VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

August 2, 2005

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Serial No.: 05-397
NL&OS/ETS: Rev. 1
Docket Nos.: 50-338/339
License Nos.: NPF-4/7

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
NORTH ANNA POWER STATION UNITS 1 & 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
ASME SECTION XI INSERVICE INSPECTION PROGRAM
END OF INTERVALS SYSTEM PRESSURE TESTING

In a letter dated January 10, 2005 (Serial No. 04-766), Dominion requested relief from certain ASME Code inservice inspection requirements for North Anna Units 1 and 2. North Anna Units 1 and 2 are currently in the second period of the third Inservice Inspection (ISI) interval. The requests for relief are necessary for certain pressure tests and associated visual examinations required at or near the end of the ISI interval on ASME Class 1 components for each of the units. The relief requests address components and piping considered part of the extended Class 1 boundary and only require pressurization at or near the end of the ISI interval. In a letter dated June 9, 2005, the NRC staff requested additional information to complete their review of the requested relief from the ASME Code. The attachment to this letter provides the requested information.

If you have any questions or require additional information, please contact Mr. Thomas Shaub at (804) 273-2763.

Very truly yours,

Leslie N. Hartz
Vice President - Nuclear Engineering

Attachment

Commitments made in this letter: None

cc: U.S. Nuclear Regulatory Commission
Region II
Sam Nunn Federal Atlanta Center
61 Forsyth Street, SW
Suite 23T85
Atlanta, Georgia 30303

Mr. J. T. Reece
NRC Senior Resident Inspector
North Anna Power Station

Mr. R. E. Martin
NRC Lead Project Manager – North Anna and Surry
U. S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Mr. S. R. Monarque
NRC Project Manager
U. S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Mail Stop 8-H12
Rockville, MD 20852

Mr. J. Honcharik
NRC Project Manager
U. S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Mr. J. E. Reasor, Jr. (w/out attachment)
Old Dominion Electric Cooperative
Innsbrook Corporate Center
Suite 300
4201 Dominion Blvd.
Glen Allen, Virginia 23060

Mr. M. Grace
Authorized Nuclear Inspector
North Anna Power Station

Attachment

Letter Serial No. 05-397

REQUEST FOR ADDITIONAL INFORMATION RESPONSE
ASME SECTION XI INSERVICE INSPECTION PROGRAM
END OF INTERVALS SYSTEM PRESSURE TESTING RELIEF REQUESTS

Virginia Electric and Power Company
(Dominion)

REQUEST FOR ADDITIONAL INFORMATION RESPONSE
ASME SECTION XI INSERVICE INSPECTION PROGRAM
END OF INTERVALS SYSTEM PRESSURE TESTING RELIEF REQUESTS

1.0 SCOPE

By letter dated January 10, 2005, Virginia Electric and Power Company (VEPCO, the licensee), submitted the following requests for relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, for North Anna Power Station, Units 1 and 2.

1. North Anna, Unit 1 - SPT-010, 011, 012, and 013
2. North Anna, Unit 2 - SPT-009, 010, 011, 012, and 013

The requests for relief are for the third 10-year inservice inspection (ISI) interval, in which North Anna, Unit 1 adopted the 1989 Edition of ASME Section XI as the ASME Code of record and North Anna, Unit 2 adopted the 1995 Edition of Section XI including the 1996 Addenda as the ASME Code of record.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(ii), the licensee has submitted the subject relief requests for ASME Code pressure test requirements on Class 1 components and piping in North Anna, Units 1 and 2. As stated in 10 CFR 50.55a(a)(3)(ii), licensees may propose an alternative to ASME Code requirements if a hardship or unusual difficulty would be incurred by performing the requirement. The licensee must adequately state the hardship or unusual difficulty, and demonstrate that no compensating level of quality or safety would be realized by performing the inspection or testing required by the ASME Code.

