September 27, 2007

Mr. David A. Christian
Sr. Vice President and Chief Nuclear Officer
Dominion Nuclear Connecticut, Inc.
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: MILLSTONE POWER STATION, UNIT NOS. 2 AND 3 — RELIEF REQUESTS RR-89-56 AND IR-2-45 FOR APPROVAL TO USE ALTERNATIVES TO CLASS 1 PRESSURE TEST REQUIREMENTS (TAC NOS. MD2866 AND MD2867)

Dear Mr. Christian:

By letter dated August 17, 2006 (ML062400421 [Agency Documents Access and Management System accession number]), as supplemented by letter dated September 13, 2007 (ML072570300), Dominion Nuclear Connecticut, Inc. (DNC), submitted Relief Requests RR-89-56 and IR-2-45 for Millstone Power Station, Unit Nos. 2 and 3 (MPS2 and MPS3).

The relief requests are for approval to use alternatives to the system hydrostatic pressure test requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, 1989 edition, under Examination Category B-P, for segments of Class 1 reactor coolant pressure boundary (RCPB) piping. Specifically, DNC requested to use Code Case N-731 at MPS2 and MPS3 pursuant to the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(a)(3)(i). Alternative requirements were also proposed to the ASME Code hydrostatic pressure test requirements for Class 1 RCPB piping segments, including multiple vents, drains, and branch connections. These alternatives were requested pursuant to the provisions of 10 CFR50.55a(a)(3)(ii).

Based upon the review of the information you provided, the Nuclear Regulatory Commission (NRC) staff concluded that the proposed alternative to use Code Case N-731 for testing of the piping segments identified as Groups 2 and 5 in the August 17, 2006, submittal will provide an acceptable level of quality and safety. Therefore, the proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i).

The NRC staff also reviewed the proposed alternatives for testing in lieu of the current ASME Code requirements associated with the remaining piping segments identified in Relief Requests RR-89-56 and IR-2-45. The NRC staff has determined that compliance with the specified ASME Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, these proposed alternatives are authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

The authorizations associated with 10 CFR 50.55a(a)(3)(i) and 10 CFR 50.55a(a)(3)(ii) are effective for the remainder of the third 10-year inservice inspection interval for MPS2 and the remainder of the second 10-year inservice inspection interval for MPS3.

The NRC staff's safety evaluation is enclosed. If you have any questions, please contact the project manager, John Hughey at (301) 415-3204.

Sincerely,

/RA/

Harold K. Chernoff, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-336 and 50-423

Enclosure: As stated

cc: See next page

The NRC staff's safety evaluation is enclosed. If you have any questions, please contact the project manager, John Hughey at (301) 415-3204.

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Millstone Power Station, Unit Nos. 2 and 3

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUESTS RR-89-56 AND IR-2-45

MILLSTONE POWER STATION, UNIT NOS. 2 AND 3

DOMINION NUCLEAR CONNECTICUT, INC.

DOCKET NUMBERS 50-336 AND 50-423

1.0 INTRODUCTION

By letter dated August 17, 2006, as supplemented by letter dated September 13, 2007, Dominion Nuclear Connecticut, Inc. (DNC), submitted to the Nuclear Regulatory Commission (NRC, or the Commission), Relief Requests RR-89-56 and IR-2-45 for Millstone Power Station, Units No. 2 and 3 (MPS2 and MPS3), respectively. The submittal requested relief from selected requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," 1989 edition, Table IWB-2500-1, Examination Category B-P, Items B15.51 and B15.71, which require a system hydrostatic test for all ASME Code Class 1 components. Specifically, DNC has requested to use Code Case N-731 at MPS2 and MPS3 pursuant to the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(a)(3)(i). Alternative requirements are also proposed to the ASME Code hydrostatic pressure test requirements for Class 1 reactor coolant pressure boundary (RCPB) piping segments, including multiple vents, drains, and branch connections. These alternatives were requested pursuant to the provisions of 10 CFR 50.55a(a)(3)(ii).

