

March 3, 2000

Mr. John H. Mueller  
Chief Nuclear Officer  
Niagara Mohawk Power Corporation  
Nine Mile Point Nuclear Station  
Operations Building, Second Floor  
P. O. Box 63  
Lycoming, NY 13093

SUBJECT: NINE MILE POINT NUCLEAR STATION, UNIT NO. 2 -- RELIEFS FOR THE  
SECOND 10-YEAR INSERVICE INSPECTION PROGRAM PLAN, REVISION 1  
(TAC NO. MA6273)

Dear Mr. Mueller:

By letter dated July 30, 1999, you requested a number of reliefs from Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code and applicable addenda. We have completed review of the relief requests in that submittal. Details of our review may be found in the enclosed safety evaluation. We conclude that certain inservice examinations cannot be performed to the extent required by the Code at Nine Mile Point, Unit 2 (NMP2)

Requests for Relief Nos. RR-IWB-1, RR-IWB-2, RR-IWB-3, RR-IWB-6, RR-IWB-7, RR-IWB-13, RR-IWC-2, RR-IWC-3, and RR-IWC-5 - Part 1, Part 2, and Part 3 -- You have demonstrated that the Code examination coverage requirements are impractical. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), these reliefs are granted.

Requests for Relief RR-IWC-1 and RR-IWF-4 -- You have demonstrated that the Code examination coverage requirements are a hardship. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), your proposed alternatives are authorized for the current interval.

Request for Relief RR-IWB-14 -- You have demonstrated that the proposed alternative provides an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the relief is authorized.

J. Mueller

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This completes all our actions on your July 30, 1999, submittal. Please contact the project manager, Mr. Peter Tam (301-415-1451, electronic mail at [pst@nrc.gov](mailto:pst@nrc.gov)) if you have any questions.

Sincerely,

*/RA/*

Marsha Gamberoni, Acting Chief, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-410

Enclosure: Safety Evaluation

cc w/encl: See next page

J. Mueller

- 2 -

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Marsha Gamberoni, Acting Chief, Section 1  
Project Directorate I  
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cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SECOND 10-YEAR INTERVAL INSERVICE INSPECTION PLAN, REVISION 1

NINE MILE POINT NUCLEAR STATION, UNIT NO. 2

NIAGARA MOHAWK POWER CORPORATION

DOCKET NUMBER 50-410

1.0 INTRODUCTION

Inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components is performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code and applicable addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states, in part, that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

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 pre-service 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 comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. For Nine Mile Point, Unit 2 (NMP2), the applicable edition of Section XI of the ASME Code for the second 10-year ISI interval is the 1989 Edition.

2.0 EVALUATION

By letter dated July 30, 1999, the licensee, Niagara Mohawk Power Corporation (NMPC), submitted its Second 10-Year Interval Inservice Inspection Program Plan, Revision 1, requests for relief for NMP2. The information provided by the licensee in support of the request for relief from Code requirements has been evaluated by the staff and the basis for disposition is documented below.

Enclosure

2.1 Request for Relief RR-IWB-1, Limited Examinations of Category B-O, Item B14.10, Pressure Retaining Welds in Control Rod Housings

**Code Requirement:** Examination Category B-O, Item B14.10 requires volumetric or surface examination of 10% of the peripheral control rod drive (CRD) housing welds as defined by

Figure IWB-2500-18, each inspection interval. “Essentially 100%”, as defined by ASME Code Case N-460, which has been implemented by the licensee, is greater than 90% coverage of the examination volume or surface area, provided the reduction in coverage is due to part geometry, or interference by another component.

**Licensee’s Code Relief Request:** Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from performing the volumetric or surface examination coverage of 10% of the peripheral CRD housing welds to the extent required by the Code, and proposes to perform examinations of additional CRD welds to achieve coverage exceeding that required by the Code.

**Licensee’s Basis for Relief Request (as stated):**

There are 40 peripheral CRD housings. Each housing has two welds. Therefore, eight welds are required to be examined. Assuming a Code (Case) minimum coverage allowable of 90%, eight (8) full examinations equals a minimum requirement of 720 total percentage points.

Burden: Limited accessibility for all peripheral CRD housing welds due to inherent obstructions caused by surrounding cables, tubing, and foundations which are not practical to remove or replace.

Portions of 6 additional welds were examined to the extent possible, such that, fourteen (14) welds were actually examined. Examination coverages ranged from 27% to 100%. The total of examined percentage points summed to 953, thus exceeding the 720 required. Although the use of an inspection mirror achieved 100% coverage on three of the welds (thus reducing the original population for which relief is sought from 8 to 5) this request is still required. It has been modified accordingly and submitted with this Second Interval Program.

Original Scope		Additional welds	
2RPV-CRDH007A	27% Coverage achieved	2RPVCRDH001A	43% Coverage achieved
2RPV-CRDH0036A	54% Coverage achieved	2RPVCRDH001B	80% Coverage achieved
2RPV-CRDH0037A	43% Coverage achieved	2RPVCRDH004A	43% Coverage achieved
2RPV-CRDH0038A	84% Coverage achieved	2RPVCRDH004B	75% Coverage achieved
2RPV-CRDH0038B	76% Coverage achieved	2RPVCRDH005A	64% Coverage achieved
		2RPVCRDH005B	64% Coverage achieved

**Licensee’s Proposed Alternative Examination:**

Partial examinations of: 10% of the welds plus six (6) additional welds, such that the aggregate total is greater than or equal to eight full examinations (720 total percentage points.)

