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

December 10, 2020

Mr. Daniel G. Stoddard
Senior Vice President and
Chief Nuclear Officer
Dominion Nuclear
Innsbrook Technical Center
5000 Dominion Blvd.
Glen Allen, VA 23060-6711

SUBJECT: MILLSTONE POWER STATION, UNIT NO. 3 - RELIEF REQUEST FOR LIMITED COVERAGE EXAMINATIONS PERFORMED IN THE THIRD 10-YEAR INSERVICE INSPECTION INTERVAL (EPID L-2020-LLR-0027 THROUGH EPID L-2020-LLR-0032)

Dear Mr. Stoddard:

By letter dated February 17, 2020, Dominion Nuclear Connecticut, Inc. (the licensee) submitted Relief Requests IR-3-31, IR-3-32, IR-3-33, IR-3-34, IR-3-35, and IR-3-36, which requested relief from the volumetric examination coverage requirements pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(g)(5)(iii) on the basis that the required examination coverage was impractical due to physical obstructions and limitations imposed by design, geometry, and materials of construction of the subject components for the Millstone Power Station, Unit No. 3 (Millstone 3). The relief is applicable to the second period of the third 10-year inservice inspection interval for Millstone 3, which began on April 23, 2009, and ended on June 22, 2019.

The U.S. Nuclear Regulatory Commission (NRC) staff has completed its review of the licensee's subject relief requests for Millstone 3. Pursuant to 10 CFR 50.55a(g)(6)(i), the NRC staff has determined that it is impractical for the licensee to comply with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI requirement, that the proposed examinations performed to the extent practical provide reasonable assurance of structural integrity and leaktightness of the subject welds, and that granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and 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)(6)(i). Therefore, the NRC grants relief for the subject examinations of the components contained in Relief Requests IR-3-31, IR-3-32, IR-3-33, IR-3-34, IR-3-35, and IR-3-36 for the third 10-year inservice inspection interval at Millstone 3.

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

If you have any questions, please contact the Millstone project manager, Richard Guzman, at 301-415-1030 or by e-mail to Richard.Guzman@nrc.gov.

Sincerely,

James G. Danna

Digitally signed by James G. Danna
Date: 2020.12.10 19:40:01 -05'00'

James G. Danna, Chief
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-423

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 FOR LIMITED COVERAGE EXAMINATION

PERFORMED IN THE THIRD 10-YEAR INSPECTION INTERVAL

DOMINION ENERGY NUCLEAR CONNECTICUT, INC.

MILLSTONE POWER STATION, UNIT NO. 3

DOCKET NO. 50-423

1.0 INTRODUCTION

By letter dated February 17, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20049A088), as supplemented by letter dated July 27, 2020 (ADAMS Accession No. ML20209A536), Dominion Energy Nuclear Connecticut, Inc. (the licensee), submitted Relief Requests IR-3-31, IR-3-32, IR-3-33, IR-3-34, IR-3-35, and IR-3-36 from certain requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), 2004 Edition, under the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(g)(5)(iii), for limited coverage examinations performed in the second inspection period of the third 10-year inservice inspection (ISI) interval for Millstone Power Station, Unit No. 3 (Millstone 3). The third 10-year ISI interval began on April 23, 2009, and ended on June 22, 2019.

Specifically, pursuant to 50.55a(g)(5)(iii), the licensee requested relief on the basis that the required examination coverage was impractical due to physical obstructions and limitations imposed by design, geometry, and materials of construction of the subject components.

2.0 REGULATORY EVALUATION

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, “Rules for Inservice Inspection of Nuclear Power Plant Components,” 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 complies with the requirements in the latest edition and addenda of Section XI of the ASME Code, incorporated by reference in 10 CFR 50.55a(a), 12 months prior to the start of the 120-month interval, subject to the conditions listed in 10 CFR 50.55a(b). The code of record for the third 10-year interval ISI program is the 2004 Edition of Section XI of the ASME Code.

The regulation at 10 CFR 50.55a(b)(2)(xv)(A) requires that, when applying Supplement 2 (Qualification Requirements for Wrought Austenitic Piping Welds) to the ASME Code, Section XI, Appendix VIII (Performance Demonstration for Ultrasonic Examination Systems), the following examination coverage criteria be met:

(1) Piping must be examined in two axial directions, and when examination in the circumferential direction is required, the circumferential examination must be performed in two directions, provided access is available. Dissimilar metal welds must be examined axially and circumferentially.

(2) Where examination from both sides is not possible, full coverage credit may be claimed from a single side for ferritic welds. Where examination from both sides is not possible on austenitic welds or dissimilar metal welds, full coverage credit from a single side may be claimed only after completing a successful single-sided Appendix VIII demonstration using flaws on the opposite side of the weld. Dissimilar metal weld qualifications must be demonstrated from the austenitic side of the weld, and the qualification may be expanded for austenitic welds with no austenitic sides using a separate add-on performance demonstration. Dissimilar metal welds may be examined from either side of the weld.

The regulation at 10 CFR 50.55a(b)(2)(xvi)(B) requires, in part, that examinations performed from one side of a ferritic or stainless steel pipe weld must be conducted with equipment, procedures, and personnel that have demonstrated proficiency with single-sided examinations. To demonstrate equivalency to two-sided examinations, the demonstration must be performed to the requirements of Appendix VIII, as conditioned by this paragraph and 10 CFR 50.55a(b)(2)(xv)(A).

The regulation at 10 CFR 50.55a(g)(5)(iii) states, in part, that licensees may determine that conformance with certain ASME Code requirements is impractical and that the licensee shall notify the U.S. Nuclear Regulatory Commission (NRC) and submit information in support of the determination. Determinations of impracticality in accordance with this section must be based on the demonstrated limitations experienced when attempting to comply with the 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 120-month inspection interval or subsequent 120-month inspection interval for which relief is sought.

The regulation at 10 CFR 50.55a(g)(6)(i) states that the NRC will evaluate determinations under paragraph (g)(5) of this section that code requirements are impractical. The NRC may grant such relief and may impose such alternative requirements as it determines are authorized by law and will not endanger life or property or the common defense and security and are 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.