2.0 REGULATORY EVALUATION

The inservice inspection (ISI) of the ASME Code Class 1, Class 2, and Class 3 components is to be performed in accordance with Section XI of the ASME Code and applicable edition and 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 the licensee demonstrates that: (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, 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) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein and subject to Commission approval.

The third 10-year ISI interval for MPS2 began in April 1999, and will end in March 2009. The second 10-year ISI interval for MPS3 began in April 1999, and will end in October 2008. The ASME Code of record for both units is the 1989 edition with no addenda. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein and subject to Commission approval.

3.0 EVALUATION FOR RELIEF REQUEST NOS. RR-89-56 AND IR-2-45

3.1 Components for Which Relief is Requested

Unit 2 small bore (≤ 2 inch), ASME Code Class 1 RCPB vent, drain and branch (VTDB) lines and connections, low pressure safety injection (LPSI) header pipe segments, shutdown cooling (SDC) return line to the LPSI suction bypass line and SDC return line relief (Groups 1 through 3). The specific components are listed in Tables 1, 2, and 3 of the licensee's August 17, 2006, submittal. Unit 3 small bore (≤ 2 inch) VTDB lines and connections, LPSI header pipe segments, safety injection to reactor coolant system (RCS) cold and hot legs, residual heat removal (RHS) suction and Auxiliary Pressurizer Spray (Groups 4 through 8). Additional segments are portions of larger diameter piping, 6", 8", 10", and 12" nominal pipe size (NPS), that are located between check valves and are isolated. These segments are required to be isolated at operation, or otherwise continually under pressure, and monitored for loss of pressure. The specific segments are described in the tables below.

Request RR-89-56, Group 1 MPS2 piping segments:

Segment	Description	Diameter (inches)	Thickness (feet)
M2-1	Pressurizer Spray Line Drain	3/4	< 1
M2-2	Pressurizer Spray Line Drain	3/4	< 1
M2-3	Reactor Head Vent to Enclosure Building Filtration System	3/4	< 1
M2-4	Refuel Level Indication	3/4	< 1
M2-5	Loop 1A Hot Leg Drain	2	2
M2-6	Loop 2B Reactor Coolant Pump Suction Drain	2	2
M2-7	Loop 2A Reactor Coolant Pump Suction Drain	2	4
M2-8	Loop 1B Drain to Primary Drain Tank	2	2

Request RR-89-56, Group 1 MPS2 piping segments: (continued)

Segment	Description	Diameter (inches)	Thickness (feet)
M2-9	Loop 1B Drain to Primary Drain Tank	2	2
M2-10	Reactor Head Vent	1	< 1
M2-11	Reactor Head Vent	1	1
M2-12	Reactor Head Vent Header Drain	3/4	2
M2-13	Pressurizer Spray line Vent	3/4	2
M2-14	Pressurizer Relief Line Vent	3/4	2
M2-15	Pressurizer Head Vent	1	< 1
M2-16	Pressurizer Head Vent	1	< 1
M2-17	Pressurizer Relief Line Drain	3/4	1
M2-18	Loop 1A Charging Header Vent	3/4	8
M2-19	Loop 1A Charging Header Drain	1	1
M2-20	Loop 2A Charging Header Vent	3/4	< 1
M2-21	Loop 2A Charging Header Drain	1	1
M2-22	Auxiliary Spray Line Charging Header Drain	3/4	1
M2-23	Auxiliary Spray Line	2, 1	61
M2-24	Letdown Line Inlet Header Drain	1	< 1
M2-25	Letdown Line Inlet Header Drain	1	< 1
M2-26	Letdown Line Inlet Header Drain	1	< 1
M2-28	Loop 1A Low Pressure Safety Injection Header Drain	1	< 1
M2-30	Loop 1B Low Pressure Safety Injection Header Drain	1	< 1
M2-32	Loop 2A Low Pressure Safety Injection Header Drain	1	< 1
M2-34	Loop 2B Low Pressure Safety Injection Header Drain	1	< 1
M2-36	Shutdown Cooling Return Line Drain	1	2

