



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

April 22, 2021

Mr. David P. Rhoades
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Rd
Warrenville, IL 60555

SUBJECT: NINE MILE POINT NUCLEAR STATION, UNIT 1 - RELIEF FROM THE REQUIREMENTS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS BOILER AND PRESSURE VESSEL CODE CONCERNING EXAMINATION COVERAGE OF CERTAIN CLASS 1 AND 2 COMPONENT WELDS (EPID L-2020-LLR-0112)

Dear Mr. Rhoades:

By letter dated August 17, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20231A555), Exelon Generation Company, LLC (the licensee) submitted Relief Request 1ISI-006 to the Nuclear Regulatory Commission (NRC) requesting relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), Section XI, for the fourth 10-year inservice inspection interval at Nine Mile Point Nuclear Station, Unit 1 (Nine Mile Point, Unit 1).

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

The NRC staff has reviewed the subject request and concludes, as set forth in the enclosed safety evaluation, that it has the regulatory authority to grant the requested relief and that complying with the specified ASME Code requirements would be impractical. The NRC staff concludes that the licensee has adequately addressed all the regulatory requirements set forth in 10 CFR 50.55a(g)(5)(iii). Therefore, the NRC staff grants Relief Request 1ISI-006 for Nine Mile Point, Unit 1, for the fourth 10-year inservice inspection interval, which concluded on August 22, 2019.

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

If you have any questions, please contact the Nine Mile Point Project Manager, Michael Marshall Jr., at (301) 415-2871 or michael.marshall@nrc.gov.

Sincerely,

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

Docket No. 50-220

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 1ISI-006

FOURTH 10-YEAR INSERVICE INSPECTION INTERVAL

EXELON GENERATION COMPANY, LLC

NINE MILE POINT NUCLEAR STATION, UNIT 1

DOCKET NO. 50-220

1.0 INTRODUCTION

By letter dated August 17, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20231A555), Exelon Generation Company, LLC (the licensee), submitted Relief Request (RR) 1ISI-006 to the U.S. Nuclear Regulatory Commission (NRC) for the fourth 10-year inservice inspection (ISI) interval at Nine Mile Point Nuclear Station, Unit 1 (Nine Mile Point, Unit 1). In RR 1ISI-006, the licensee requested relief from the examination coverage requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code or the Code), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," applicable to certain ASME Code Class 1 and 2 component welds.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) paragraph 50.55a(g)(5)(iii), the licensee requested relief on the basis that achieving the ASME Code-required examination coverage for the subject welds in RR 1ISI-006 is impractical. The inspections conducted during the fourth 10-year ISI interval at Nine Mile Point complied with the ASME Code, Section XI, 2004 Edition with no Addenda.

2.0 REGULATORY EVALUATION

Pursuant to 10 CFR 50.55a(g)(4), *ISI Standards Requirement for Operating Plants*, Components (including supports) that are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements in 10 CFR 50.55a throughout the service life of a boiling water reactor (BWR) or pressurized water reactor. The exception is the design and access provisions and preservice examination requirements set forth in Section XI of editions and addenda of the ASME Code that become effective subsequent to editions specified in paragraphs (g)(2) and (3) of 10 CFR 50.55a, which are incorporated by reference in paragraph (a)(1)(ii) of 10 CFR 50.55a to the extent practical within the limitations of design, geometry, and materials of construction of the components.

Pursuant to 10 CFR 50.55a(g)(4)(ii), *Applicable ISI Code: Successive 120-month Intervals*, inservice examination of components and system pressure tests conducted during successive 120-month inspection intervals must comply with the requirements of the latest edition and addenda of the ASME Code incorporated by reference in paragraph (a) of

10 CFR 50.55a, 12 months before the start of the 120-month inspection interval or the optional ASME Code Cases listed in NRC Regulatory Guide (RG) 1.147, when using ASME Code, Section XI, as incorporated by reference in paragraph (a)(3)(ii) of 10 CFR 50.55a, subject to the conditions listed in paragraph (b) of 10 CFR 50.55a. The ASME Code of record at Nine Mile Point for the fourth 10-year ISI interval is the 2004 Edition and no Addenda.