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

3.0 TECHNICAL EVALUATION

3.1 Licensee's Relief Request IR-3-31

ASME Code Components Affected

ASME Code Class: Code Class 1
Exam Category: B-B, Pressure Retaining Welds in Vessels other than Reactor Vessels
Item Numbers: B2.40, Steam Generator Tube Sheet-to-Head Weld
Weld Identification: 03-003-SW-Z, Steam Generator Channel Head-to-Tube Sheet Plate

Applicable Code Requirements

ASME Code, Section XI, 2004 Edition, Examination Category B-B, requires 100 percent volumetric examination coverage of the pressure retaining welds as defined in Table IWB-2500-1.

ASME Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1," as approved for use by the NRC in Regulatory Guide (RG) 1.147, Revision 17, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1" (ADAMS Accession No. ML13339A689), states that a reduction in examination coverage due to part geometry or interference for any ASME Class 1 or 2 weld is acceptable, provided that the reduction is less than 10 percent (i.e., greater than 90 percent examination coverage is obtained).

Although not discussed in the licensee's relief request, the NRC staff also finds the ASME Code, Section XI, 2004 Edition, Mandatory Appendix I, Article I-2120, applicable to the weld examination. This ASME Code requires that ultrasonic examination of vessels other than reactor vessels greater than 2 inches in thickness shall be conducted in accordance with Section V, Article 4.

Licensee's Proposed Request for Relief

Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief on the basis that compliance with the ASME Code requirement is impractical.

The examination coverages and results, as documented in the licensee's request, are described in Table A below. Also described below are the access restrictions that prevented full coverage during the ASME Code-required examinations.

Table A: IR-3-31 Volumetric Examination Results

Weld ID	Category / Item No.	Coverage	Results
03-003-SW-Z	B-B / Item B2.40	85.4%	No recordable indications

For the steam generator tube sheet-to-head weld (weld 03-003-SW-Z), the licensee stated that scan limitations were due to the obstruction caused by the tube sheet flange and steam generator lower support members.

Additionally, the licensee stated that periodic pressure tests and VT-2 visual examinations performed in accordance with Examination Category B-P will provide assurance of an acceptable level of quality and safety by providing a reasonable assurance of structural integrity.

The licensee concluded that to meet the ASME Code examination coverage requirements, it would be impractical due to cost, increased radiation exposure, and impact to plant equipment.

NRC Staff Evaluation

For the steam generator tube sheet-to-head weld (weld 03-003-SW-Z), the NRC staff confirmed that the tube sheet flange and steam generator lower support members restricted access to volumetric examination as stated by the licensee and that it would be impractical to achieve greater than 90 percent volumetric coverage without extensive weld or component design modifications. The NRC staff also confirmed that volumetric examination in accordance with Article 4, Section V of the ASME Code was acceptable, since Article I-2120 of the ASME Code requires ultrasonic examination of all other vessels greater than 2 inches in thickness to be conducted in accordance with Article 4 of Section V.

In addition to the volumetric examinations required by the ASME Code for Category B-B welds, the system leakage tests required by the ASME Code for Category B-P pressure retaining components is an additional line of defense in the detection of service-induced degradation. Table IWB-2500-1 requires a system leakage test for all Category B-P pressure retaining components each refueling outage. The VT-2 visual examination specified in Tables IWB-2500-1 and IWA-5240 for these leakage tests requires, in part, that:

- accessible external exposed surfaces be examined for evidence of leakage
- the surrounding areas of inaccessible surfaces be examined for evidence of leakage

The acceptance criteria specified in Tables IWB-2500-1 and IWB-3522 for these leakage tests require, in part, that corrective action be taken for identified leakage unless within defined permissible limits.

Based on the examination techniques used, the volumetric coverage obtained, and the system leakage tests performed each refueling outage, it is reasonable to conclude that, if significant service-induced degradation was present in these welds, evidence would have been detected by the examinations performed. Based on operational experience and the extent to which the examinations were performed, the staff has determined with reasonable assurance that the structural integrity of these welds will be maintained throughout the third 10-year interval ISI program.

3.2 Licensee's Relief Request IR-3-32

ASME Code Components Affected

ASME Code Class:	Code Class 1
Exam Category:	B-D, Full Penetration Welded Nozzles in Vessels
Item Numbers:	B3.110, Pressurizer, Nozzle-to-Vessel Welds
Weld Identification:	03-007-SW-B, Pressurizer Safety Nozzle-to-Head Weld
	03-007-SW-C, Pressurizer Safety Nozzle-to-Head Weld
	03-007-SW-D, Pressurizer Safety Nozzle-to-Head Weld

Item Numbers: B3.130, Steam Generator (Primary Side), Nozzle-to-Vessel Welds
Weld Identification: 03-006-SW-U, Steam Generator Outlet Nozzle-to-Head Weld
03-006-SW-V, Steam Generator Inlet Nozzle-to-Head Weld

Applicable Code Requirements

ASME Code, Section XI, 2004 Edition, Examination Category B-D, requires 100 percent volumetric examination coverage of the pressure retaining welds as defined in Table IWB-2500-1.

ASME Code Case N-460, as approved for use by the NRC in RG 1.147, Revision 17, states that a reduction in examination coverage due to part geometry or interference for any ASME Class 1 or 2 weld is acceptable, provided that the reduction is less than 10 percent (i.e., greater than 90 percent examination coverage is obtained).

Although not discussed in the licensee's relief request, the NRC staff also finds the ASME Code, Section XI, 2004 Edition, Mandatory Appendix I, Article I-2120, applicable to the weld examination. This ASME Code requires that ultrasonic examination of vessels other than reactor vessels greater than 2 inches in thickness shall be conducted in accordance with Section V, Article 4.

Licensee's Proposed Request for Relief

Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief on the basis that compliance with the ASME Code requirement is impractical.

The examination coverages and results, as documented in the licensee's request, are described in Table B below. Also described below are the access restrictions that prevented full coverage during the ASME Code-required examinations.

Table B: IR-3-32 Volumetric Examination Results

Weld ID	Category / Item No.	Coverage	Results
03-006-SW-U	B-D, Item B3.130	70.9%	No recordable indications
03-006-SW-V	B-D, Item B3.130	70.9%	No recordable indications
03-007-SW-B	B-D, Item B3.110	82.1%	No recordable indications
03-007-SW-C	B-D, Item B3.110	82.1%	No recordable indications
03-007-SW-D	B-D, Item B3.110	82.1%	No recordable indications

For the steam generator nozzle to head welds (welds 03-006-SW-U and 03-006-SW-V), the licensee stated that scan limitations were due to the nozzle configuration restricting the scans from the nozzle side. For the pressurizer nozzle to head welds (welds 03-007-SW-B, 03-007-SW-C, and 03-007-SW-D), the licensee also stated that scan limitations were due to the nozzle configuration restricting the scans from the nozzle side.