Request RR-89-56, Group 2 MPS2 piping segments:

Segment	Description	Diameter (inches)	Thickness (feet)
M2-27	Loop 1A Low Pressure Safety Injection Header	12 6 1 1	40 169 76 < 1
M2-29	Loop 1B Low Pressure Safety Injection Header	12 6 1 1	45 136 70 < 1
M2-31	Loop 2A Low Pressure Safety Injection Header	12 6 1 1	41 24 60 < 1
M2-33	Loop 2B Low Pressure Safety Injection Header	12 6 1 1	49 41 62 < 1

Request RR-89-56, Group 3 MPS2 piping segments:

Segment	Description	Diameter (inches)	Thickness (feet)
M2-35	Shutdown Cooling Return Line to Low Pressure Safety Injection Suction Bypass Line and Shutdown Cooling Return Line Relief	12 3/4 1	36 9 14

Request IR-2-45, Group 4 MPS3 piping segments:

Segment	Description	Diameter (inches)	Thickness (feet)
M3-1	Reactor Coolant System Loop 1 Fill Line	2	< 1
M3-2	Reactor Coolant System Loop 2 Fill Line	2	< 1
M3-3	Reactor Coolant System Loop 3 Fill Line	2	< 1
M3-4	Reactor Coolant System Loop 4 Fill Line	2	< 1
M3-5	Loop 1 Drains to Primary Drain Header	2	81

Request IR-2-45, Group 4 MPS3 piping segments: (continued)

Segment	Description	Diameter (inches)	Thickness (feet)
M3-6	Loop 2 Drains to Primary Drain Header	2	65
M3-7	Loop 3 Drains to Primary Drain Header	2	83
M3-8	Loop 4 Drains to Primary Drain Header	2	137
M3-9	Primary Loop Drain Header	2, 1	236
M3-10	Primary Loop Drain Header Drain	1, 3/4	2
M3-11	Loop 1 T-Cold Stop Valve Disk Pressure Connection	3/4	< 1
M3-12	Loop 1 T-Cold Stop Valve Disk Pressure Connection	3/4	< 1
M3-13	Loop 1 T-Hot Stop Valve Disk Pressure Connection	3/4	< 1
M3-14	Loop 1 T-Hot Stop Valve Disk Pressure Connection	3/4	< 1
M3-15	Loop 3 T-Cold Stop Valve Disk Pressure Connection	3/4	< 1
M3-16	Loop 3 T-Cold Stop Valve Disk Pressure Connection	3/4	< 1
M3-17	Loop 3 T-Hot Stop Valve Disk Pressure Connection	3/4	< 1
M3-18	Loop 3 T-Hot Stop Valve Disk Pressure Connection	3/4	< 1
M3-19	Loop 2 T-Cold Stop Valve Disk Pressure Connection	3/4	< 1
M3-20	Loop 2 T-Cold Stop Valve Disk Pressure Connection	3/4	< 1
M3-21	Loop 2 T-Hot Stop Valve Disk Pressure Connection	3/4	< 1
M3-22	Loop 2 T-Hot Stop Valve Disk Pressure Connection	3/4	< 1
M3-23	Loop 4 T-Cold Stop Valve Disk Pressure Connection	3/4	< 1

Request IR-2-45, Group 4 MPS3 piping segments: (continued)

Segment	Description	Diameter (inches)	Thickness (feet)
M3-24	Loop 4 T-Cold Stop Valve Disk Pressure Connection	3/4	< 1
M3-25	Loop 4 T-Hot Stop Valve Disk Pressure Connection	3/4	< 1
M3-26	Loop 4 T-Hot Stop Valve Disk Pressure Connection	3/4	< 1
M3-27	Reactor Vessel Head Vent Line	1	1
M3-28	Reactor Vessel Head Vent Line Drain	1	1
M3-29	Loop 1 Test Connection Instrument Line	2, 3/4	3

Request IR-2-45, Group 5 MPS3 piping segments:

Segment	Description	Diameter (inches)	Thickness (feet)
M3-30	Loop 1 Low Pressure Safety Injection Header	6 10	15 15
M3-31	Loop 2 Low Pressure Safety Injection Header	6 10	20 20
M3-32	Loop 3 Low Pressure Safety Injection Header	6 10	20 20
M3-33	Loop 4 Low Pressure Safety Injection Header	6 10	20 20

Request IR-2-45, Group 6 MPS3 piping segments:

Segment	Description	Diameter (inches)	Thickness (feet)
M3-34	Safety Injection to Loop 1 Hot Leg	2, 6	200
M3-35	Safety Injection to Loop 2 Hot Leg	2, 6	208
M3-36	Safety Injection to Loop 3 Hot Leg	2, 6, 8	275
M3-37	Safety Injection to Loop 4 Hot Leg	2, 6, 8	101
M3-38	Safety Injection to (4) Cold Legs	1.5, 3	758

Request IR-2-45, Group 7 MPS3 piping segments:

Segment	Description	Diameter (inches)	Thickness (feet)
M3-39	A Residual Heat Removal Suction Line	12	59
M3-40	B Residual Heat Removal Suction Line	12	59

Request IR-2-45, Group 8 MPS3 piping segments:

Segment	Description	Diameter (inches)	Thickness (feet)
M3-41	Auxiliary Pressurizer Spray	2	230

3.2 Code Requirements

The applicable code requirements are the 1989 edition with no addenda of the ASME Code, Section XI, Table IWB-2500-1, Examination Category B-P, Items B15.51 and B15.71, which require a system hydrostatic test for all ASME Code Class 1 components.

3.3 Licensee's Proposed Alternatives and Basis for Use

The licensee is requesting relief from the ASME Code requirements to perform the ASME Code Class 1 system hydrostatic test for the piping segments described in section 3.1 of this safety evaluation.

MPS2 Group 1 segments (1-26, 28, 30, 32, 34 and 36) and MPS3 Group 4 segments 1-29 are VTDB lines and connections that are equipped with manual valves, which provide double isolation of the RCPB. As an alternative to the ASME Code system hydrostatic test requirements for these RCPB pipe segments, this request proposes to perform an ASME Code Section XI, Table IWB-2500-1 and IWB-5221 system leakage test with the isolation valves in the normally closed position. This examination will be performed at the nominal operating pressure associated with 100 percent reactor power after satisfying the ASME Code-required hold time. The licensee's basis for approval of this alternative includes the following information:

a. The ASME Code requirements for ISI system hydrostatic tests have been removed from Section XI, Table IWB-2500-1, Examination Category B-P, in the 1998 edition, and this edition of the Code has been endorsed for use in 10 CFR 50.55a for several years.

b. The non-isolable portion of the RCPB VTDB lines and connections will be pressurized and will be visually examined as required. Only the isolable portion of these small diameter VTDB lines and connections will not be pressurized, but a VT-2 examination will still be performed in these cases.

c. A typical VTDB line and connection includes two manual valves or one manual valve, separated by a short piece of pipe or a pipe nipple, which is connected to the RCPB via another short pipe nipple. These connections are typically socket welded and the welds receive a surface examination after installation. The piping and valves are normally heavy walled. The VTDB lines and connections are not subject to high or cyclic loads and design ratings are greater than RCPB operating pressure.

d. MPS2 and MPS3 use the ASME Code Section XI, 1998 edition with no addenda for its Section XI Repair/Replacement program activities. The requirements of this 1998 edition under IWA-4540 are very similar to the requirements of the 1989 Edition under IWA-4700. Both IWA-4540 (1998 edition) and IWA-4700 (1989 edition) provide the requirements for hydrostatic pressure testing of piping and components after repairs by welding to the pressure boundary. IWA-4540(b)(5) of the 1998 edition and IWA-4700(b)(5) of the 1989 edition are identical and exclude component connections, piping, and associated valves 1" NPS and smaller from the hydrostatic pressure test requirement after welded repairs. Therefore, requiring a hydrostatic test and visual examination of the 1" NPS and smaller of Group 1 and Group 4 Class 1 RCPB VTDB lines and connections once each 10-year interval is unwarranted, considering that hydrostatic pressure testing a repair weld on the same connections is not required by the ASME Code, Section XI.