**Evaluation:** The Code requires 100% volumetric and surface examination of 10% of the peripheral CRD housing welds. The licensee initially selected 8 CRD welds for examination. Three of these welds were inspected with 100% coverage, but an additional 5 received only limited examinations. Physical obstructions caused by surrounding cables, tubing, and foundations made it impractical to comply with the Code examination coverage requirements for these welds. To meet the Code coverage requirements, modifications and/or removal and replacement of cables, tubing and foundations would be required to allow access for examination. Imposition of this requirement would create a significant burden on the licensee.

The licensee proposes to augment its program by examining six additional CRD welds such that the total examination coverage exceeds that required by the Code. The preceding table shows the limited coverages achieved on five of the eight original welds and on the six additional welds. The combination of original weld examinations plus the additional weld examination yields coverage greater than that required by the Code. Therefore, the licensee's proposed alternative provides reasonable assurance of structural integrity for the subject components.

The staff concludes that compliance with the Code examination coverage requirements for these CRD welds is impractical and that the licensee's proposed alternative to perform additional CRD weld examinations provides reasonable assurance of the structural integrity of the CRD welds. Relief is granted pursuant to 10 CFR 50.55a(g)(6)(i).

2.2 Request for Relief RR-IWB-2, Examination Category B-D, Item No. B3.90, Class 1 RPV Nozzle-to-Shell Welds

**Code Requirement:** Examination Category B-D, Item No. B3.90, requires volumetric examination of Class 1 RPV nozzle-to-shell welds, as defined by Figure IWB-2500-7, each inspection interval.

**Licensee's Code Relief Request:** Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from performing volumetric examination to the extent required by the Code, of the RPV nozzle-to-shell welds listed in the licensee's following table, and proposes to perform examinations with limited coverages.

**Licensee's Basis for Relief Request (as stated):**

The automated examination of these RPV nozzle-to-shell welds is limited to varying extents due to nozzle-to-shell blend, vessel scanner tracks, other nozzles, limited access from nozzle side of welds and mechanical limitations.

The following welds were examined to the maximum extent possible with the principal deterrent to achieving Code Compliance being the design configuration of the weld joints.

Weld No	Coverage	Weld No	Coverage
2RPV-KA01	examined with 58% coverage achieved	2RPV-KA18	examined with 56% coverage achieved

<b>Weld No</b>	<b>Coverage</b>	<b>Weld No</b>	<b>Coverage</b>
2RPV-KA02	examined with 58% coverage achieved	2RPV-KA19	examined with 58% coverage achieved
2RPV-KA03	examined with 65% coverage achieved	2RPV-KA20	examined with 63% coverage achieved
2RPV-KA04	examined with 65% coverage achieved	2RPV-KA21	examined with 58% coverage achieved
2RPV-KA05	examined with 65% coverage achieved	2RPV-KA22	examined with 63% coverage achieved
2RPV-KA06	examined with 65% coverage achieved	2RPV-KA23	examined with 56% coverage achieved
2RPV-KA07	examined with 65% coverage achieved	2RPV-KA24	examined with 61% coverage achieved
2RPV-KA08	examined with 65% coverage achieved	2RPV-KA25	examined with 69% coverage achieved
2RPV-KA09	examined with 65% coverage achieved	2RPV-KA26	examined with 65% coverage achieved
2RPV-KA10	examined with 65% coverage achieved	2RPV-KA27	examined with 63% coverage achieved
2RPV-KA11	examined with 65% coverage achieved	2RPV-KA28	examined with 63% coverage achieved
2RPV-KA12	examined with 65% coverage achieved	2RPV-KA29	examined with 64% coverage achieved
2RPV-KA13	examined with 63% coverage achieved	2RPV-KA30	examined with 64% coverage achieved
2RPV-KA14	examined with 63% coverage achieved	2RPV-KA31	examined with 64% coverage achieved
2RPV-KA15	examined with 65% coverage achieved	2RPV-KA32	examined with 67% coverage achieved
2RPV-KA16	examined with 65% coverage achieved	2RPV-KA33	examined with 63% coverage achieved
2RPV-KA17	examined with 56% coverage achieved		

**Licensee's Proposed Alternative Examination:**

Perform volumetric examinations to the maximum extent practical, utilizing the latest UT techniques and equipment.

**Evaluation:** The Code requires 100% volumetric examination of the subject RPV nozzle-to-shell welds. The licensee states that complete volumetric examination of these welds is limited by physical obstructions, such as nozzle-to-shell blend, vessel scanner tracks, other nozzles, limited access from nozzle side of welds and mechanical limitations that obstruct access to the

examination area. The staff has determined that there are limitations that obstruct access to examination areas for the subject welds; to meet the Code requirements, significant design modifications to allow access for volumetric examination would be required. Therefore, the Code volumetric coverage requirements are impractical for these welds. Imposition of the Code requirements would result in a significant burden on the licensee.

The licensee has attained coverages of approximately 56% or more of the cumulative Code-required coverage for these welds. The extent of examination coverage on these welds provides reasonable assurance of structural integrity of the subject components. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i).

### 2.3 Request for Relief RR-IWB-3, Category B-A, Item No. B1.30, Class 1 Pressure Retaining RPV Shell to Flange Weld

**Code Requirement:** Examination Category B-A, Item No. B1.30, requires essentially 100% volumetric examination of Class 1 RPV shell-to-flange welds, as defined by Figure IWB-2500-4, each inspection interval.

**Licensee's Code Relief Request:** Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from volumetric examination coverage required by the Code for Class 1 RPV shell-to-flange weld 2RPV-AE.

#### **Licensee's Basis for Relief Request (as stated):**

The configuration of the subject weld joint does not allow access from both sides of the weld due to the ID taper from the flange forging to the thinner upper shell course.

Examination of the subject weld was performed to the maximum extent possible from both the RPV shell course and from the flange face as recommended. Because of unparallel surfaces above the weld it is impossible to achieve further coverage without redesign of the flange.