Pacific Northwest National Laboratory (PNNL) and the NRC staff have reviewed the information submitted by the licensee and, based on this review, determined the following information is required to complete the evaluation for SPT-010 through SPT-013 for North Anna, Unit 1 and for SPT-009 through SPT-012 for North Anna, Unit 2. Additional information for Request for Relief SPT-013 for North Anna, Unit 2 is not required by the NRC staff for its review.

2.0 REQUESTS FOR ADDITIONAL INFORMATION

2.1 General Information

NRC Question

2.1(a) Please confirm the start and end dates for the third 10-year inspection intervals at North Anna Power Station, Units 1 and 2.

Dominion Response:

North Anna Unit 1's third ISI interval - May 1, 1999 to April 30, 2009
North Anna Unit 2's third ISI interval - December 14, 2001 to December 13, 2010

2.2 Requests for Additional Information for North Anna, Unit 1

NRC Question

2.2.1 In the requests for relief SPT-010 through SPT-013, ASME Code Case N-498-1, "Alternative Rules For Ten Year System Hydrostatic Testing For Class 1, 2, and 3 Systems, Section XI, Division 1" was listed as an alternative to rules for system leakage testing. Was ASME Code Case N-498-1 invoked under Regulatory Guide 1.147, Revision 12, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1" for the applicable 10-year ISI interval program? Since ASME Code Case N-498-4 is now approved for general use in Regulatory Guide 1.147, Revision 13, was it considered for this request for relief?

Dominion Response:

The ISI Plan for North Anna Unit 1 incorporated Code Case N-498-1 when Regulatory Guide 1.147, Revision 12 addressed the Code Case. Code Case N-498-4 has not been incorporated into the ISI Plan for North Anna Unit 1. Code Case N-498-4 was not considered for use in this request, because the relief requests address boundaries subject to test pressurization and each of the Code Case revisions read essentially the same for that requirement.

2.2.2 Request for Relief SPT-010, (North Anna Unit 1) Examination Category B-P, Pressure-Retaining Components in the Residual Heat Removal and Safety Injection Systems

NRC Question:

2.2.2(a) For each of the piping segments listed in Relief Request SPT-010, please state the piping material, nominal pipe size, and overall length of the segment.

Dominion Response:

Segment	Material	Size/(Approximate Length)
1-SI-127, 1-SI-125, 1-SI-126	austenitic stainless steel (A-376-TP316 typical)	12" (84') & ¾" (1')
1-SI-142, 1-SI-143, 1-SI-144 & 1-RH-MOV-1720A	austenitic stainless steel (A-376-TP316 typical)	12" (84'), 10" (8'), & ¾" (1')
1-SI-161, 1-SI-159, 1-SI-160, & 1-RH-MOV-1720B	austenitic stainless steel (A-376-TP316 typical)	12" (83'), 10" (24'), & ¾" (1')

NRC Question:

2.2.2(b) It is stated that, "the Class 1 [segments] between [valves] 1-SI-126 and 1-SI-HCV-1850B, 1-SI-143 and 1-SI-HCV-1850D, and 1-SI-160 and 1-SI-HCV-1850F will be tested externally to required test pressure, and [are] not part of this relief request." If the piping segments listed above can be pressurized to the required test pressure, discuss why the pipe segments listed in the relief request could not be pressurized to pressures higher than the 660 psig stated in the alternative by using the same external source. If plant technical specifications prevent such a pressurization, or if injecting water inventory into the reactor coolant system (RCS) is a concern, discuss what maximum test pressure could be used in an alternative leakage test. Include in the discussion why the proposed test pressure and temperature are adequate to ensure leakage integrity for these lines.

Dominion Response:

The segments between valves 1-SI-126, and 1-SI-HCV-1850B, 1-SI-143 and 1-SI-HCV-1850D, and 1-SI-160, and 1-SI-HCV-1850F can be pressurized from the upstream non-class piping with an external source using valves 1-SI-126, 1-SI-143, and 1-SI-160 as test boundary valves. The upstream non-class piping is rated to allow the higher test pressures at North Anna Unit 1.