Considering this information and the implications for personnel safety and radiation exposure that would occur as a result of meeting the ASME Code Section XI, 1989 Edition, hydrostatic test requirements, the licensee has determined that compliance with the hydrostatic test requirements for Groups 1 and 4 RCPB VTDB lines and connections results in hardship without a compensating increase in the level of quality and safety.

MPS2 Group 2 piping segments (27, 29, 31 and 33) and MPS3 Group 5 segments (30 through 33) are part of the LPSI system and are continuously pressurized and monitored for loss of pressure because they are in the open injection flow path from the safety injection tanks. As an alternative to the hydrostatic test requirements for these RCPB pipe segments, the licensee proposes to use a reduced pressure test that will meet Code Case N-731, "Alternative Class 1 System Leakage Test Pressure Requirements Section XI, Division 1 (N-731)." The ASME approved Code Case N-731 on February 22, 2005, because it believed that detection of leakage from a through-weld or through-wall flaw is affected by pressure, temperature, and time, with time being the controlling factor. Since the requirements of Code Case N-731 limit its application to safety injection systems that must be under pressure for an entire operating cycle, there appears to be no reason to have the pressure elevated to full RCPB pressure to prove leakage integrity for this piping. Because this alternative for Groups 2 and 5 is specific to the LPSI piping at MPS2 and MPS3 that is continuously under pressure for the entire operating cycle, continually monitored for loss of pressure, and is included in the scope of the ASME approved Code Case N-731, the licensee has determined that use of this alternative provides an acceptable level of quality and safety. Therefore, the licensee requests approval to use Code Case N-731 pursuant to 10CFR 50.55a(a)(3)(i).

The MPS2 Class 1 RCPB pipe segment 35 in Group 3 is part of the SDC system and is prevented from exceeding 280 pounds per square inch gauge (psig) by a pressure interlock on valve 2-SI-652. Additional protection is provided by a relief valve with a set point of 300 psig within the piping segment. The alternative to the IWB-5222 pressure requirement is to examine this pipe segment at its normal operating pressure. The basis for approval of this alternative

includes the fact that the pressure interlock on valve 2-SI-652 and the relief valve located within this pipe segment protect the SDC system from being over-pressurized by the RCS. To attempt to pressurize this segment to RCS pressure would require defeating the SDC system over-pressure protection, potentially endangering the plant. Considering this information, the hydrostatic test requirements for Group 3, piping segment 35, results in an unnecessary hardship without a sufficient compensating increase in the level of quality and safety. Therefore, the licensee requests approval of this alternative pursuant to 10 CFR 50.55a(a)(3)(ii).

The Group 6 piping segments 34-38 of MPS3 are part of the safety injection system that are located between check valves that isolate these segments from RCS pressure. As an alternative to the hydrostatic test pressure requirements of IWB-5222 for these RCPB pipe segments, the licensee proposes to perform this test using a reduced test pressure during the full flow check valve tests of these segments, during the refuel outage with the RCS depressurized. The licensee stated that in order to pressurize these segments to meet the ASME Code hydrostatic test requirements, it would be necessary to connect jumpers circumventing the inboard check valve boundaries from the RCS. The jumper would be a temporary line connecting the higher pressure RCS around the check valve in order to pressurize the subject piping segment. This is a significant personnel safety hazard and will result in unnecessary personnel radiation exposure. The licensee has determined that compliance with these requirements for Group 6 RCPB pipe segments results in unnecessary hardship without a compensating increase in the level of quality and safety. Therefore, the licensee requests approval of this alternative pursuant to 10 CFR 50.55a(a)(3)(ii).