Pursuant to 10 CFR 50.55a(g)(5)(iii), *ISI Program Update: Notification of Impractical ISI Code Requirements*, if the licensee has determined that conformance with a 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 10 CFR 50.55a(g)(5)(iii) 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 10 CFR 50.55a(g)(5)(iii) 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.

Pursuant to 10 CFR 50.55a(g)(6)(i), *Impractical ISI Requirements: Granting of Relief*, the Commission will evaluate determinations under paragraph (g)(5) of 10 CFR 50.55a that Code requirements are impractical. The Commission may grant such relief and may impose such alternative requirements as it determines are authorized by law, 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 Summary of Request

The licensee's RR 1ISI-006 is for multiple ASME Code, Class 1 and Class 2 component welds, associated with multiple ASME Code, Examination Categories, for the Nine Mile Point, Unit 1, fourth 10-year ISI interval. The licensee indicated that for the welds that are the subject of RR 1ISI-006, it was impractical to meet the ASME Code-required examination volumes. Specifically, due to original design of these components, it was not possible to effectively perform the examination to the extent required by the Code. Conformance with the Code would require extensive structural modifications to the components or surrounding structures. The licensee further stated that a significant effort would be needed to these modifications without a compensating increase in the level of quality and safety.

The licensee indicated that it performed the ASME Code-required examinations to the maximum extent possible or best effort. Due to physical limitations, there are no viable alternative examination techniques currently available to increase the coverage. Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief on the basis that achieving the ASME Code-required volumetric examination coverage for the subject components in RR 1ISI-006 is impractical.

In addition, the licensee stated that Nine Mile Point, Unit 1, adopted ASME Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1,"

which defines “essentially 100 percent,” as greater than 90 percent coverage of the examination volume or surface area, as applicable. ASME Code Case N-460 is an NRC-approved alternative that can be used by licensees, as referenced in RG 1.147, Revision 18, “Inservice Inspection Code Case Acceptability,” March 2017 (ADAMS Accession No. ML16321A336). In this submittal, the licensee had invoked ASME Code Case N-702, “Alternative Requirements for Boiling Water Reactor (BWR) Nozzle Inner Radius and Nozzle-to-Shell Welds, Section XI, Division 1.” This Code Case was approved by the NRC staff, and the safety evaluation (SE) for Nine Mile Point can be found in (ADAMS Accession No. ML17331A181). ASME Code Case N-613-1, “Ultrasonic Examination of Penetration Nozzles in Vessels, Examination Category B-D, Item Nos. B3.10 and B3.90, Reactor Nozzle-to-Vessel Welds, Figs. IWB-2500-7(a), (b), and (c), Section XI, Division 1,” was adopted by Nine Mile Point, Unit 1, in which a reduced examination volume (A-B-C-D-E-F-G-H) of Figures 1, 2, and 3 of the Code Case was inspected in lieu of the previous examination volumes addressed in Figures IWB-2500-7 (a), (b), and (c) of ASME Code, Section XI.

Applicable Code Requirements

Table 1 describes the welds covered in RR 1ISI-006. The Class 1, Examination Category R-A, Item Numbers R1.11, “Elements Subject to Thermal Fatigue,” R1.16, “Welds Subject to Intergranular or Transgranular Stress Corrosion Cracking (IGSCC or TGSCC),” and R1.20, “Elements Not Subject to a Damage Mechanism” require “essentially 100 percent” coverage. Each weld was only accessible from one side due to geometry of the welds and components. The examination requirements for Examination Category B-A, Item Numbers B1.12, B1.40, B-D, Item Number B3.90, and B-O, Item Number B14.10 are provided in Table IWB-2500-1. For Items Numbers B1.12, B1.40, B3.90, and B14.10 the required examination consists of essentially 100 percent volumetric examination. The required examination volumes for B3.90, B3.110, and B3.130 are delineated in ASME Code, Section XI, Figure IWB-2500-7. The required examination requirements for Category C-B, Item Number C2.21, are delineated in ASME Code, Section XI, Table IWC-2500-1. The tables below provide a summary of the examination results for reactor pressure vessel and heat exchangers in ASME Code, Class 1 and 2 systems binned under examination categories R-A, B-A, B-D, B-O, and C-B for which the licensee is seeking relief.