Additionally, the licensee stated that periodic pressure tests and VT-2 visual examinations performed in accordance with Examination Category B-P will provide assurance of an acceptable level of quality and safety by providing a reasonable assurance of structural integrity.

The licensee concluded that to meet the ASME Code examination coverage requirements, it would be impractical due to cost, increased radiation exposure, and impact to plant equipment.

NRC Staff Evaluation

For the steam generator nozzle to head welds (welds 03-006-SW-U and 03-006-SW-V), the NRC staff confirmed the geometry of the nozzle restricted access to volumetric examination as stated by the licensee and confirmed that it would be impractical to achieve greater than 90 percent volumetric coverage without extensive weld or component design modifications. The NRC staff also confirmed that volumetric examination in accordance with Article 4, Section V of the ASME Code was acceptable, since Article I-2120 of the ASME Code requires ultrasonic examination of all other vessels greater than 2 inches in thickness to be conducted in accordance with Article 4 of Section V.

For the pressurizer nozzle to head welds (welds 03-007-SW-B, 03-007-SW-C, and 03-007-SW-D), the NRC staff confirmed the geometry of the nozzle restricted access to volumetric examination as stated by the licensee and confirmed that it would be impractical to achieve greater than 90 percent volumetric coverage without extensive weld or component design modifications. The NRC staff also confirmed that volumetric examination in accordance with Article 4, Section V of the ASME Code was acceptable, since Article I-2120 of the ASME Code requires ultrasonic examination of all other vessels greater than 2 inches in thickness to be conducted in accordance with Article 4 of Section V.

In addition to the volumetric examinations required by the ASME Code for Category B-D welds, the system leakage tests required by the ASME Code for Category B-P pressure retaining components is an additional line of defense in the detection of service-induced degradation. Table IWB-2500-1 requires a system leakage test for all Category B-P pressure retaining components each refueling outage. The VT-2 visual examination specified in Table IWB-2500-1 and IWA-5240 for these leakage tests requires, in part, that:

- accessible external exposed surfaces be examined for evidence of leakage
- the surrounding areas of inaccessible surfaces be examined for evidence of leakage

The acceptance criteria specified in Tables IWB-2500-1 and IWB-3522 for these leakage tests require, in part, that corrective action be taken for identified leakage unless within defined permissible limits.

Based on the examination techniques used, the volumetric coverage obtained, and the system leakage tests performed each inspection period, it is reasonable to conclude that, if significant service-induced degradation was present in these welds, evidence would have been detected by the examinations performed. Based on operational experience and the extent to which the examinations were performed, the staff has determined with reasonable assurance that the structural integrity of these welds will be maintained throughout the third 10-year interval ISI program.

3.3 Licensee's Relief Request IR-3-33

ASME Code Components Affected

ASME Code Class:	Code Class 2
Exam Category:	C-A, Pressure Retaining Welds in Pressure Vessels
Item Numbers:	C1.10, Shell Circumferential Welds
Weld Identification:	03-074-004, Residual Heat Removal (RHR) Heat Exchanger Shell to Flange

Applicable Code Requirements

ASME Code, Section XI, 2004 Edition, Examination Category C-A, requires 100 percent volumetric examination coverage of the pressure retaining welds as defined in Table IWB-2500-1.

ASME Code Case N-460, as approved for use by the NRC in RG 1.147, Revision 17, states that a reduction in examination coverage due to part geometry or interference for any ASME Class 1 or 2 weld is acceptable, provided that the reduction is less than 10 percent (i.e., greater than 90 percent examination coverage is obtained).

Although not discussed in the licensee's relief request, the NRC staff also finds the ASME Code, Section XI, 2004 Edition, Mandatory Appendix I, Article I-2210, applicable to the weld examination. This ASME Code requires that ultrasonic examination of vessels not greater than 2 inches in thickness shall be conducted in accordance with Appendix III, as supplemented by Table I-2000-1.

Licensee's Proposed Request for Relief

Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief on the basis that compliance with the ASME Code requirement is impractical.

The examination coverages and results, as documented in the licensee's request, are described in Table C below. Also described below are the access restrictions that prevented full coverage during the ASME Code-required examinations.

Table C: IR-3-33 Volumetric Examination Results

Weld ID	Category / Item No.	Coverage	Results
03-074-004	C-A / Item C1.10	35.5%	Eight indications were recorded, but these were evaluated as acceptable geometrical reflectors due to the inner diameter root geometry and an internal divider plate.

For the residual heat removal heat exchanger shell-to-flange weld (weld 03-074-004), the licensee stated that a limited examination was performed due to flange and nozzle reinforcing plates within close proximity to the weld.

Additionally, the licensee stated that periodic pressure tests and VT-2 visual examinations performed in accordance with Examination Category C-H for Class 2 welds will provide assurance of an acceptable level of quality and safety by providing a reasonable assurance of structural integrity.

The licensee concluded that to meet the ASME Code examination coverage requirements, it would be impractical due to cost, increased radiation exposure, and impact to plant equipment.

NRC Staff Evaluation

For the residual heat removal heat exchanger shell-to-flange weld (weld 03-074-004), the NRC staff confirmed that configuration of the flange and nozzle reinforcing plates within close proximity to the weld restricted access to volumetric examination as stated by the licensee and that it would be impractical to achieve greater than 90 percent volumetric coverage without extensive weld or component design modifications. The NRC staff also confirmed that volumetric examination in accordance with Section XI, Appendix III, as supplemented by Table I-2000-1 of the ASME Code was acceptable, since Article I-2210 of the ASME Code requires that ultrasonic examination of vessels not greater than 2 inches in thickness shall be conducted in accordance with Appendix III, as supplemented by Table I-2000-1.

In addition to the volumetric examinations required by the ASME Code for Category C-A welds, the system leakage tests required by the ASME Code for Category C-H pressure retaining components is an additional line of defense in the detection of service-induced degradation. Table IWC-2500-1 requires a system leakage test for all Category C-H pressure retaining components each inspection period. The VT-2 visual examination specified in Table IWC-2500-1 and IWA-5240 for these leakage tests requires, in part, that:

- accessible external exposed surfaces be examined for evidence of leakage
- the surrounding areas of inaccessible surfaces be examined for evidence of leakage

The acceptance criteria specified in Tables IWC-2500-1 and IWC-3516 for these leakage tests require, in part, that corrective action be taken for identified leakage unless within defined permissible limits.