North Anna Unit 1 does not have a flow path from the high pressure safety injection pumps through the safety injection accumulators. Using an external pressure source on the piping addressed by the relief request was discussed in the relief and could be performed, but is considered an unnecessary burden given the proposed alternative. The external pressurization test would require the use of check valves as boundary valves. Test pressures could approach that of the RCS pressure at nominal operating pressure and temperature with the test pressure set below that of the RCS to ensure check valve closure as a result of differential pressure. With fuel in the core, controls would be needed to preclude potential reactivity changes as a result of the test (i.e., inadvertent intrusion of test fluid into the RCS). Further, these controls would be difficult to maintain

given the nature of external positive displacement test pumps and the incompressibility of water. Furthermore, Technical Specification 3.5.1 would apply in this scenario, where the discharge MOV is closed for test isolation purposes. Entry into the action of TS 3.5.1 would require restoration in a time of 1 hour. Although, this type test is not prevented by Technical Specifications, it would be very difficult to perform the test in the 1-hour completion time. The postulated test would also require test personnel to wear self-contained breathing apparatus (SCBA), since the containment would be subatmospheric adding to the difficulty to perform the required inspection.

Alternatively, the piping segments in question are subject to approximately 640 psig (normal accumulator operating pressure) throughout the entire operating cycle prior to visual examination during the outage. Since, the water is borated and given the amount of time involved, evidence of through-wall leakage would be clearly indicated during an outage visual inspection. ASME has recently approved Code Case N-731 (yet to be published), which addresses this situation and provides for similar alternative requirements. A copy of Code Case 731 is attached for your review.

NRC Question:

2.2.2(c) For the piping segments in SPT-010, the licensee's proposed alternative states that the test pressure (with the valves in normal line-up) will be examined for evidence of leakage at the safety injection system normal operating pressure. Clearly state the actual test pressure and temperatures that will be applied to this segment during the system leakage test.

Dominion Response:

The piping sections will be pressurized to the safety injection accumulator tank pressure of approximately 640 psig (TS range 599 to 667 psig). The test temperature would approximate tank ambient conditions while the RCS is pressurized (i.e., an average of approximately 105°F). Temperature may increase as the fluid location approaches the RCS boundary valve.

2.2.3 Request for Relief SPT-011, (North Anna Unit 1) Examination Category B-P, Pressure-Retaining Components in the Residual Heat Removal System

NRC Question:

2.2.3(a) For the piping segment listed in Relief Request SPT-011, please state the piping material, nominal pipe size, and overall length of the segment.

Dominion Response:

Segment	Material	Size/(Approximate Length)
1-RH-MOV-1700 and 1-RH-MOV-1701	austenitic stainless steel (A-376-TP316 typical)	14" (30')

NRC Question:

2.2.3(b) For the piping segment associated with Relief Request SPT-011, it is stated that valve 1-RH-MOV-1700 is prevented from being opened by a pressure interlock. The function of the interlock is to prevent the low-pressure residual heat removal system piping from being overpressurized by the RCS. Please verify that North Anna, Unit 1 technical specifications prevent 1-RH-MOV-1700 from being opened during modes of plant operation when the RCS pressure is at 100-percent rated power.

Dominion Response:

The North Anna Technical Specifications do not address the Residual Heat Removal (RHR) system inlet motor operated valve (MOV) interlocks, nor do the Standard Improved Technical Specifications. The UFSAR in Section 7.6.2.1 describes the interlock, noting that the valves are interlocked with a pressure signal to prevent opening whenever system pressure exceeds 418 psig. Additionally, the Technical Requirements Manual (TRM) Surveillance Requirement 3.7.8.1 requires that the RHR system be isolated and the breaker for these MOVs be opened and locked, prior to exceeding RCS pressure of 500 psig.