Weld:

2RPV-AE - From the shell side - CRV [Code required volume] = 52%

2RPV-AE - From the flange face - CRV = 100%

#### **Licensee's Proposed Alternative Examination:**

Perform volumetric examinations from the shell side to the maximum extent possible and supplement this with examinations from the flange face as recommended in ASME Section 5, Article 4, Para. T-441.3.2.2.

**Evaluation:** The Code requires 100% volumetric examination of the subject RPV shell-to-flange weld. However, complete volumetric examination is limited by the physical configuration of the subject weld joint. Based on a review of drawings and information provided by the licensee, the inner diameter taper from the flange forging to the thinner upper shell course does not allow access for examination from both sides of the weld. Therefore, the Code coverage requirements are impractical for this weld. To meet the Code requirements, the



flange would require design modifications to allow access for examination. Imposition of the Code requirements would result in a significant burden on the licensee.

To supplement the limited volumetric examination from the shell side, the licensee proposed to perform examinations from the flange face as recommended in ASME Section 5, Article 4, Para. T-441.3.2.2. The limited volumetric examination, in conjunction with the supplemental flange face examinations will detect any significant patterns of degradation that may occur and provide reasonable assurance of the structural integrity of this RPV nozzle-to-shell weld. Relief is granted pursuant to 10 CFR 50.55a(g)(6)(i).

2.4 Request for Relief RR-IWB-6, Examination Category B-J, Item No. B9.11, Class 1 Circumferential Pressure Retaining Welds in Piping NPS 4 or Larger

**Code Requirement:** Examination Category B-J, Item B9.11, requires essentially 100% surface and volumetric coverage of Class 1 circumferential welds in pressure retaining piping NPS 4 or larger as defined by Figure IWB-2500-8, each inspection interval.

**Licensee's Code Relief Request:** Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee has requested relief from surface examination coverage to the extent required by the Code for Class 1 pressure retaining circumferential piping weld 2RCS-64-00-SW35.

**Licensee's Basis for Relief Request (as stated):**

Access for the surface exam is limited by a pipe rupture restraint.

The weld for which relief is requested has been examined to the maximum extent possible by the surface exam technique. The entire Code Required Volume has been examined volumetrically by UT and was acceptable thus ensuring the integrity of the more critical inner third of the weld volume from where flaws detrimental to the weld integrity would be expected to originate. NMP2 anticipates no changes in the overall level of plant quality and safety based on performing the subject exam to the maximum extent possible.

**Licensee's Proposed Alternative Examination:**

Surface examination is performed to the maximum extent possible. Without redesign of the affected rupture restraint additional coverage is not possible. 100% of the UT exam was completed, 66% of the required surface exam was completed.

**Evaluation:** The Code requires essentially 100% volumetric and surface examination of circumferential welds on Class 1 pressure retaining piping. However, the licensee has indicated that access to this weld for the full surface exam is limited by a pipe rupture restraint.

The staff has determined that the Code requirements are impractical, because the full surface exam is limited by a pipe rupture restraint. To meet the Code requirements, the subject components would require design modifications to allow access for examination. Imposition of the Code requirements would result in a significant burden on the licensee without a compensating increase in quality and safety.

The licensee has achieved significant coverage of this weld, achieving 100% volumetric and 66% surface examination. The examinations performed provide reasonable assurance of structural integrity of the subject welds. Therefore, relief is granted pursuant to 10CFR50.55a(g)(6)(i).

2.5 Request for Relief RR-IWB-7, Examination Category B-A, Items No. B1.21, Circumferential Head Welds, and B1.22, Meridional Head Welds in RPV

**Code Requirement:** Examination Category B-A, Items B1.21 and B1.22, requires essentially 100% volumetric coverage of the accessible length of all Class 1 pressure retaining circumferential and meridional head welds in the RPV, as defined by Figure IWB-2500-3, each inspection interval.

**Licensee's Code Relief Request:** Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee has requested relief from volumetric examination coverage to the extent required by the Code for Class 1 pressure retaining RPV circumferential and meridional head welds; 2RPV-DB, 2RPV-DC, 2RPV-DG, and 2RPV-DR.

**Licensee's Basis for Relief Request (as stated):**

Accessibility for the manual volumetric examinations on the bottom head welds is limited due to interference with the CRD penetrations and the vessel support skirt. Only approximately 12" to 24" on each end of welds 2RPV-DG & 2RPV-DR can be examined due to interference with the CRD penetration housings. Approximately one foot cannot be examined on each of the other bottom head welds due to interference with the RPV support skirt.

The subject examinations have been completed to the maximum extent possible, additional coverage is not possible without redesign of the vessel.

2RPV-DB was examined with 82% coverage achieved  
2RPV-DC was examined with 82% coverage achieved  
2RPV-DG was examined with 19% coverage achieved  
2RPV-DR was examined with 21% coverage achieved

**Licensee's Proposed Alternative Examination (as stated):**

Perform volumetric examinations to the maximum extent possible based on design limitations.

**Evaluation:** The Code requires essentially 100% volumetric examination of the accessible length of all Class 1 pressure retaining RPV circumferential and meridional head welds. However, access to the full length of these welds is limited by CRD penetrations and the vessel support skirt. Approximately 12" to 24" on the ends of meridional welds 2RPV-DB and 2RPV-DC are inaccessible due to interference with the support skirt. These welds were examined with 82% volumetric coverage achieved. Approximately 12" to 24" of circumferential welds 2RPV-DG and 2RPV-DR are accessible with 19% and 21%, coverage achieved respectively, due to interferences with the support skirt and CRD penetrations. Due to these

interferences, the Code volumetric coverage requirements are impractical for these welds. To meet the Code requirements, the RPV, support skirt, and CRD penetrations would require design modifications to allow access for examination. Imposition of the Code requirements would result in a significant burden on the licensee.