The Group 7 piping segments 39 and 40 for MPS3 are in the RHS system and are not pressurized during normal plant operation. As an alternative to the hydrostatic test requirements for these RCPB pipe segments, the licensee proposes to perform this test using a reduced test pressure prior to the valves being closed, isolating these segments in the normal preparation for mode change during startup.

The basis for approval of this alternative is:

a. In order to pressurize this segment to meet the ASME Code requirements to perform the system hydrostatic test it would be necessary to open the isolation valves 3RHS*8701 C ("A" train) and 3RHS*8702C ("B" train). These isolation valves are required to be closed when the plant is in Modes 1, 2, and 3 as described in the MPS3 UFSAR Section 5.4.7.1 and plant operational procedures.

b. Alternatively, to install temporary high pressure hoses with a hydrostatic pump to pressurize these segments during the refuel outage would add additional personnel exposure and introduce a significant personnel safety hazard if the connection or hose fails in the presence of inspection personnel.

The licensee has determined that compliance with the hydrostatic test requirements for Group 7 RCPB pipe segments results in unnecessary hardship without sufficient compensating increase in the level of quality and safety. Therefore, the licensee requests approval of this alternative pursuant to 10 CFR 50.55a(a)(3)(ii).

The RCPB piping segment 41 at MPS3 is part of the auxiliary pressurizer spray line which is not normally pressurized. This request proposes to perform an ASME Code Section XI, Table IWB-2500-1 and IWB-5221 system leakage test with the isolation valve 3RCS*MV8145 in the normally closed position as an alternative to the hydrostatic test requirements for this piping segment. This examination will be performed at nominal operating pressure associated with 100 percent reactor power after satisfying the ASME Code-required hold time. In order to pressurize this segment to meet the ASME Code requirements to perform the system hydrostatic test, it would be necessary to open the normally closed upstream isolation valve 3RCS*MV8145. Opening this valve would allow water in the auxiliary pressurizer spray line, which is at containment ambient temperature, to pass through a check valve into the main spray header and through the spray nozzle into the pressurizer. With the RCS at normal operating temperature, this would create a thermal shock transient to the spray nozzle. The licensee has determined that compliance with the hydrostatic test requirements for the Group 8 piping segment for MPS3 results in an unnecessary hardship and adverse impact to plant equipment without a sufficient compensating increase in the level of quality and safety. Therefore, the licensee requests approval of this alternative pursuant to the provisions of 10 CFR 50.55a(a)(3)(ii).

3.4 NRC Staff Evaluation

The ASME Code of record for MPS2 and MPS3 requires that all Class 1 components within the RCS boundary undergo a system hydrostatic test once per interval under Table IWB-2500-1, Examination Category B-P. The licensee has proposed an alternative to the hydrostatic test requirements of the ASME Code for the line segments described section 3.1 of this safety evaluation.

3.4.1 Unit 2 Group 1 and Unit 3 Group 4 Segments

The MPS2 Group 1 and MPS3 Group 4 piping segments, as stated by the licensee, typically include two manually operated valves separated by a short pipe nipple that is connected to the RCS via another short pipe nipple and half coupling. The line configuration, as outlined, provides double isolation of the RCS. Under normal plant operating conditions, the subject line segments would see RCS temperatures and pressures only if leakage through the inboard valve occurs. For the licensee to perform the ASME Code-required test, it would be necessary to manually open the inboard valves to pressurize the line segments. Pressurization by this method would defeat the RCS double isolation and would result in safety concerns and radiation exposure of 0.5 roentgen equivalent man (rem) for the personnel performing the examination.

The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein and subject to Commission approval.

10 CFR 50.55a(b)(2) endorses the use of ASME Codes through the 2003 addenda. When using portions of later editions and addenda of the Code, all related requirements including limitations identified in 10 CFR 50.55a are to be met. Three limitations are identified in 10 CFR 50.55a(b)(2) for pressure testing:

1. (xx) - This paragraph defines hold times for Code Class 2 and 3 system leakage tests when performed in accordance with IWA-5213(a) from the 1997 addenda through the 2002 addenda. The staff concludes that this limitation does not apply since the licensee will be performing the pressure test on Class 1 components.