NRC Question:

2.2.3(c) For the piping segment in SPT-011, the proposed alternative states that the piping segment will be examined for evidence of leakage at nominal system operating pressure. Clearly state the actual test pressure and temperature that will be applied to this segment during the system leakage test.

Dominion Response:

The intent is to test the Class 1 piping (between 1-RH-MOV-1700 and 1-RH-MOV-1701) with the adjoining Class 2 piping pressure test. The Class 2 test is conducted once a period, which would result in two additional VT-2 examinations at pressure on the Class 1 piping when compared to the current Class 1 extended boundary end of interval requirements. The RHR system is placed in operation when the reactor coolant temperature has been reduced below approximately 350°F and the reactor coolant pressure has been reduced below approximately 400 psig. The pressure test that will be used for the Class 1 piping was written to be conducted soon after RHR is placed in operation to obtain the higher pressures and temperatures experienced during RHR system operation, but within the parameters described above. Additionally, the Class 1 piping will continue to receive a VT-2 examination as part of the Class 1 system leakage test, which occurs following reactor refueling, but prior to startup. (Note: during the Class 1 leakage test the extended boundary is not normally pressurized due to the pressure interlock.)

2.2.4 Request for Relief SPT-012, (North Anna Unit 1) Examination Category B-P, Pressure-Retaining Components in the Safety Injection System

NRC Question

2.2.4(a) For each of the piping segments listed in Relief Request SPT-012, please state the piping material, nominal pipe size, and overall length of the segments.

Dominion response

Segment	Material	Size/(Approximate Length)
1-SI-195, 1-SI-197, 1-SI-199, 1-SI-MOV-1890C, & 1-SI-MOV-1890D	austenitic stainless steel (A-376-TP316 typical)	½" (1'), ¾" (1'), 6" (16') 10" (15')
1-SI-211, 1-SI-209, 1-SI-213, 1-SI-MOV-1890A, & 1-SI-MOV-1890B	austenitic stainless steel (A-376-TP316 typical)	¾" (2'), 6" (494'), 10"(35')

NRC Question:

2.2.4(b) For the piping segments associated with SPT-012, it is stated that test pressures and temperatures will be coincident with a system functional test. Discuss why these segments cannot be pressurized to higher pressures by using a safety injection pump with the test header aligned, or some other method. If injection of water inventory is an issue, state the maximum test pressure that could be used for testing these piping segments. If conflict with plant technical specifications is an issue, please verify that North Anna, Unit 1 technical specifications prevent isolation of these piping segments during all modes of plant operation. Also, please state the operating pressures and temperatures of these emergency core cooling system line segments during a plant event that requires safety injection, i.e., operation of these lines. Include a discussion why the proposed test pressure and temperature are adequate to ensure leakage integrity for these lines.

Dominion Response:

North Anna has separate high pressure safety injection pumps and low pressure safety injection pumps. The piping segments identified in the relief are connected to the low pressure safety injection pumps discharge flow path. The normal operating pressure for these pumps is approximately 120 psig with temperature corresponding initially in accident conditions to the refueling water storage tank (RWST) temperature of approximately 40°F. The temperature would rise after the pumps are switched to take suction from the containment sump during the accident. The high pressure safety injection pumps do not flow through the piping segments and cannot pressurize these segments due to check valve placement. The only possible high-pressure source would

be an external pressurization rig discussed in the relief request. Although this test is not prohibited by Technical Specifications, in order to perform the test the safety injection train would be declared inoperable and the test completed in 72 hours in accordance with TS 3.5.2.A. As discussed in the relief request, this type test has the potential to introduce test fluid into the RCS and adversely affect reactivity, given the nature of a positive displacement test pump and the effects of water incompressibility. Additionally, test personnel would be required to wear a SCBA, since the containment would be subatmospheric during the test adding to the difficulty in performing the required inspection. We believe that this type of pressure test is an unnecessary risk given the alternative proposed and the location of the piping in question.