The extent of volumetric examinations completed on these and similar RPV welds will detect any significant patterns of degradation that may occur and provide reasonable assurance of the structural integrity of these circumferential and meridional piping welds.

Based on the impracticality of meeting the Code volumetric coverage requirements for the subject examination area, and the reasonable assurance provided by the examinations that can be completed. Relief is granted pursuant to 10 CFR 50.55a(g)(6)(i).

2.6 Request for Relief RR-IWB-13, Examination Category B-G-1, Pressure Retaining Bolting Greater Than 2 in. In Diameter, Code Item B6.40, Threads in Reactor Vessel Flange

**Code Requirement:** Examination Category B-G-1, Item B6.40, requires volumetric coverage of Class 1 pressure retaining bolting flange threads in the RPV as defined in Figure IWB-2500-12, each inspection interval.

**Licensee's Code Relief Request:** Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from volumetric examination coverage to the extent required by the Code for Class 1 RPV top flange threads 2MSS\*REV1 (2RPV-TF001 thru 2RPV-TF076).

**Licensee's Basis for Relief Request (as stated):**

The groove that the o-ring seal is placed in limits the accessibility of the transducers used to ultrasonically interrogate this base material. As a result, 100% volumetric interrogation is deemed impractical.

These examinations document interrogated volumes greater than 90%, but less than 100%, in all cases. There are no additional techniques that could be utilized to increase the volume examined for each of the ligament areas.

NMP2 has considered the consequences of a failure of this system and finds that, due to the conservatism of design inherent to the reactor pressure vessel, catastrophic failure of this component is considered highly unlikely (as reflected in

the FSAR choice of the design basis accident). Therefore, further analysis of the consequences of failure of the reactor pressure vessel flange threads is not required.

Lastly, NMP2 anticipates no changes in the overall level of plant quality and safety based on performing the subject examinations to the maximum extent possible.

**Licensee's Proposed Alternative Examination (as stated):**

Examination of the flange ligament areas will be performed to the maximum extent possible for each of the 76 ligament areas, i.e., CRV = 90.2%.

**Evaluation:** The Code requires volumetric examination of Class 1 RPV pressure retaining bolting flange threads. However, accessibility for interrogating these threads is limited by the groove that the o-ring seal is placed in. To meet the Code requirements, significant design modifications to allow access for examination would be required. Therefore, the Code volumetric coverage requirements are impractical. Imposition of the Code requirements would result in a significant burden on the licensee.

The licensee has completed a significant portion of the Code required volumetric examination (greater than 90%) for each of these flange threads. Therefore, any existing patterns of degradation would have been detected; the examinations performed provide reasonable assurance of the structural integrity of the subject welds. Relief is granted pursuant to 10 CFR 50.55a(g)(6)(i).

**2.7 Request for Relief RR-IWB-14, Examinations of Category B-G-1 Item B6.10, Pressure Retaining Bolting Greater Than 2 Inch In Diameter**

**Code Requirement:** Examination Category B-G-1, Item B6.10 requires 100% surface examination of pressure retaining bolting greater than 2-inch diameter.

**Licensee's Code Relief Request:** Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee proposed an alternative in lieu of performing a 100% surface (magnetic particle) examination of the Reactor Pressure Vessel Closure Head Nuts as required by the ASME Section XI of the 89 Edition.

**Licensee's Basis for Relief Request (as stated):**

The 1989 Edition of Section XI does not provide acceptance criteria for the mandated surface examination of Table 2500-1. Table 2500-1 was subsequently changed in the 1989 Addenda requiring a VT-1 examination of the closure nuts and providing an acceptance criteria for VT-1 examination of bolting greater than 2 inches. This

change to the Code by Section XI Subcommittee recognized that a VT-1 examination could supplant the surface examination requirement without diminishing the level of quality and safety.

It is NMPC's intention to use the requirements of the 1989 Edition with the 1989 Addenda of the Code for the proposed examination as an alternative permitted by paragraph (a)(3)(i) of 10CFR50.55a.

**Licensee's Proposed Alternative Examination:**

The licensee proposes to perform a visual, VT-1 examination of the Reactor Pressure Vessel Closure Head Nuts to the criteria of ASME, Section XI, 1989 Edition with 1989 Addenda in conjunction with the acceptance criteria as stated in subsection IWB-3000.

**Evaluation:** The 1989 Code Edition requires 100% surface examination of the Reactor Pressure Vessel Closure Head Nuts. The licensee proposes to perform a visual, VT-1 examination of the Reactor Pressure Vessel Closure Head Nuts to the criteria of ASME, Section XI, 1989 Edition with 1989 Addenda in conjunction with the acceptance criteria as stated in subsection IWB-3000.

The 1989 Edition of the Code, Item B6.10, does not provide acceptance criteria for surface examination of RPV closure head nuts. (At that time the acceptance criteria were in the course of preparation.) Indications that would require corrective action on RPV closure head nuts are typically associated with degradation mechanisms such as boric acid attack, corrosion, or handling (such as galled threads and deformation). Typical surface examination procedures and techniques are not qualified to identify these forms of degradation.

The licensee noted that its intention is to use the requirements of the 1989 Edition with the 1989 Addenda of the Code for the proposed examination as an alternative. In addition, the 1989 Addenda thru the 1996 Addenda has been approved in 10 CFR Part 50, Industry Codes and Standards; Amended Requirements; Final Rule, dated September 22, 1999 for public use as of November 22, 1999.