2. (xxvi) - This paragraph defines pressure testing of mechanical joints during repair and replacement activities. The staff concludes that since this request does not include repair and replacement activities, this limitation is not applicable.

3. (xxvii) - This paragraph addresses insulation removal when pressure testing Code Class 1 borated systems. This limitation is in effect and the licensee has not asked for relief from this limitation.

Based on the review of the information provided by the licensee, the staff concludes that the 1989 ASME Code requirement to perform the system hydrostatic test on Groups 1 and 4 segments presents a hardship for the licensee based on dose accumulation and personnel safety. In its supplemental letter dated September 13, 2007, the licensee indicated that Groups 1 and 4 piping segments are designed to withstand full reactor coolant pressure boundary pressure and are isolated from the RCS during normal operation. Also, the RCS vent and drain connections are visually examined with the isolation valves in the normally closed position during the 10-year ISI pressure test as required by the ASME Code of record. Based on the design of the segments to withstand RCS pressure, its low service use during operation (isolated and unpressurized) and the VT-2 examinations performed each outage, the staff concludes that there is no compensating increase in quality and safety to hydrostatically test the subject segments. The staff concludes that the licensee's proposed alternative will provide reasonable assurance that structural integrity is maintained for the subject line segments and imposition of the ASME Code requirement on MPS2 and MPS3 would result in hardship without a compensating increase in the level of quality and safety. Therefore, the staff approves the proposed alternative for the Group 1 and 4 piping segments pursuant to 10 CFR 50.55a(a)(3)(ii).

3.4.2 Unit 2 Group 2 and Unit 3 Group 5 Segments

The MPS2 Group 2 and MPS3 Group 5 piping segments are part of the LPSI system and are continuously pressurized and monitored for loss of pressure because they are in the open injection flow path from the safety injection tanks. The licensee proposes to use a reduced pressure test that will meet Code Case N-731 as an alternative to the hydrostatic test requirements. In its supplemental letter dated September 13, 2007, the licensee indicated that the test pressure will be 200 psig and 636 psig, respectively, which would correspond to the minimum operating pressure of the segments.

In addition, Code Case N-731 allows the use of the system operating pressure associated with a statically-pressurized passive safety injection system. At this time, Code Case N-731 is not listed as approved for use by the staff under Regulatory Guide 1.147, Revision 14, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1." However, the staff has reviewed this code case and deemed it acceptable for use. Based on the staff's review and acceptance of Code Case N-731, the staff concludes that the licensee's proposed alternative

will provide an acceptable level of quality and safety. Therefore, the licensee proposed alternative to use Code Case N-731 is authorized for MPS2 Group 2 and MPS3 Group 5 segments pursuant to 10 CFR 50.55a(a)(3)(i).

3.4.3 Unit 2 Group 3 Segment 35

The MPS2 Group 3 piping segment 35 is part of the SDC system and is prevented from exceeding 280 psig by a pressure interlock. Additional protection is provided by a relief valve with a set point of 300 psig. The licensee proposes to examine the piping at its normal operating pressure of 190 psig because to pressurize the segment to RCS pressure would require defeating the SDC system over-pressure protection which would endanger the plant. The staff agrees that to defeat the SDC system over-pressure protections would endanger the plant and qualifies as sufficient hardship for the licensee.

Secondly, based on the information provided in its supplemental letter dated September 13, 2007, the design pressure of segment is RCS pressure and the segment is VT-2 inspected each outage. Based on the design of the piping and testing performed, the staff concludes that to pressurize the piping to hydrostatic test pressure does not provide a compensating increase in the level of quality and safety commensurate with the hardship involved. Therefore, the licensee proposed alternative to use normal system operating pressure for the MPS2 Group 3 piping segment is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

3.4.4 Unit 3 Group 6 Segments

The MPS3 Group 6 piping segments 34-38 are part of the safety injection system that are located between check valves that isolate these segments from RCS pressure. The licensee proposes to use a reduced pressure during full flow check valve testing of these segments with the RCS depressurized during a refuel outage. In its supplemental letter dated September 13, 2007, the licensee indicated that there is no installed pressure instrumentation monitoring those segments. The testing is performed with the reactor vessel defueled, the vessel head removed and normal refueling cavity water level established, which corresponds to the minimum operating pressure during the full-flow test.