Table 1 – Examination Category R-A B-A, B-D, B-O, and C-B Welds with Limited Volumetric Nine Mile Point Nuclear Station Unit 1					
Item No.	Component Identification and System	Limitation/ Coverage	Diameter/ Thickness (inch)	Materials	Examination Results
B-A B1.40	RV-WD-001A Closure Head to Flange Weld	Examination limited due to vessel radius 29% coverage	360/ 5.3	Ferritic Low Alloy Steel	Recordable Indications and they were acceptable.
B-D B3.90	36-WD-012, N7A nozzle to closure head Nozzle	Examination limited due to vessel radius single sided 50.5% coverage	12.6/4.6	Ferritic Low Alloy Steel	No Recordable Indications

Table 1 – Examination Category R-A B-A, B-D, B-O, and C-B Welds with Limited Volumetric Nine Mile Point Nuclear Station Unit 1					
Item No.	Component Identification and System	Limitation/ Coverage	Diameter/ Thickness (inch)	Materials	Examination Results
B-D B3.90	36-WD-014, N7B nozzle to closure head	Single sided examination limited due to vessel radius 50.5% coverage	12.6/4.6	Ferritic Low Alloy Steel	No Recordable Indications
B-D B3.90	36-WD-016, N7C nozzle to closure head Nozzle	Single sided examination limited due to vessel radius 48% coverage	12.6/4.6	Ferritic Low Alloy Steel	No Recordable Indications
B-D B3.90	36-WD-018, N7D nozzle to closure head	Single sided examination limited due to vessel radius 48% coverage	12.6/4.6	Ferritic Low Alloy Steel	No Recordable Indications
B-D B3.90	36-WD-020, N7E nozzle to closure head Nozzle	Single sided examination limited due to vessel radius 50.5% coverage	12.6/4.6	Ferritic Low Alloy Steel	No Recordable Indications
B-D B3.90	36-WD-022, N7F nozzle to closure head Nozzle	Single sided examination limited due to vessel radius 50.5% coverage	12.6/4.6	Ferritic Low Alloy Steel	No Recordable Indications
B-D B3.90	36-WD-024, N7G nozzle to closure head Nozzle	Single sided examination limited due to vessel radius 48% coverage	12.6/4.6	Ferritic Low Alloy Steel	No Recordable Indications
B-D B3.90	36-WD-026, N7H nozzle to closure head Nozzle	Single sided examination limited due to vessel radius 48% coverage	12.6/4.6	Ferritic Low Alloy Steel	No Recordable Indications
B-D B3.90	36-WD-028, N7J nozzle to closure head Nozzle	Single sided examination limited due to vessel radius 50.5% coverage	12.6/4.6	Ferritic Low Alloy Steel	No Recordable Indications
B-D B3.90	36-WD-1073, N7L nozzle to closure head Nozzle	Single sided examination limited due to nozzle-vessel configuration. 48% coverage single sided coverage	12.6/4.6	Ferritic Low Alloy Steel	No Recordable Indications