Article IWB-3000, Acceptance Standard, IWB-3517.1, Visual Examination, VT-1, describes conditions that require corrective action prior to continued service of bolting and associated nuts. IWB-3517.1 requires crack-like flaws to be compared to the flaw standards of IWB-3515. Because the VT-1 visual examination acceptance criteria include evaluation of crack-like indications and other relevant conditions requiring corrective action (i.e., deformed or sheared threads, localized corrosion, deformation of part, and other degradation mechanisms), the staff concludes that the VT-1 visual examination provides a comprehensive assessment of the condition of the closure head nut. Therefore, the staff concludes the VT-1 visual examination with the 1989 Addenda acceptance standard provides reasonable assurance of quality and safety. The licensee's proposed alternative is authorized pursuant to 10CFR50.55a(a)(3)(i).

2.8 Request for Relief RR-IWC-1, Examination Category C-C, Item C3.30, and Category C-G, Item C6.10, Class 2 Integrally Welded Pump Attachments and Pump Casing Welds

**Code Requirement:** Examination Category C-C, Item C3.30 and Category C-G, Item C6.10, require 100% surface examination coverage of Class 2 integrally welded pump attachments and pump casing welds, respectively, as defined in Figures IWC-2500-5 and IWC-2500-8, each inspection interval.

**Licensee’s Code Relief Request:** Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee has requested relief from the Code’s surface examination coverage requirements for the Class 2 pump integral attachments and casing welds listed below and proposed to perform pump weld examinations when the pumps are disassembled for routine maintenance and examine integral attachments to the maximum extent possible when accessible.

Pump No	Weld No					
2CSH*P1	PW207	PW208	PW209	PW212	PW217	PW218
	PW219					
2CSL*P1	PW311	PW312	PW315	PW316	PW319	
2RHS*P1A	PW111A	PW112A	PW113A	PW116A	PW118A	PW121A
2RHS*P1B	PW111B	PW112B	PW113B	PW116B	PW118B	PW121B
2RHS*P1C	PW111C	PW112C	PW113C	PW116C	PW118C	PW121C
2ICS*P1	PW400	PW401	PW402	PW403		

**Licensee’s Basis for Relief Request (as stated):**

The pumps are installed in a concrete pit, thereby making the exterior of the casing welds and entire integral attachment welds inaccessible for surface examination. Examination of the casing welds would require either disassembly or removal from the pit. Examination of the integral attachment welds would require lifting the pump from the pit. The hardships associated with pump disassembly or lifting from the pit would far exceed any beneficial safety improvements that might be achieved by such an examination. For the integral attachments on pump ICS-P-1, approximately 17% of each of the four welds is inaccessible. The pump design utilizes U shaped attachments that limit access to the entire weld surface.

Since these pumps are subject to testing per IWP of the ASME Code, loss of integrity of the pump casing welds would be detected during quarterly pressure, differential, and flow rate testing. Failure of integral attachments welds would be detected by quarterly vibration measurements. Furthermore, pump casing integrity is verified during system leakage testing.

**Licensee’s Proposed Alternative Examination (as stated):**

Perform surface examination on welds of pumps that become accessible when disassembled for routine maintenance. Perform surface exams on integral attachments to the maximum extent possible when accessible.

**Evaluation:** The Code requires 100% surface examination of Class 2 integrally welded pump attachments and pump casing welds. However, the pump casing welds for the listed pumps are inaccessible for examination because the pumps are installed in pits. The pump casing welds are below floor level or are inaccessible due to the outer pump casing extension. The integral attachment welds for pumps 2CSH\*P1, 2CSL\*P1, and 2RHS\*P1A, P1B, P1C, are also completely inaccessible for examination because the pumps are installed in pits. Access to the welds would require removal of the pump casings from the sump. Disassembly of the pump is quite involved and poses a significant risk of damage to the bearings, tie rod threads, impeller, and casing ring. Disassembly of the pumps solely for the purpose of inspection would result in a significant burden on the licensee.

Approximately 83% of each of the 4 integral attachment welds; PW400, PW401, PW402, and PW403, on pump ICS-P-1 is accessible for examination. The geometry of the U shaped design of the attachment limits the accessibility for surface examination. Access to the remaining portions (approximately 17% of each of the four welds) of the integral attachment welds would necessitate design changes to the pump and/or attachment. Requiring complete examination coverage would result in a considerable burden on the licensee. The licensee has achieved approximately 83% coverage of the surface of the welds. The achieved surface examination will detect any significant patterns of degradation that may occur.

The licensee proposed to perform surface examination on the pump casing welds when they become accessible when disassembled for routine maintenance. The licensee also proposes to perform surface exams on integral attachment welds to the maximum extent possible when accessible. The licensee also stated that these pumps receive Inservice Testing (IST) per Subsection IWP of the ASME Code and that loss of a pump casing's integrity would be detected during quarterly testing. Additionally, the failure of integral attachment welds would be detected by quarterly vibration measurements. Another method that might reveal casing defects is system leakage testing.

In addition, these pumps are subject to periodic inservice tests and leak detection that provide reasonable assurance for continued operational readiness. The licensee proposed to perform the required surface examinations if the pump(s) casing is removed for maintenance or other purposes. This examination, when performed, will detect any significant patterns of degradation, if present.

The staff has concluded that achieved surface examinations and the above periodic tests provide reasonable assurance of the structural integrity of these integral attachment welds and that the Code requirement to examine the subject pump casing and integral attachment welds presents a hardship without a compensating increase in safety. Therefore, the licensee's proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

2.9 Request for Relief RR-IWC-2, Examination Category C-F-1, Item No. C5.11, Class 2 Circumferential Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping  $\geq 3/8$  in. Nominal Wall Thickness for Piping  $>NPS 4$

**Code Requirement:** Examination Category C-F-1, Item C5.11 requires 100% surface and volumetric coverage of Class 2 circumferential pressure retaining welds on 7.5%, but not less than 28 welds, of all austenitic stainless steel or high alloy welds not exempted by IWC-1220 as defined in Figure IWC-2500-7, each inspection interval.