Based on the examination techniques used and the surface coverage obtained, it is reasonable to conclude that, if significant service-induced degradation was present in these welds, evidence would have been detected by the examinations performed. Based on operational experience and the extent to which the examinations were performed, the staff has determined with reasonable assurance that the structural integrity of these welds will be maintained throughout the third 10-year interval ISI program.

3.4 Relief Request IR-3-34

ASME Code Components Affected

ASME Code Class:	Code Class 2
Exam Category:	C-F-1, Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping
Item Numbers:	C5.11, Circumferential Welds: Piping Welds greater than 3/8-inch nominal wall thickness for piping greater than nominal pipe size (NPS) 4 inches
Weld Identification:	QSS-3-4-SW-K, Quench Spray, 12" Pipe to Flange QSS-3-4-FW-5BR, Quench Spray, 12" Pipe to Flange RHS-6-2-SW-K, Residual Heat Removal, 14" Pipe to Flange RHS-6-FW-4, Residual Heat Removal, 14" Pipe to Pump RSS-11-2-SW-B, Recirculation Spray, 16" Elbow to Flange RSS-15-3-SW-B, Recirculation Spray, 12" Pipe to Valve SIL-9-FW-1, Safety Injection, 6" Pipe to Valve SIL-9-FW-3, Safety Injection, 6" Pipe to Valve

	SIL-40-FW-1, Safety Injection, 6" Pipe to Valve
	SIL-11-FW-3, Safety Injection, 8" Pipe to Valve
Item Numbers:	C5.21, Circumferential welds: Piping Welds greater than 1/5-inch nominal wall thickness for piping greater than NPS 2 inches and less than or equal to 4 inches
Weld Identification:	CHS-507-10-SW-11, Chemical and Volume Control, 4" Elbow to Tee
	CHS-507-FW-19, Chemical and Volume Control, 4" Pipe to Valve
	SIH-4-3-SW-B, Safety Injection, 4" Pipe to Flange

Applicable Code Requirements

The requirements applicable to the ASME Code, Section XI, Examination Category C-F-1, Item Numbers C5.11 and C5.21 pipe welds in IR-3-34 are described in Section XI, Table IWC-2500-1. The requirements are for essentially 100 percent volumetric examination for these piping welds. The required examination volume is delineated in Figure IWC-2500-7(a). Essentially 100 percent examination coverage is defined as greater than 90 percent coverage by ASME Code Case N-460. This code case has been incorporated by reference into 10 CFR 50.55a by inclusion in RG 1.147, Revision 19.

Additionally, pursuant to 10 CFR 50.55a(b)(2)(xv)(A)(1) and 10 CFR 50.55a(b)(2)(xv)(A)(2), full coverage credit from a single side of an austenitic weld may be claimed only after completing a successful single-sided ASME Code, Section XI, Appendix VIII demonstration using flaws on the opposite side of the weld. To date, no examination procedure has successfully passed ASME Code, Section XI, Appendix VIII, Supplement 2 demonstration testing from a single side of an austenitic weld, limiting single-sided examinations to 50 percent coverage.

Licensee's Proposed Request for Relief

Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief on the basis that compliance with the ASME Code requirement is impractical.

The examination coverages and results, as documented in the licensee's request, are described in Table D below. Also described below are the access restrictions that prevented full coverage during the ASME Code-required examinations.

Table D: Examination Category C-F-1 Welds with Limited Volumetric Coverage

Component Identification and System	Item No.	Limitation	Pipe Size (inch)	Materials	Coverage Obtained
CHS-507-10-SW-11 Chemical and Volume Control	C5.21	Single sided Elbow-to-Tee	4	Type 316 Stainless Steel	82%
CHS-507-FW-19 Chemical and Volume Control	C5.21	Single sided Pipe-to-Valve	4	Type 316 Stainless Steel	50%

Component Identification and System	Item No.	Limitation	Pipe Size (inch)	Materials	Coverage Obtained
QSS-3-4-SW-K Quench Spray	C5.11	Single sided Pipe-to-Flange	12	Type 304 Stainless Steel	50%
QSS-3-4-FW-5BR Quench Spray	C5.11	Single sided Pipe-to-Flange	12	Type 304 Stainless Steel	35.5%
RHS-6-2-SW-K Residual Heat Removal	C5.11	Single sided Pipe-to-Flange	14	Type 304 Stainless Steel	50%
RHS-6-FW-4 Residual Heat Removal	C5.11	Single sided Pipe-to-Pipe	14	Type 304 Stainless Steel	50%
RSS-11-2-SW-B Recirculation Spray	C5.11	Single sided Elbow-to-Flange	16	Type 304 Stainless Steel	50%
RSS-15-3-SW-B Recirculation Spray	C5.11	Single sided Pipe-to-Valve	12	Type 304 Stainless Steel	50%
SIH-4-3-SW-B Safety Injection	C5.21	Single sided Pipe-to-Flange	4	Type 316 Stainless Steel	50%
SIL-9-FW-1 Safety Injection	C5.11	Single sided Pipe-to-Valve	6	Type 316 Stainless Steel	50%
SIL-9-FW-3 Safety Injection	C5.11	Single sided Pipe-to-Valve	6	Type 316 Stainless Steel	50%
SIL-40-FW-1 Safety Injection	C5.11	Single sided Pipe-to-Valve	6	Type 316 Stainless Steel	50%
SIL-11-FW-3 Safety Injection	C5.11	Single sided Pipe-to-Valve	8	Type 316 Stainless Steel	50%

Specifically, conformance to the requirement would require extensive modifications to, or replacement of, the subject components with a design that would allow full examination from both sides of the weld. Implementing these adjustments would be impractical based on cost, increased radiation exposure, and impact to plant equipment.

The licensee determined that the ASME Code-required volumes of the subject welds were examined to the maximum extent possible using Performance Demonstration Initiative (PDI)-qualified ultrasonic testing (UT) techniques. Additionally, the licensee stated that no alternative methods or advanced technologies, including the use of phased array, were considered capable of obtaining complete coverage of the examination volume.

The subject welds consist of configurations in which one side of the weld has a tapered surface within close proximity of the weld, which limits the ability to scan from that side of the weld. Based on the weld configurations, the examinations were limited to single-sided access, and relief was requested from complying with the essentially 100 percent required examination coverage.