Table 1 – Examination Category R-A B-A, B-D, B-O, and C-B Welds with Limited Volumetric Nine Mile Point Nuclear Station Unit 1					
Item No.	Component Identification and System	Limitation/ Coverage	Diameter/ Thickness (inch)	Materials	Examination Results
B-D B3.90	39-WD-089, N5B nozzle to closure head Emergency Condenser	Examination limited due to nozzle-vessel configuration. Examination limited due to vessel radius 29.6% coverage	18/7.13	Ferritic Low Alloy Steel	No Recordable Indications
B-D B3.90	40-WD-081, N6B nozzle to closure head Nozzle	Examination limited due to nozzle-vessel configuration. Examination limited due to vessel radius 12% coverage Inner radius.	6.0/7.7	Ferritic Low Alloy Steel	No Recordable Indications
C-B C2.21	60-46-WD-006 C1, head outlet-to-nozzle	Examination limited due to head outlet nozzle- single cover sided 50.0% coverage, 100% coverage penetrant test (PT)	21.0/1.3"	SS	No Recordable Indications
B-A B1.40	RV-WD-001B, closure head to Flange Weld	Examination limited due to closure head flange weld; 83.7%, Coverage single sided coverage	360° Closure head 4.52".	Ferritic Low Alloy Steel	No Recordable Indications 100% coverage by the end of 10 years.
B-O B14.10	RV-CRD-R1, Control Rod Drive (CRD) Housing to flange weld	Examination limited due to 84.1%, outer diameter (OD), PT coverage	18.8/.056	Stainless Steel	No Recordable Indications
B-O B14.10	RV-CRD-R5, CRD Housing to flange weld	Examination limited due to 84.1%, OD, PT coverage	18.8/0.56	Stainless Steel	No Recordable Indications
B-O B14.10	RV-CR-CRD-S3 Housing to flange weld	Examination limited due to 84.1%, OD, PT coverage	18.8/0.56	Stainless Steel	No Recordable Indications
B-O B14.10	RV-CR-CRD-T7 Housing to flange weld	Examination limited due to 84.1%, OD, PT coverage	18.8/0.56	Stainless Steel	No Recordable Indications
B-O B14.10	RV-CR-CRD-U6 Housing to flange weld	Examination limited due to 84.1%, OD, PT coverage	18.8/0.56	Stainless Steel	No Recordable Indications

Table 1 – Examination Category R-A B-A, B-D, B-O, and C-B Welds with Limited Volumetric Nine Mile Point Nuclear Station Unit 1					
Item No.	Component Identification and System	Limitation/ Coverage	Diameter/ Thickness (inch)	Materials	Examination Results
C-B C2.21	60-46-WD-001C1 N1 ISI	Examination limited due to Nozzle-Head Inlet 50%, Coverage single sided coverage; PT 100% coverage	21.2/1.5	Stainless Steel	No Recordable Indications
B-A B1.12	RV-WD-133 Upper Intermediate Shell Weld	Examination limited due to sparger tie rod 54.5% coverage	133/ 7.1/0.21"	Clad	No Recordable Indications
B-A B1.12	RV-WD-134 Upper Intermediate Shell Weld	Examination limited due to sparger tie rod 53% coverage	133/ 7.1/0.21"	Clad	No Recordable Indications
B-A B1.12	RV-WD-135 Upper Intermediate Shell Weld	Examination limited due to sparger tie rod 50.3% coverage	133/ 7.1/0.21"	Clad	No Recordable Indications
B-A B1.12	RV-WD-142 Lower shell weld @ 18 Intermediate Shell Weld	Examination limited due to shroud support plate 75.3% coverage	133/ 7.1/0.21"	Clad	No Recordable Indications
B-A B1.12	RV-WD-143 Lower Shell Weld	Examination limited due to shroud support plate 75.6% coverage	133/ 7.1	Clad	No Recordable Indications
B-A B1.12	RV-WD-144 Lower Shell Weld	Examination limited due to shroud support plate 50.1% coverage	133/ 7.1	Clad	No Recordable Indications
B-A B1.40	RV-WD-001C Closure Head to Flange Lower Shell Weld	Examination limited due to Flange Radius 78.5% coverage	360/ 4.5	Clad	No Recordable Indications
B-D B3.90	32-WD-044 N1-B Nozzle-Vessel	Examination limited due to Nozzle Configuration 51.55% coverage	28/7.8	Ferritic Low Alloy Steel	No Recordable Indications
B-D B3.90	32-WD-124 N1-D Nozzle-Vessel	Examination limited due to Nozzle Configuration 51.55% coverage	28/7.8	Ferritic Low Alloy Steel	No Recordable Indications