**Licensee's Code Relief Request:** Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from the Code's surface and volumetric examination coverage requirements for the following Class 2 circumferential pressure retaining welds in austenitic stainless steel or high alloy piping.

Weld No	Weld No	Weld No
2CSH-25-05-FW012	2CSL-26-01-FW035	2RHS-66-22-FW023
2CSH-25-05-FW013	2RHS-66-13-FW023	2RHS-66-22-FW029
2CSH-25-05-FW014	2RHS-66-13-FW024	2RHS-66-23-FW018
2CSH-25-05-FW015	2RHS-66-13-FW025	2RHS-66-23-FW019
2CSL-26-01-FW026	2RHS-66-13-FW029	2RHS-66-23-FW020
2CSL-26-01-FW027	2RHS-66-22-FW021	2RHS-66-23-FW022
2CSL-26-01-FW028	2RHS-66-22-FW022	

**Licensee's Basis for Relief Request (as stated):**

Twenty (20) of the 37 welds are inaccessible for both surface and volumetric examination (by design, as they are submerged in the suppression pool). Increased access would necessitate these systems to be redesigned.

The subject welds are on pump suction piping, which is under water; postulated cracks in these welds are not detrimental to the safety function of their associated systems. There has been no change in the design through the first interval. As such, the granted relief was used on all 20 weldments and is submitted for use with this Second Interval plan.

**Licensee's Proposed Alternative Examination (as stated):**

Perform the full compliment of examinations on the 17 accessible welds.

**Evaluation:** The Code requires 100% volumetric and surface examination of the subject circumferential pressure retaining pipe welds. The Code also requires that 75%, but not less than 28 welds be selected for examination. There are a total of 37 C-F-1 welds. Therefore 28 welds are required to be examined. Of the 37 welds in this group, the licensee states that 20 are inaccessible because they are submerged in the suppression pool. To meet the Code requirements, the system would require significant design modifications to allow access for examination. Therefore, the Code coverage requirements are impractical for this weld. Imposition of the Code requirements would result in a significant burden on the licensee.



The licensee proposed 100% volumetric and surface examination on 17 of the circumferential pipe welds that are accessible. The staff determined that these examinations provide reasonable assurance of structural integrity of the subject components. Relief is granted pursuant to 10 CFR 50.55a(g)(6)(i).

2.10 Request for Relief RR-IWC-3, Examination Category C-C, Item C3.20, Class 2 Integrally Welded Attachments to Piping

**Code Requirement:** Examination Category C-C, Item C3.20, requires 100% surface coverage of Class 2 integrally welded attachments to piping, as defined by Figure IWC-2500-5, each inspection interval. The examination sample is limited to attachments of those components required to be examined under Examination Categories C-F and C-G.

**Licensee's Code Relief Request:** Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee requested relief from surface examination to the extent required by the Code for the following integrally welded piping attachments.

Weld No	Weld No	Weld No
2CSH-25-SW301	2RHS-66-22-FW310	2RHS-66-23-SW301
2CSL-26-01-SW301	2RHS-66-22-FW311	2CSL-26-01-FW313
2RHS-66-13-FW316	2RHS-66-22-SW301	2CSL-26-01-FW314
2RHS-66-13-FW317	2RHS-66-23-FW313	
RHS-66-13-SW301	2RHS-66-23-FW314	

**Licensee's Basis for Relief Request (as stated):**

These welds are inaccessible for surface examination because they are located under water in the suppression pool. Greater access would require the redesign of the NMP2 containment and suppression systems.

Compliance with the specific requirements of ASME Section XI would result in hardship or unusual difficulties without a compensating increase in the level of quality or safety.

**Licensee's Proposed Alternative Examination (as stated):**

None.

**Evaluation:** The Code requires 100% surface examination of the subject integral piping attachment welds. However, 13 welds are inaccessible for surface examination because they are submerged in the suppression pool. The licensee states that in order to obtain access to the welds, redesign of the containment and suppression systems would be required.

The staff determined that these 13 welds are inaccessible for surface examination because they are submerged in the suppression pool. The licensee states that in order to obtain access

to the welds, redesign of the containment and suppression systems would be required. Therefore, the Code examination requirements are impractical for these welded attachments. Imposition of the Code requirements would result in a significant burden on the licensee. The staff concludes that relief is granted pursuant to 10 CFR 50.55a(g)(6)(i), provided the licensee examines these integrally welded attachments if during maintenance or other activities they become accessible for inspection.

2.11 Request for Relief RR-IWC-5, Part 1, Examination Category C-A, Item C1.10, Category C-B, Item C2.21, Class 2, RHR Heat Exchanger

**Code Requirement:** Examination Category C-A, Item No. C1.10, requires essentially 100% volumetric examination as defined by Figure IWC-2500-1, for Class 2 shell circumferential pressure retaining welds in pressure vessels. Examination Category C-B, Item No. C2.21, requires 100% volumetric and surface examinations of Class 2 pressure retaining vessel shell and nozzle welds as defined by Figures IWC-2500-4(a) or (b).

**Licensee's Code Relief Request:** Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from the Code's surface and volumetric examination coverage requirements for Class 2 circumferential shell welds in pressure vessels and vessel nozzle welds RHEAS\*E1A,HW101A and RHEAS\*E1A,HW102A, respectively.

**Licensee's Basis for Relief Request (as stated):**

Accessibility is limited due to permanent interferences.

A significant portion of the required code coverage has been achieved, as noted below, for each of the two welds for which relief is requested. This coverage assures an acceptable level of inservice structural integrity. To increase the % of coverage, major redesign and modification would be required without a compensating increase in the level of quality or safety.