There are currently no PDI-qualified single-sided examination procedures that demonstrate equivalency to two-sided examination procedures on austenitic piping welds. None of the current technology is capable of reliably detecting or sizing flaws on the opposite side of an austenitic weld. Therefore, the licensee requested relief from complying with the ASME Code-required volumetric examinations of the subject components.

In lieu of satisfying the examination coverage in accordance with the ASME Code, Section XI requirement, the licensee proposed the alternate examination coverage for the subject welds shown in Table 1 of the relief request for IR-3-34, "Examination Category C-F-1 Welds with Limited Volumetric Coverage." The basis of the proposed alternative is that the licensee has performed the ASME Code, Section XI-required examinations to the maximum extent practical utilizing PDI-qualified personnel, techniques, and equipment. Additionally, the licensee stated that a surface examination was performed with 100 percent coverage obtained, and a visual (VT-2) examination was performed each inspection period. In combination with additional monitoring methods that the welds are subject to, the examinations performed provide reasonable assurance that service-induced degradation or leakage will be detected.

NRC Staff Evaluation

The NRC staff has evaluated Relief Request IR-3-34 pursuant to 10 CFR 50.55a(g)(6)(i). The NRC staff's evaluation focused on: (1) whether a technical justification exists to support the determination that the ASME Code requirement is impractical, (2) that imposition of the ASME Code-required examinations would result in a burden to the licensee, and (3) that the licensee's proposed alternative (accepting the reduced inspection coverage in this case) provides reasonable assurance of structural integrity and leaktightness of the subject welds. The NRC staff finds that if these three criteria are met, the requirements of 10 CFR 50.55a(g)(6)(i) (i.e., granting the requested relief 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") will also be met.

As described in the submittal, the predominant limitations that prevented the licensee's UT to achieve essentially 100 percent coverage of the ASME Code-required volume were the configurations that limited the examinations to one side of the weld. The licensee performed the UT from one side of the welds because scanning from the other side of the welds was not possible (single-sided scan). The NRC staff confirms that each weld's particular design configuration prevented the licensee from scanning the welds from both sides. Therefore, the NRC staff finds that a technical justification exists to support the determination that achieving essentially 100 percent coverage is impractical.

The licensee proposed that obtaining essentially 100 percent coverage would require extensive modification or replacement of components with a design that would allow full examination from both sides of the weld. The NRC staff finds that replacing or reconfiguring the components of the subject welds is the only reasonable means to achieve dual-sided coverage of these welds and that replacement or reconfiguration of the pipe, valve, elbow, tee, and flange constitutes a burden on the licensee.

The NRC staff also verified that: (1) the pipe welds were examined using the appropriate equipment, ultrasonic modes of propagation, probe angles, frequencies, and scanning directions to obtain maximum coverage; (2) the coverage was calculated in a reasonable manner; (3) the personnel and UT procedures utilized for the volumetric examination were qualified as required by the regulation; (4) the coverage was limited by physical limitations or access (i.e., the configuration of one side of the weld did not permit access for scanning); and (5) no unacceptable indications were identified.

As shown in the sketches and technical descriptions included in the licensee's submittal, the subject welds for IR-3-34 are all austenitic stainless steel piping welds with geometric limitations that restricted performing ultrasonic scanning from both sides of the welds. However, volumetric examinations on the subject welds were conducted with equipment, procedures, and personnel that were qualified to a performance demonstration process outlined in the ASME Code, Section XI, Appendix VIII. These techniques have been qualified through the PDI, which meets the intent of the ASME Code, Section XI, Appendix VIII requirements for flaws located on the near side of the welds. Far-side detection of flaws is considered to be a "best effort." The NRC staff finds that the licensee's achieved examination coverage constitutes a "best effort" and is considered justified.

The subject welds for IR-3-34 are all austenitic stainless steel with access limitations, which resulted in reduced examination coverage. For these welds, the licensee was able to achieve examination coverage, which ranged from 35.5 to 82 percent of the ASME Code-required examination volume. Service-induced flaws or fabrication defects were not detected for these welds.

Although the ASME Code-required coverage could not be obtained, the ultrasonic techniques employed by the licensee provided nearly full volumetric coverage for the near side of the welds. Based on the volumetric coverage achieved for the subject welds on the near side of the weld and the best efforts done for the far side of these welds, had significant flaws been present on the far side, the licensee would have been able to detect them. Additionally, considering the aggregate coverage obtained for the subject austenitic stainless steel welds, the extent of the examinations, and considering the licensee's performance of essentially 100 percent examination coverage for the accessible portions of these welds, it is reasonable to conclude that had significant flaws been present in these welds, they would have been detected by the licensee. Furthermore, all the subject welds were examined by liquid penetrant examinations with no recordable indications, and these welds are subjected to periodic system leakage test, which provides additional confidence on the structural integrity of these welds. Therefore, the staff determined that the examinations performed provide reasonable assurance of structural integrity of the subject welds.

3.5 Relief Request IR-3-35

ASME Code Components Affected

ASME Code Class:	Code Class 2
Exam Category:	C-F-2, Pressure Retaining Welds in Carbon or Low Alloy Steel Piping
Item Numbers:	C5.51, Circumferential Welds: Piping Welds greater than or equal to 3/8-inch nominal wall thickness for piping greater than NPS 4 inches
Weld Identification:	DTM-28-FW-1, Main Steam, 6" Weldolet-To-Pipe FWS-15-FW-74, Feedwater, 18" Pipe-To-Valve FWS-16-FW-30, Feedwater, 6" Valve-To-Pipe

	MSS-31-FW-2, Main Steam, 8" Pipe-to-Valve
	MSS-31-FW-3, Main Steam, 8" Valve-to-Pipe
Item Numbers:	C5.61, Circumferential Welds: Piping Welds greater than 1/5-inch nominal wall thickness for piping greater than or equal to NPS 2 inches
Weld Identification:	FWA-511-FW-6, Auxiliary Feedwater, 4" Pipe-To-Valve
	FWA-511-FW-8, Auxiliary Feedwater, 4" Pipe-To-Valve

Applicable Code Requirements

The requirements applicable to the ASME Code, Section XI, Class 2 pipe welds in IR-3-35 are described in Section XI, Table IWC-2500-1. In accordance with Examination Category C-F-2, Item Nos. C5.51 and C5.61, the welds in IR-3-35 shall be subjected to the volumetric and surface examinations. The extent of required examination coverage is defined to be essentially 100 percent.