Table 1 – Examination Category R-A B-A, B-D, B-O, and C-B Welds with Limited Volumetric Nine Mile Point Nuclear Station Unit 1					
Item No.	Component Identification and System	Limitation/ Coverage	Diameter/ Thickness (inch)	Materials	Examination Results
B-D B3.90	44.1-WD-018 N9- Nozzle-Vessel	Examination limited due to Nozzle Configuration 64.2% coverage	3"/7.8"	Ferritic Low Alloy Steel	No Recordable Indications
R-A R1.16	40-WD-025 Valve to Elbow	Examination limited due to the valve-to-elbow configuration and single sided access	12"/0.62	Stainless Steel	No Recordable Indications
R-A R1.16	40-WD-029 Valve to Pipe	Examination limited due to the valve-to-pipe configuration and single sided access	12"/0.62"	Stainless Steel	No Recordable Indications
R-A R1.11	42.1-WD-017 Valve to Reducer	Examination limited due to the valve-to-reducer configuration and single sided access	1.5"/0.2"	Stainless Steel	No Recordable Indications
R-A R1.11	39-WD-470 Valve to Pipe	Examination limited due to the valve-to-pipe configuration and single sided access	10"/0.84"	Stainless Steel	No Recordable Indications
R-A R1.11	39-WD-471 Pipe to Valve	Examination limited due to the pipe-to-valve configuration and single sided access	10"/0.84"	Stainless Steel	No Recordable Indications
R-A R1.16	32-WD-050 Valve to Pipe	Examination limited due to the valve-to-pipe configuration and single sided access	28"/1.2"	Stainless Steel	No Recordable Indications
R-A R1.20	37-WD-006 Elbow-to-Pipe	Examination limited due to the elbow-to-pipe configuration and single sided access	2"/0.218"	Stainless Steel	No Recordable Indications

Table 1 – Examination Category R-A B-A, B-D, B-O, and C-B Welds with Limited Volumetric Nine Mile Point Nuclear Station Unit 1					
Item No.	Component Identification and System	Limitation/ Coverage	Diameter/ Thickness (inch)	Materials	Examination Results
R-A R1.11	01-WD-456 Pipe to Tee	Examination limited due to the pipe-to-tee configuration and the accessible areas between the piping and the floor	2"/0.344	Carbon Steel	No Recordable Indications
R-A R1.11	33-WD-048C1 Valve to Pipe	Examination limited due to the valve-to-pipe configuration and single sided access	6"/0.432	Stainless Steel	No Recordable Indications
R-A R1.11	33-WD-055 Tee to Reducer	Examination limited due to the tee-to-reducer configuration and single sided access	6"/0.432	Stainless Steel	No Recordable Indications
R-A R1.11	37-WD-003 Flange to Reducer	Examination limited due to the flange-to-reducer configuration and single sided access	4"/0.338	Stainless Steel	No Recordable Indications

ASME Code of Record

The licensee used the 2004 Edition of ASME Code, Section XI for the fourth 10-year ISI interval, which concluded on August 22, 2019.

Licensee’s Reason for Request

Due to the original design of these components, the licensee stated that it was not possible to obtain the ASME Code-required examination coverage for volumetric examinations for the piping, pressure vessel, and heat exchanger welds. The welds are in the reactor coolant system, reactor pressure vessel, and heat exchangers in ASME Code, Class 1 and 2 systems. However, due to physical interferences it was not possible to perform ultrasonic testing (UT) examination essentially 100 percent of the required examination volume. Conformance with the ASME Code would require extensive structural modifications to the components or surrounding structures.

3.2 NRC Staff Evaluation

The NRC staff has evaluated RR 1ISI-006 pursuant to 10 CFR 50.55a(g)(6)(i). The NRC staff’s evaluation focused on whether: (1) a technical justification exists to support the determination that the ASME Code requirement is impractical; (2) imposition of the Code-required

examinations would result in a burden to the licensee; and (3) the licensee's proposed alternative (accepting the reduced inspection coverage in this case) provides reasonable assurance of structural integrity and leak tightness of the subject welds. The NRC staff finds that if these three criteria are met, then 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.