RHEAS\*E1A,HW101A 78% UT coverage achieved  
RHEAS\*E1A,HW102A 100% MT & 80% UT coverage achieved

**Licensee's Proposed Alternative Examination (as stated):**

Perform volumetric and/or surface examination to maximum extent possible for each.

**Evaluation:** The Code requires 100% volumetric examination of Class 2 circumferential shell welds in pressure vessels, and 100% volumetric and surface examinations of Class 2 nozzle-to-shell welds. The staff has determined that access to these welds for the full volumetric and surface exams (as applicable) is limited by permanent interferences. The licensee achieved significant coverage of these welds, with essentially 78% volumetric examination of the circumferential pressure retaining weld and 100% surface and 80% volumetric examination of the vessel nozzle weld.

The staff determined that the Code required examinations are impractical, because of permanent interferences. The significant coverage of these welds that the licensee achieved, with essentially 78% volumetric examination of the circumferential pressure retaining weld and 100% surface and 80% volumetric examination of the vessel nozzle weld provides reasonable assurance of structural integrity of the subject components. Therefore, relief is granted pursuant to 10CFR50.55a(g)(6)(i).

2.12 Request for Relief RR-IWC-5, Part 2, Examination Category C-C, Item C3.20, Class 2 Integrally Welded Attachments, and Category C-F-1, Item C5.11, Circumferential Welds on Piping

**Code Requirement:** Examination Category C-C, Item No. C3.20, requires 100% surface examination of Class 2 integrally welded attachments on piping as defined by Figure IWC-2500-5. Examination Category C-F-1, Item No. C5.11, requires 100% surface and volumetric examination of circumferential welds in piping as defined in Figure IWC-2500-7, each inspection interval.

**Licensee's Code Relief Request:** Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from the Code's surface and volumetric examination coverage requirements for Class 2 Integrally welded attachments and circumferential piping welds 2CSH-25-09-FW300, 2CSH-25-09-FW303, 2CSH-25-09-FW305, and RHEAS-66-22-FW019.

**Licensee's Basis for Relief Request (as stated):**

Accessibility is limited due to permanent interferences.

A significant portion of the required code coverage has been achieved, as noted below, for three of the four welds for which relief is requested. This coverage assures an acceptable level of inservice structural integrity. To increase the % of coverage, major redesign and modification would be required without a compensating increase in the level of quality or safety.

2CSH-25-09-FW300; 55% MT coverage achieved  
2CSH-25-09-FW303; inaccessible  
2CSH-25-09-FW305; 55% MT coverage achieved  
RHEAS-66-22-FW019; 50% UT & 100% PT coverage achieved

**Licensee’s Proposed Alternative Examination (as stated):**

Perform volumetric and/or surface examinations to maximum extent possible for each, and a VT-1 examination for 2CSH-25-09-FW303.

**Evaluation:** The Code requires 100% volumetric and surface examination of circumferential piping welds, and 100% surface examination of piping integral attachment welds. The licensee stated that limitations associated with the subject components prevent obtaining the required examination coverage. Based on the information in the licensee’s submittal, the cumulative coverage achieved on welds 2CSH-25-09-FW300 and 2CSH-25-09-FW305 is 55% surface (magnetic particle) coverage, 2CSH-25-09-FW303 is 0%, and RHEAS-66-22-FW019 is 50% volumetric (ultrasonic) & 100% surface (liquid penetrant).

The licensee stated that limitations associated with the subject components prevent obtaining the required examination coverage. Based on the information in the licensee’s submittal, the cumulative coverage achieved on welds 2CSH-25-09-FW300 and 2CSH-25-09-FW305 is 55% surface (magnetic particle) coverage, 2CSH-25-09-FW303 is 0%, and RHEAS-66-22-FW019 is 50% volumetric (ultrasonic) and 100% surface (liquid penetrant) provide reasonable assurance of structural integrity of the subject components.

The staff determined that the Code requirements are impractical because of permanent interferences. For the licensee to meet the Code requirements the subject component would have to be redesigned. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i).

**2.13 Request for Relief RR-IWC-5, Part 3, Examination Category C-G, Item C6.20, Pressure Retaining Welds in Pumps and Valves**

**Code Requirement:** Examination Category C-G, Item C6.20, requires 100% surface examination of Class 2 valve body welds as defined by Figure IWC-2500-8, each inspection interval.

**Licensee’s Code Relief Request:** Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from the Code’s surface examination coverage requirement for the following listed valve body welds.

Weld No	Weld No	Weld No
2CSL*HCV118,VWHCV118-C	2CSL*MOV112,VWMOV112-D	RHEAS*MOV2A,VWMOV2A-C
2CSL*HCV118,VWHCV118-D	2CSL*MOV112,VWMOV112-LW	RHEAS*MOV2A,VWMOV2A-D
2CSL*HCV118,VWHCV118-LW	2CSL*V121,VWV121-C	RHEAS*MOV8A,VWMOV8A-C
2CSL*HCV118,VWHCV119-C	2CSL*V121,VBW121-LW	RHEAS*V376,VWV376-LW
2CSL*HCV118,VWHCV119-D	RHEAS*MOV1C,VWMOV1C-C	RHEAS*V378,VWV378-LW
2CSL*HCV118,VWHCV119-LW	RHEAS*MOV1C,VWMOV1C-D	RHEAS*MOV8A,VWMOV8A-D
2CSL*MOV112,VWMOV112-C	RHEAS*MOV1C,VWMOV1C-LW	

**Licensee's Basis for Relief Request (as stated):**

Accessibility is limited due to permanent interferences.