Licensee's Proposed Request for Relief

Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief on the basis that meeting the essentially 100 percent volumetric examination requirement is impractical.

The examination coverages and results for IR-3-35, as documented in the licensee's request, are summarized in Table E below. The licensee classified the piping welds in IR-3-35 as Examination Category C-F-2, Item Nos. C5.51 and C5.61 in accordance with the ASME Code, Section XI, Table IWC-2500-1. In Table 1 of the licensee's submittal for IR-3-35, the licensee identified the pipe welds and provided additional details including the NPS and materials of construction. The welds are detailed in Table 2.

Table E: Examination Category C-F-2 Welds with Limited Volumetric Coverage

Component Identification and System	Item No.	Limitation	Pipe Size (inch)	Materials	Coverage Obtained
DTM-28-FW-1 Main Steam	C5.51	Weldolet-To-Pipe	6	SA106 GR B, Schedule 80	75%
FWA-511-FW-6 Auxiliary Feedwater	C5.61	Pipe-To-Valve	4	SA106GR B, Schedule 80	63.5%
FWA-511-FW-8 Auxiliary Feedwater	C5.61	Pipe-To-Valve	4	SA106 GR B, Schedule 80	69%
FWS-15-FW-74 Feedwater	C5.51	Pipe-To-Valve	18	SA106 GR B, Schedule 100	75%
FWS-16-FW-30 Feedwater	C5.51	Valve-To-Pipe	6	SA106 GR B, Schedule 80	68.25%
MSS-31-FW-2 Main Steam	C5.51	Pipe-To-Valve	8	SA106 GR B, Schedule 100	75%
MSS-31-FW-3 Main Steam	C5.51	Valve-To-Pipe	8	SA106 GR B, Schedule 100	75%

Specifically, conformance to the requirement would require extensive modifications to, or replacement of, the subject components with a design that would allow full examination from both sides of the weld. Implementing these adjustments would be impractical based on cost, increased radiation exposure, and impact to plant equipment.

The licensee determined that the ASME Code-required volumes of the subject welds were examined to the maximum extent possible using PDI-qualified UT techniques. Additionally, the licensee stated that no alternative methods or advanced technologies, including the use of phased array, were considered capable of obtaining complete coverage of the examination volume.

The subject welds consist of either pipe-to-valve or pipe-to-weldolet configuration in which the tapered surface of the valve or weldolet, within close proximity of the weld, limit the ability to scan from that side of the weld. Based on the weld configurations, the examinations were limited to single-sided access. Relief is requested from complying with the essentially 100 percent required examination coverage.

There are currently no PDI-qualified single-sided examination procedures that demonstrate equivalency to two-sided examination procedures on austenitic piping welds. None of the current technology is capable of reliably detecting or sizing flaws on the opposite side of an austenitic weld. Therefore, the licensee requested relief from complying with the ASME Code-required volumetric examinations of the subject components.

In lieu of satisfying the examination coverage in accordance with the ASME Code, Section XI requirement, the licensee proposed the alternate examination coverage for the subject welds shown in Table 1 of the relief request for IR-3-35, “Examination Category C-F-2 Weld with Limited Volumetric Coverage.” The basis of the proposed alternative is that the licensee has performed the ASME Code, Section XI-required examinations to the maximum extent practical utilizing PDI-qualified personnel, techniques, and equipment. Additionally, the licensee stated that a surface examination was performed with 100 percent coverage obtained and a visual (VT-2) examination was performed each inspection period. In combination with additional monitoring methods that the welds are subject to, the examinations performed provide reasonable assurance that service-induced degradation or leakage will be detected.

NRC Staff Evaluation

The NRC staff has evaluated Relief Request IR-3-35 pursuant to 10 CFR 50.55a(g)(6)(i). The NRC staff’s evaluation focused on: (1) whether a technical justification exists to support the determination that the ASME Code requirement is impractical, (2) that imposition of the ASME Code-required examinations would result in a burden to the licensee, and (3) that the licensee’s proposed alternative (accepting the reduced inspection coverage in this case) provides reasonable assurance of structural integrity and leaktightness of the subject welds. The NRC staff finds that if these three criteria are met, the requirements of 10 CFR 50.55a(g)(6)(i) (i.e., granting the requested relief 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”) will also be met.

As described in the submittal, the predominant limitations that prevented the licensee’s UT to achieve essentially 100 percent coverage of the ASME Code-required volume were the configurations that limited the examinations to one side of the weld. The licensee performed the UT from one side of the welds because scanning from the other side of the welds was not

possible (single-sided scan). The NRC staff confirms that each weld's particular design configuration prevented the licensee from scanning the welds from both sides. Therefore, the NRC staff finds that a technical justification exists to support the determination that achieving essentially 100 percent coverage is impractical.

The licensee proposed that obtaining essentially 100 percent coverage would require extensive modification or replacement of components with a design that would allow full examination from both sides of the weld. The NRC staff finds that replacing or reconfiguring the components of the subject welds is the only reasonable means to achieve dual-sided coverage of these welds and that replacement or reconfiguration of the pipe, valve, reducer, and flange constitutes a burden on the licensee.

The NRC staff verified that: (1) the pipe welds were examined using the appropriate equipment, ultrasonic modes of propagation, probe angles, frequencies, and scanning directions to obtain maximum coverage; (2) the coverage was calculated in a reasonable manner; (3) the personnel and UT procedures utilized for the volumetric examination were qualified as required by the regulation; (4) the coverage was limited by physical limitations or access (i.e., the configuration of one side of the weld did not permit access for scanning); and (5) no unacceptable indications were identified.

The NRC staff also verified that the licensee's UT has covered, to the extent possible, the regions (i.e., the weld root and the heat-affected zone of the base material near the inner diameter surface of the joint), which are typically susceptible to higher stresses and, therefore, potential degradation. Therefore, the NRC staff determined that based on the coverage achieved by the qualified UT and the examination of the weld root and its heat-affected zone to the extent possible, it is reasonable to conclude that if significant service-induced degradation had occurred, evidence of it would have been detected by the examinations that the licensee performed.

The NRC staff found that, in addition to the UT, these piping welds received the surface examination with essentially 100 percent coverage of the ASME Code-required examination area and have subjected to the system leakage test and VT-2 each inspection period according to the ASME Code, Section XI, Table IWC-2500-1, Examination Category C-H. Despite reduced coverage of the required examination volume, the NRC staff finds that this inspection will provide additional assurance that any pattern of degradation, if it were to occur, would be detected, and the licensee will take appropriate correction actions.