The proposed alternative will be a system functional test to the safety injection system pressure (approximately 120 psig) and nominal operating temperature (refueling water storage tank temperature). This would represent the actual accident pressure and only involves Class 1 piping beyond the second closed valve from the reactor coolant system. The test pressure corresponds to the adjacent Class 2 safety injection piping pressure test requirements and would identify through-wall leakage. Additionally, the piping would be visually examined (VT-2) each refueling as part of the normal Class 1 system leakage test (normal valve line-up) for evidence of leakage.

2.3 Requests for Additional Information for North Anna, Unit 2

2.3.1 Request for Relief SPT-009, (North Anna Unit 2) Examination Category B-P, Pressure-Retaining Components in the Residual Heat Removal and Safety Injection Systems

NRC Question:

2.3.1(a) For each of the piping segments listed in Relief Request SPT-009, please state the piping material, nominal pipe size, and overall length of the segments.

Dominion Response:

Segment	Material	Size/(Approximate Length)
2-SI-153, 2-SI-151, 2-SI-152	austenitic stainless steel (A-376-TP316 typical)	12" (84') & ¾" (1')
2-SI-170, 2-SI-168, 2-SI-169 & 2-RH-MOV-2720A	austenitic stainless steel (A-376-TP316 typical)	12" (84'), 10" (12'), & ¾" (1')
2-SI-187, 2-SI-185, 2-SI-186, & 2-RH-MOV-2720B	austenitic stainless steel (A-376-TP316 typical)	12" (83'), 10" (22'), & ¾" (1')

NRC Question:

2.3.1(b) It is stated that "the Class 1 [segments] between [valves] 2-SI-152 and 2-SI-HCV-2850B, 2-SI-169 and 2-SI-HCV-2850D, and 2-SI-186 and 2-SI-HCV-2850F will be tested externally to required test pressure, and [are] not part of this relief request." If the piping segments listed above can be pressurized to the required test pressure, discuss why the pipe segments listed in the relief request could not be pressurized to higher pressures by using the same external source. If plant technical specifications prevent such a pressurization or if injecting water inventory into the RCS is a concern, discuss the maximum test pressure that could be used in an alternative leakage test. Include in the discussion why the proposed test pressure and temperature are adequate to ensure leakage integrity for these lines.

Dominion Response:

The segments between valves 2-SI-152, and 2-SI-HCV-2850B, 2-SI-169 and 2-SI-HCV-2850D, and 2-SI-186, and 2-SI-HCV-2850F can be pressurized from the upstream non-class piping with an external source using valves 2-SI-152, 2-SI-169, and 2-SI-186 as test boundary valves. The upstream non-class piping is rated to allow the higher test pressures at North Anna Unit 2.

North Anna Unit 2 does not have a flow path from the high pressure safety injection pumps through the safety injection accumulators. Using an external pressure source on the piping addressed by the relief request was discussed in the relief and could be performed, but is considered an unnecessary burden given the proposed alternative. The external pressurization test would require the use of check valves as boundary valves. Test pressures could approach that of the RCS pressure at nominal operating pressure and temperature with the test pressure set below that of the RCS to ensure valve closure as a result of differential pressure. However, controls would be needed to ensure no potential reactivity changes (fuel would be loaded) as a result of the test (inadvertent intrusion of test fluid). The controls would be difficult to maintain given the nature of an external positive displacement test pump and the incompressibility of water leading to potential test fluid intrusion into the reactor coolant system and a reactivity addition. Entry into the action of Technical Specification 3.5.1 would apply in this scenario, where the discharge MOV is closed for test isolation purposes. This TS action requires restoration in 1 hour. Although, this type test is not prevented by Technical Specifications, it would be very difficult to perform the test in the 1-hour completion time. The postulated test would also require test personnel to wear self-contained breathing apparatus (SCBA), since the containment would be subatmospheric during testing, which would add to the difficulty in performing the required inspection.