A significant portion of the required code coverage has been achieved, as noted below, for the twenty welds for which relief is requested. This coverage assures an acceptable level of inservice structural integrity. To increase the % of coverage, major redesign and modification would be required without a compensating increase in the level of quality or safety.

2CSL\*HCV118,VWHCV118-C; 86% MT coverage  
2CSL\*HCV118,VWHCV118-D; 86% MT coverage  
2CSL\*HCV118,VWHCV118-LW; 76% MT coverage  
2CSL\*HCV118,VWHCV119-C; 60% MT coverage  
2CSL\*HCV118,VWHCV119-D; 80% MT coverage  
2CSL\*HCV118,VWHCV119-LW; 82% MT coverage  
2CSL\*MOV112,VWMOV112-C; 80% MT coverage  
2CSL\*MOV112,VWMOV112-D; 60% MT coverage  
2CSL\*MOV112,VWMOV112-LW; 87% MT coverage  
2CSL\*V121,VWV121-C; 80% MT coverage  
2CSL\*V121,VBW121-LW; 87% MT coverage  
RHEAS\*MOV1C,VWMOV1C-C; 70% PT coverage  
RHEAS\*MOV1C,VWMOV1C-D; 84% PT coverage  
RHEAS\*MOV1C,VWMOV1C-LW; 81% PT coverage  
RHEAS\*MOV2A,VWMOV2A-C; 60% PT coverage  
RHEAS\*MOV2A,VWMOV2A-D; 80% PT coverage  
RHEAS\*MOV8A,VWMOV8A-C; 60% PT coverage  
RHEAS\*V376,VWV376-LW; 82% coverage  
RHEAS\*V378,VWV378-LW; 81% coverage  
RHEAS\*MOV8A,VWMOV8A-D; 80% coverage

**Licensee's Proposed Alternative Examination:**

Perform surface examinations to maximum extent possible for each.

**Evaluation:** The Code requires 100% surface examination of the subject Class 2 valve body welds. However, the licensee stated that complete surface examination is limited by physical obstructions and mechanical limitations that prevent full access to the examination area.

The staff determined that the complete surface examination is limited by physical obstructions and mechanical limitations that prevent full access to the examination area. Furthermore, the staff concludes that it is impractical to perform the Code-required examinations, and would place a significant burden on the licensee. The licensee has examined these valve welds, attaining approximately 60-87 percent of the cumulative Code-required coverage on the subject welds. These examinations provide reasonable assurance of structural integrity of the subject components. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i).

2.14 Request for Relief RR-IWF-4, Inservice Inspection Requirements for Snubbers Listed in Article IWF-5000 of the ASME B&PV Code, Section XI, 1989 Edition, Division 1

**Code Requirement:** ASME Code Section XI, 1989 Edition, Article IWF-5000, imposes requirements with regard to visual examination of snubbers. Article IWF-5000 references the first addenda to ASME/ANSI OM-1987, Part 4 (OMa-4) for such snubber activity.

**Licensee's Code Relief Request:** The licensee requested the use of the Technical Specifications (TS), instead of ASME Code Section XI, for the required snubber visual examination, pursuant to 10 CFR 50.55a(a)(3)(i).

**Licensee's Basis for Relief Request:**

The licensee stated that the OMa-4 requirements of conducting snubber visual examination at 18-month intervals and the subsequent examination schedule adjustment do not fit into the Nine Mile Point, Unit 2, 24-month refueling cycle.

**Licensee's Proposed Alternative Examination**

In lieu of using Article IWF-5000 (which references OMa-4), the licensee proposed an alternative snubber visual examination schedule in accordance with TS requirements. Such an alternative, which is designed to demonstrate the functional integrity of the snubbers, is at least equivalent to the requirements of Article IWF-5000.

The licensee stated that all inservice inspection (ISI) of snubbers shall be performed in accordance with an ISI program as stipulated by Section 3/4.7.5 of the Nine Mile Point, Unit 2, TS. The licensee stated that the TS was amended by Amendment No. 29, dated May 6, 1991, to incorporate the recommendations on snubber visual inspection frequencies, as contained in the staff's Generic Letter (GL) 90-09, titled "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions." The alternative snubber program provides the necessary assurance for snubber operability and visual examination requirements to fulfill the ASME Section XI Code requirements without duplicating the inspections. The proposed alternative is compatible with the current 24-month operating cycle and generally will allow inspections to be performed during plant outages, thereby reducing radiological exposure of plant personnel.

**Evaluation:** Based on the information provided by the licensee, the staff determined that the licensee has presented an adequate justification for relief from the requirements of ASME Code 1989 Edition, Section XI, Article IWF-5000 (which references OMa-4), with regard to visual examination of the snubbers. The staff has determined that the proposed alternative use of the Nine Mile Point, Unit 2, TS for the snubber activity would provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the relief is granted.

3.0 CONCLUSION

The staff concludes that certain inservice examinations cannot be performed to the extent required by the Code at Nine Mile Point, Unit 2. For Requests for Relief Nos. RR-IWB-1, RR-IWB-2, RR-IWB-3, RR-IWB-6, RR-IWB-7, RR-IWB-13, RR-IWC-2, RR-IWC-3, and RR-IWC-5 - Part 1, Part 2, and Part 3 the licensee has demonstrated that the Code examination coverage requirements are impractical. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted for these Relief Requests.

For Request for Relief RR-IWC-1, the staff concludes that the licensee has demonstrated that the Code examination coverage requirements are a hardship without a compensating increase in the level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee's proposed alternative is authorized for the current interval.

For Requests for Relief RR-IWB-14 and RR-IWF-4, the staff concludes that the licensee's proposed alternatives provide an acceptable level of quality and safety and are authorized pursuant to 10 CFR 50.55a(a)(3)(i).

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