Therefore, the NRC staff finds that the volumetric examinations performed to the extent possible provide a reasonable assurance of structural integrity and leaktightness of the subject welds. Compliance with the ASME Code requirements for these pipe welds would be a burden on the licensee without a commensurate increase in safety.

3.6 Relief Request IR-3-36

ASME Code Components Affected

ASME Code Class:	Code Class 1
Exam Category:	R-A, Risk-Informed Piping Examinations
Item Numbers:	R 1.11, Elements Subject to Thermal Fatigue
Weld Identification:	RCS-150-FW-2, Reactor Coolant, 2" Pipe-to-Valve
	RCS-504-FW-4, Reactor Coolant, 8" Pipe-to-Valve

	RCS-513-FW-25, Reactor Coolant, 3" Pipe-to-Valve
	RCS-513-FW-29, Reactor Coolant, 3" Pipe-to-Valve
	RCS-LP3-FW-27, Reactor Coolant, 6" Pipe-to-Valve
Item Numbers:	R 1.20, Elements not Subject to a Degradation Mechanism
Weld Identification:	3-CHS-150-P1B-2, Chemical and Volume Control, 1.5" Pipe-to-Flange
	407022-FW-5, Safety Injection, 1.5" Pipe-to-Valve
	408043-FW-6-1, Safety Injection, 1.5" Pipe-to-Valve
	408044-FW-5, Safety Injection, 1.5" Pipe-to-Valve
	408045-FW-5, Safety Injection, 1.5" Pipe-to-Valve
	408046-FW-4, Safety Injection, 1.5" Pipe-to-Valve
	RCS-10-FW-23, Reactor Coolant, 1.5" Pipe-to-Reducer
	RCS-15-FW-33, Reactor Coolant, 1.5" Pipe-to-Reducer

Applicable Code Requirements

The examination requirements for the ASME Code, Section XI, Class 1 piping welds covered in IR-3-36 are governed by the risk-informed ISI program that was approved by the NRC in a letter dated March 24, 2011 (ADAMS Accession No. ML110680080). Examination Category R-A requires that essentially 100 percent of the weld volume be examined.

Additionally, pursuant to 10 CFR 50.55a(b)(2)(xv)(A)(1) and 10 CFR 50.55a(b)(2)(xv)(A)(2), full coverage credit from a single side of an austenitic weld may be claimed only after completing a successful single-sided ASME Code, Section XI, Appendix VIII demonstration using flaws on the opposite side of the weld. To date, no examination procedure has successfully passed ASME Code, Section XI, Appendix VIII, Supplement 2 demonstration testing from a single side of an austenitic weld, limiting single-sided examinations to 50 percent coverage.

Licensee's Proposed Request for Relief

Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief on the basis that meeting the essentially 100 percent volumetric examination requirement is impractical.

The examination coverages and results for IR-3-36, as documented in the licensee's request, are summarized in Table F below. Each weld was only accessible from one side due to geometry of the welds and components, and the licensee was only able to achieve 50 percent coverage from the pipe side for each of the welds.

Table F: Examination Category R-A Welds with Limited Volumetric Coverage

Component Identification and System	Item No.	Limitation	Pipe Size (inch)	Materials	Coverage Obtained
3-CHS-150-P1B-2 Chemical and Volume Control	R1.20	Pipe-to-Flange	1.5	316 Stainless Steel	50%
407022-FW-5 Safety Injection	R1.20	Pipe-to-Valve	1.5	316 Stainless Steel	50%
408043-FW-6-1 Safety Injection	R1.20	Pipe-to-Valve	1.5	316 Stainless Steel	50%

Component Identification and System	Item No.	Limitation	Pipe Size (inch)	Materials	Coverage Obtained
408044-FW-5 Safety Injection	R1.20	Pipe-to-Valve	1.5	316 Stainless Steel	50%
408045-FW-5 Safety Injection	R1.20	Pipe-to-Valve	1.5	316 Stainless Steel	50%
408046-FW-4 Safety Injection	R1.20	Pipe-to-Valve	1.5	316 Stainless Steel	50%
RCS-10-FW-23 Reactor Coolant	R1.20	Pipe-To-Reducer	1.5	316 Stainless Steel	50%
RCS-15-FW-33 Reactor Coolant	R1.20	Pipe-To-Reducer	1.5	316 Stainless Steel	50%
RCS-150-FW-2 Reactor Coolant	R1.11	Pipe-To-Valve	2	316 Stainless Steel	50%
RCS-504C-FW-4 Reactor Coolant	R1.11	Pipe-To-Valve	8	304 Stainless Steel	50%
RCS-513-FW-25 Reactor Coolant	R1.11	Pipe-To-Valve	3	316 Stainless Steel	50%
RCS-513-FW-29 Reactor Coolant	R1.11	Pipe-To-Valve	3	316 Stainless Steel	50%
RCS-LP3-FW-27 Reactor Coolant	R1.11	Pipe-To-Valve	6	316 Stainless Steel	50%

Specifically, conformance to the requirement would require extensive modifications to, or replacement of, the subject components with a design that would allow full examination from both sides of the weld. Implementing these adjustments would be impractical based on cost, increased radiation exposure, and impact to plant equipment.

The licensee determined that the ASME Code-required volumes of the subject welds were examined to the maximum extent possible using PDI-qualified UT techniques. Additionally, the licensee stated that no alternative methods or advanced technologies, including the use of phased array, were considered capable of obtaining complete coverage of the examination volume.

The subject welds consist of a pipe-to-valve, pipe-to-reducer, or pipe-to-flange configuration in which the tapered surface of the valve, reducer, or flange within close proximity of the weld limits the ability to scan from that side of the weld. Based on the weld configurations, the examinations were limited to single-sided access. Relief is requested from complying with the essentially 100 percent required examination coverage.

There are currently no PDI-qualified single-sided examination procedures that demonstrate equivalency to two-sided examination procedures on austenitic piping welds. None of the current technology is capable of reliably detecting or sizing flaws on the opposite side of an austenitic weld. Therefore, the licensee requested relief from complying with the ASME Code-required volumetric examinations of the subject components.