Alternatively, the piping in question would be subjected to approximately 640 psig (normal accumulator operating pressure) throughout the operating cycle prior to visual examination. Since the water is borated and given the amount of time involved, evidence of through-wall leakage would be clearly indicated during an outage visual inspection. ASME has recently approved Code Case N-731 (yet to be published), which addresses this situation and provides for similar alternative requirements.

NRC Question:

2.3.1(c) For the piping segments between valves 2-SI-152 and 2-SI-HCV-2850B, 2-SI-169 and 2-SI-HCV-2850D, and 2-SI-186 and 2-SI-HCV-2850F, please verify that the test pressure will be normal reactor coolant pressure at 100-percent rated reactor power, or 2235 psig.

Dominion Response:

The test pressure will be normal reactor coolant pressure of approximately 2235 psig.

2.3.2 Request for Relief SPT-010, (North Anna Unit 2) Examination Category B-P, Pressure-Retaining Components in the Residual Heat Removal System

NRC Question

2.3.2(a) For the piping segment listed in Relief Request SPT-010, please state the piping material, nominal pipe size, and overall length of the segment.

Dominion Response:

Segment	Material	Size/(Approximate Length)
2-RH-MOV-2700 and 2-RH-MOV-2701	austenitic stainless steel (A-376-TP316 typical)	14" (31')

NRC Question

2.3.2(b) It is stated that valve 2-RH-MOV-2700 is prevented from being opened by a pressure interlock. The function of the interlock is to prevent the low-pressure residual heat removal system piping from being overpressurized by the RCS. Please verify that North Anna, Unit 2 technical specifications prevent this valve from being opened during modes of plant operation when the RCS pressure is at 100-percent rated power.

Dominion Response:

The North Anna Technical Specifications do not address the Residual Heat Removal (RHR) system inlet MOV interlocks, nor do the Standard Improved Technical Specifications. The UFSAR in Section 7.6.2.1 describes the interlock, noting that the valves are interlocked with a pressure signal to prevent opening whenever system pressure exceeds 418 psig. Additionally, the Technical Requirements Manual (TRM) Surveillance Requirement 3.7.8.1 requires that the RHR system be isolated and the breaker for these MOVs be opened and locked, prior to exceeding RCS pressure of 500 psig.

NRC Question:

2.3.2(c) For the piping segments in SPT-010, the proposed alternative states that the piping segments will be examined for evidence of leakage at Class 2 test requirements. Clearly state the actual test pressure and temperatures that will be applied to this segment during the system leakage test.

Dominion Response:

The intent is to test the Class 1 piping (between 2-RH-MOV-2700 and 2-RH-MOV-2701) with the adjoining Class 2 piping pressure test. The Class 2 test is conducted once a period, which would result in two additional VT-2 examinations at pressure on the Class 1 piping when compared to the current Class 1 extended boundary end of interval requirements. The RHR system is placed in operation when the reactor coolant temperature has been reduced below approximately 350°F and the reactor coolant pressure has been reduced below 400psig. The pressure test that will be used for the Class 1 piping was written to be conducted soon after RHR is placed in operation to obtain the higher pressures and temperatures experienced during RHR system operation, but within the parameters described above. Additionally, the Class 1 piping will continue to receive a VT-2 examination as part of the Class 1 system leakage test, which occurs following reactor refueling, but prior to startup. (Note: during the Class 1 leakage test the extended boundary is not normally pressurized due to the pressure interlock.)

2.3.3 Request for Relief SPT-011, (North Anna, Unit 2) Examination Category B-P, All Pressure-Retaining Components in the Class 1 Extended Boundary

NRC Question:

2.3.3(a) The regulations in 10 CFR 50.55a(a)(3) allow licensees to propose alternatives to ASME Code requirements provided (i) an acceptable level of quality and safety will be realized by the alternative, or (ii) if existing ASME Code or CFR requirements would impose an unusual hardship or difficulty without a compensating increase in quality and safety. However, for Request for Relief SPT-011, the licensee has not provided sufficient justification to demonstrate hardship or difficulty.