Impracticality of Compliance

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 primarily 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 all but one weld's configuration prevented the licensee to scan the welds from both sides. In the case of Weld 01-WD-456 the limitation was caused by the pipe-to-tee configuration and inaccessible areas between the piping and the floor. As shown in the sketches and technical descriptions included in the licensee's August 17, 2020, submittal for Nine Mile Point, the subject components have access limitations which resulted in reduced volumetric examination coverage. The NRC staff finds that due to geometric limitations associated with the aforementioned welds, it was impractical to meet the ASME Code-required "essentially 100 percent" volumetric examination coverage for the subject welds during its fourth 10-year ISI interval.

Burden of Compliance

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, reducer, and flange constitutes a burden on the licensee.

Structural Integrity and Leak Tightness

From reviews of the relief request, the NRC staff verified that:

- The welds were examined using the appropriate equipment, ultrasonic modes of propagation, probe angles, frequencies, and scanning directions to obtain maximum coverage;
- The coverage was calculated in a reasonable manner;
- The personnel and UT procedures utilized for the volumetric examination were qualified as required by the regulation;

- 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);
- No unacceptable indications were identified.

The volumetric examinations were performed using UT, which facilitated volumetric coverage of the groove/butt weld joint at the root area (for some welds) located at the inner diameter of the components. Furthermore, the NRC staff noted that in some weld joints, the beam angle used in UT did cover the area of the surface of the weld joint. The UT examinations were performed using personnel, equipment, and procedures qualified in accordance with ASME Code, Section XI, Appendix VIII as implemented by the Performance Demonstration Initiative (PDI). If there were to be any active aging degradation in the weld joint, it would have been identified in the PDI qualified UT examinations.

Although the ASME Code-required coverage could not be obtained, the ultrasonic techniques employed provided nearly full volumetric coverage from the near side of the welds, which also facilitated some limited volumetric coverage for the weld materials on the opposite (far) side of these welds. In order to ensure that there is no active aging degradation in these welds, the licensee performed surface examination and the inspection results are acceptable. Therefore, the NRC staff concluded that the licensee had demonstrated its capability of adequately monitoring aging degradation using single sided UT examinations for these welds.

Based on the aggregate coverage obtained for the subject components, 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, some evidence of unacceptable flaws would have been detected by the licensee. The indications identified in some welds at Nine Mile Point, were found to be acceptable in accordance with the requirements of ASME Code, Section XI, IWB-3600.

Furthermore, operating experience to date, indicates that there is no active aging degradation mechanism in full penetration groove welds of ferritic steel in BWR vessel components. In the absence of any known degradation mechanism, such as intergranular stress corrosion cracking that can potentially affect the heat affected zone of the stainless-steel welds in BWRs, the NRC staff concludes that the structural integrity of these welds is not compromised during the fourth 10-year ISI interval at Nine Mile Point, Unit 1.

Therefore, the NRC staff finds that the volumetric examinations performed provide reasonable assurance of structural integrity and leak tightness of the subject welds. Compliance with the ASME Code requirements for these welds would be an undue burden on the licensee.

4.0 CONCLUSIONS

As set forth above, the NRC staff has determined 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, given due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. Furthermore, the NRC staff concluded that the examinations performed to the extent practical provide reasonable assurance of structural integrity of the subject components. 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 relief from

the ASME Code examination requirements for the welds included in RR 1ISI-006 for Nine Mile Point, Unit 1, for the fourth 10-year ISI interval.

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

Principal Contributors: S. Cumblidge
G. Cheruvenki

Date: April 22, 2021

SUBJECT: NINE MILE POINT NUCLEAR STATION, UNIT 1 - RELIEF FROM THE REQUIREMENTS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS BOILER AND PRESSURE VESSEL CODE CONCERNING EXAMINATION COVERAGE OF CERTAIN CLASS 1 AND 2 COMPONENT WELDS (EPID L-2020-LLR-0112) DATED: APRIL 22, 2021

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