR) RPV nozzle 2D-to-safe end weld and CS RPV nozzle 5B-to-safe end weld in Table 1 above per the ASME Code Case N-578-1, Table 1. Specifically, the examination volume shall include the volume surrounding the weld, weld heat affected zone, and base metal, where applicable, in the crevice region. Examination should focus on detection of cracks initiating and propagating from the inner surface. The licensee performed the required volumetric examination of the welds using UT to the extent practical and achieved the coverages shown in Table 1. The NRC staff reviewed the scanned diagrams and coverage sheets, which showed that the examined volumes included weld and base materials in the inner region where degradation is expected to occur (if it occurs) and determined that the limited coverages for these welds are acceptable. Aside from previously recorded geometric reflectors, no recordable indications were observed.

In addition to the ASME Code-required volumetric examinations, VT-2 visual examinations associated with the Class 1 leakage test are periodically performed on all of these components. The NRC staff finds that the coverage obtained with the UT examinations combined with ongoing leakage tests provides reasonable assurance that any significant service-induced degradation would be observed and mitigated in a timely manner to maintain structural integrity.

Summary of Technical Evaluation

Based on the above discussion, the NRC staff finds that obtaining the ASME Code-required 100% volumetric examination for the RHR, HPCI, RCR and CS welds in Tables 1 and 2 is impractical. The volumetric examinations were performed to the maximum extent practical. However, because of the physical limitations of the plant, performing additional ASME Code-required inspections would impose a burden upon the licensee due to the plant modifications necessary to obtain the additional coverage. Furthermore, the NRC staff finds that there is reasonable assurance of structural integrity of the welds because much of the most susceptible portions of the welds were examined and no new indications were found. If any cracks developed or grew from previous intervals, these welds will likely leak before break and the licensee has defense in depth measures to monitor these welds for leakage outside of the

volumetric examination program. Therefore, the NRC staff finds Relief Request ISI-12 meets the requirements for relief for impracticality described in 10 CFR 50.55a(g)(6)(i).

4.0 CONCLUSION

As set forth above, the NRC staff determines that granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(g)(5)(iii). Therefore, the NRC staff grants the licensee's relief request ISI-12 at BSEP, Units 1 and 2, for the exam category B-D, B3.90; C-B, C2.21 and C2.22; C-F-2, C5.51; and R-A, R1.14 welds identified in Tables 1 and 2 in Section 3.1 of this safety evaluation for the fourth 10-year ISI interval.

All other ASME Code, Section XI requirements for which relief was not specifically requested and authorized herein by the NRC staff remain applicable, including the third-party review by the Authorized Nuclear In-service Inspector.

Principal Contributors: C. Fairbanks and A. Young

Date: June 16, 2020

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 – RELIEF REQUEST
REGARDING FOURTH 10-YEAR INSERVICE INSPECTION INTERVAL (ISI-12)
(EPID L-2019-LLR-0045) DATED JUNE 16, 2020

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