In lieu of satisfying the examination coverage in accordance with the ASME Code, Section XI requirement, the licensee proposed the alternate examination coverage for the subject welds shown in Table 1 of the relief request for IR-3-36, "Examination Category R-A Welds with Limited Volumetric Coverage." The basis of the proposed alternative is that the licensee has performed the ASME Code, Section XI-required examinations to the maximum extent practical utilizing PDI-qualified personnel, techniques, and equipment.

Additionally, the licensee stated the subject components are monitored for through-wall leakage as part of the ASME Section XI, System Pressure Test Program, and receive a visual (VT-2) examination at the end of each refueling outage during system leakage tests. In combination with additional monitoring methods that the welds are subject to, the examinations performed provide reasonable assurance that service-induced degradation or leakage will be detected.

NRC Staff Evaluation

The NRC staff has evaluated Relief Request IR-3-36 pursuant to 10 CFR 50.55a(g)(6)(i). The NRC staff's evaluation focused on: (1) whether a technical justification exists to support the determination that the ASME Code requirement is impractical, (2) that imposition of the ASME Code-required examinations would result in a burden to the licensee, and (3) that the licensee's proposed alternative (accepting the reduced inspection coverage in this case) provides reasonable assurance of structural integrity and leaktightness of the subject welds. The NRC staff finds that if these three criteria are met, the requirements of 10 CFR 50.55a(g)(6)(i) (i.e., granting the requested relief 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") will also be met.

As described in the submittal, the predominant limitations that prevented the licensee's UT from achieving essentially 100 percent coverage of the ASME Code-required volume were the configurations that limited the examinations to one side of the weld. The licensee performed the UT from one side of the welds because scanning from the other side of the welds was not possible (single-sided scan). The NRC staff confirms that each weld's particular design configuration prevented the licensee from scanning the welds from both sides. Therefore, the NRC staff finds that a technical justification exists to support the determination that achieving essentially 100 percent coverage is impractical.

The licensee proposed that obtaining essentially 100 percent coverage would require extensive modification or replacement of components with a design that would allow full examination from both sides of the weld. The NRC staff finds that replacing or reconfiguring the components of the subject welds is the only reasonable means to achieve dual-sided coverage of these welds and that replacement or reconfiguration of the pipe, valve, reducer, and flange constitutes a burden on the licensee.

The NRC staff also verified that: (1) the pipe welds were examined using the appropriate equipment, ultrasonic modes of propagation, probe angles, frequencies, and scanning directions to obtain maximum coverage; (2) the coverage was calculated in a reasonable manner; (3) the personnel and UT procedures utilized for the volumetric examination were qualified as required by the regulation; (4) the coverage was limited by physical limitations or access (i.e., the configuration of one side of the weld did not permit access for scanning); and (5) no unacceptable indications were identified.

The NRC staff notes that the licensee was able to obtain 50 percent coverage meeting the ASME Code, Section XI, Appendix VIII requirements for each of the subject welds. For each weld, the wetted surface of the weld and heat-affected zone volume of the far side of the welds received best effort examinations. While the best effort examination coverage does not meet the ASME Code, Section XI requirements to be able to detect small cracks, the examinations would have been able to detect significant cracking if such cracking had been present.

The NRC staff determined that based on the coverage achieved by the qualified UT, the supplemental best effort examinations, and the examination of the weld root and its heat-affected zone to the extent possible, it is reasonable to conclude that if significant service-induced degradation had occurred, evidence of it would have been detected by the examinations that the licensee performed.

The NRC staff also determined that, in addition to the required volumetric examinations, these welds have received the required system leakage test according to the ASME Code, Section XI, IWB-2500 (Table IWB-2500-1, Examination Category B-P), during each refueling outage. Despite reduced coverage of the required examination volume, the NRC staff finds that these examinations will provide additional assurance that any pattern of degradation, if it were to occur, would be detected, and the licensee will take appropriate correction actions.

Therefore, the NRC staff finds that the volumetric examinations performed to the extent possible provide a reasonable assurance of structural integrity and leaktightness of the subject welds. Compliance with the ASME Code requirements for these welds would be a burden on the licensee.

4.0 CONCLUSION

Pursuant to 50.55a(g)(6)(i), the NRC staff has determined that it is impractical for the licensee to comply with the ASME Code, Section XI requirement; that the proposed examinations performed to the extent practical provide reasonable assurance of structural integrity and leaktightness of the subject welds; and that granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and 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. Furthermore, based on the examination techniques used, the volumetric coverage obtained, and the system leakage tests performed, it is reasonable to conclude that, if significant service-induced degradation was present, evidence of it would have been detected by the examinations that were performed.

Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(g)(6)(i). Therefore, the NRC grants relief for the subject examinations of the components contained in Relief Requests IR-3-31, IR-3-32, IR-3-33, IR-3-34, IR-3-35, and IR-3-36 at Millstone 3 for the third 10-year ISI interval, which began on April 23, 2009, and ended on June 22, 2019.

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

Principal Contributors: J. Jenkins
A. Rezai
S. Cumblidge
R. Kalikian

Date: December 10, 2020

SUBJECT: MILLSTONE POWER STATION, UNIT NO. 3 - RELIEF REQUEST FOR LIMITED COVERAGE EXAMINATIONS PERFORMED IN THE THIRD 10-YEAR INSERVICE INSPECTION INTERVAL (EPID L-2020-LLR-0027 THROUGH EPID L-2020-LLR-0032) DATED DECEMBER 10, 2020

DISTRIBUTION:
PUBLIC
PM File Copy
RidsNrrDorlLpl1 Resource
RidsNrrPMMillstone Resource
RidsNrrLALRonewicz Resource
RidsNrrDnrlNvib Resource
RidsNrrDnrlNphp Resource
RidsACRS_MailCTR Resource
RidsRgn1MailCenter Resource
JJenkins, NRR
RKalikian, NRR
ARezai, NRR
SCumblidge, NRR
MMcCoppin, OEDO
RSkokowski, OEDO

ADAMS Accession No.: ML20312A002

OFFICE	DORL/LPL1/PM	DORL/LPL1/LA	DNRL/NPHP/BC	DNRL/NVIB/BC
NAME	RGuzman	LRonewicz	MMitchell	HGonzalez
DATE	11/30/2020	11/30/2020	08/18/2020	09/18/2020
OFFICE	DORL/LPL1/BC	DORL/LPL1/LA		
NAME	JDanna	RGuzman		
DATE	12/10/2020	12/10/2020		

OFFICIAL RECORD COPY