The licensee indicates that it would be necessary to connect jumpers circumventing the inboard check valve boundaries from the RCS which would result in personnel safety and radiation exposure issues to its personnel. Since these segments are not normally pressurized during normal plant operation, and pressurization would result in significant personnel safety and a radiation exposure of 0.375 rem, the staff concludes that compliance with the Code requirements for these sections poses a hardship for the licensee.

Finally, in its supplemental letter dated September 13, 2007, the licensee indicated that the design pressure ratings of the subject segments are RCPB rated and are subject to VT-2 examinations each outage. Based on the design of the piping and current test plan, the staff concludes that there is not a compensating increase in the level of quality and safety commensurate with the hardship. Therefore, the licensee proposed alternative to pressurize the MPS3 Group 6 segments 34-38 using reduced full-flow test pressure is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

3.4.5 Unit 3 Group 7 Segments

The MPS3 Group 7 piping segments 39 and 40 are part of the RHS which is not pressurized during normal plant operation. In order to pressurize this segment, it would be necessary to open isolation valves during operational Modes 1, 2, and 3, or install high pressure hoses during a refuel outage. The licensee proposes to perform the pressure test at a reduced test pressure prior to the valves being closed during normal plant operation, thereby eliminating personnel safety and radiation exposure issues. In its supplemental letter dated September 13, 2007, the licensee stated that the minimum pressure specified will be 340 psig which correlates to the nominal operating system condition that exists prior to the segments being isolated in support of startup from a refueling outage.

Since the Unit 3 Group 7 segments maintain the same design, testing, and operational configuration of the Groups 1 and 4 segments, the staff concludes, based on its previous discussion for Groups 1 and 4, that the hydrostatic examination required by the ASME Code of record results in hardship to the licensee without a compensating increase in the level of quality and safety. Therefore, the licensee proposed alternative to pressure test the MPS3 Group 7 segments at a reduced pressure is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

3.4.6 Unit 3 Group 8 Segment

The MPS3 Group 8 RCPB piping segment 41 is part of the auxiliary pressurizer spray line which is not normally pressurized. The licensee states that to comply with the hydrostatic test requirements would cause a thermal shock transient to the pressurizer spray nozzle and result in a hardship without a compensating increase in the level of quality and safety. The licensee proposes to perform a system leakage test with the isolation valve in the normally closed position as an alternative to the hydrostatic test. The test pressure will be 325 psig which correlates to nominal operating pressure when the auxiliary spray is utilized during a normal plant cooldown. The staff concludes that the test pressure will provide reasonable assurance of structural integrity.

Since the Unit 3 Group 8 segment maintains the same design, testing, and operational configuration of the Groups 1 and 4 segments, the staff concludes, based on its previous discussion for Groups 1 and 4, that the hydrostatic examination required by the ASME Code of record results in hardship to the licensee without a compensating increase in the level of quality and safety. Based on the information provided by the licensee, and based on the discussion under Groups 1 and 4, the staff concludes that compliance with the hydrostatic test requirements would cause a hardship to the licensee by unnecessarily stressing plant components and would not provide a compensating increase in the level of quality and safety. Therefore, the licensee proposed alternative to perform a system leakage test for the MPS3 Group 8 segment is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

4.0 CONCLUSION

The NRC staff determined that compliance with the hydrostatic test requirements results in hardship without a compensating increase in the level of quality and safety. Furthermore, alternatives submitted by the licensee provide an acceptable level of quality and safety.

Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) and (3)(ii), the staff authorizes the use of the proposed alternatives in Relief Request RR-89-56 for the remainder of the third 10-year ISI interval for MPS2 and in Relief Request IR-2-45 for the remainder of the second 10-year ISI interval for MPS3.

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