For example, the licensee's basis for relief states the following.

"Pressurizing the extended Class 1 boundaries could lift these check valves off the [sic] seats. Current practice is to test many of these check valves for positive closure following any potential opening to verify reactor coolant system pressure boundary integrity. These check valve positive closure tests are normally run with the plant shutdown and with a lower reactor coolant pressure. Requiring the ASME Section XI 10 year test at the note's prescribed time would put the plant in a situation where it would possibly be required to reduce

pressure again following the ASME Section XI test to repeat check valve closure testing."

The statements above would seem to indicate that it is possible for a pressure test as required by ASME Code to be conducted; however, conducting the leakage test may require a repeat of check valve closure. Conflict with plant practice is not considered sufficient hardship for relief from ASME Code requirements. In addition, it is unclear why the current practice of testing the check valves for positive closure provides verification of leakage boundary integrity. Please discuss this current plant practice, and any plant modifications such bypass lines or modifications to piping runs that would need to be made to accommodate the specific ASME Code requirement. Also state any potential conflict with plant technical specifications that prevent complying with ASME Code system leakage tests.

Dominion Response:

The ASME Code is currently addressing the "following a refueling outage" terminology in the Code for the Class 1 extended boundary test. The ASME committee is still working the appropriate language, but has agreed in principle that it was not the intent of the Code to change the test requirement when Code Case N-498 was incorporated in the Section XI Code. As indicated in ASME inquiry IN04-002, the N-498 (-1, 2, 3, 4) test may be conducted anytime prior to startup at or near the end of the interval. Dominion has submitted an intent inquiry to document the ASME Code position and if the reply verifies that ASME did not intend to change the Code as currently written, then it is our position this relief request (SPT-011) would be unnecessary since the Code as written would be in error. Since this relief request is not necessary until the end of interval testing, SPT-011 is being withdrawn at this time. If ASME replies differently than anticipated, then Dominion will reconsider re-submittal of this relief request.

NRC Question:

2.3.3(b) The proposed alternative does not clearly state the exact test pressure and temperature conditions that will be applied or exactly when the licensee proposes to conduct the system leakage test. Please state exactly what alternative system leakage test is being proposed, including test pressure, test temperature, and plant status.

Dominion Response:

Relief Request SPT-011 is being withdrawn.

NRC Question:

2.3.3(c) In request for relief for SPT-011, general relief for all Class 1 components in the extended Class 1 boundary has been requested. The NRC does not typically grant blanket requests for relief. For Relief Requests SPT-009, -010, -012, and -013, specific piping segments that require relief were listed. For each of the

piping segments that require relief under SPT-011, please state the piping material, nominal pipe size, and overall length of the segments, and adequately describe the hardship or unusual difficulty associated with the ASME Code requirements.

Dominion Response:

Relief Request SPT-011 is being withdrawn.

2.3.4 Request for Relief SPT-012, (North Anna Unit 2) Examination Category B-P, Pressure-Retaining Components in the Safety Injection System

NRC Question:

2.3.4(a) For each of the piping segments listed in Relief Request SPT-012, please state the piping material, nominal pipe size, and overall length of the segments.

Dominion Response:

Segment	Material	Size/(Approximate Length)
2-SI-91, 2-SI-99, 2-SI-105, 2-SI-MOV-2890C, & 2-SI-MOV-2890D	austenitic stainless steel (A-376-TP316 typical)	½" (1'), ¾" (1'), 6" (52') 10" (18')
2-SI-112, 2-SI-117, 2-SI-124, 2-SI-MOV-2890A & 2-SI-MOV-2890B	austenitic stainless steel (A-376-TP316 typical)	¾" (2'), 6" (614'), 10"(14')

NRC Question:

2.3.4(b) There appears to be an inconsistency between the pressures stated in this request for relief and ASME Code-required test pressures. Relief Request SPT-012 correctly states that IWB-5221(a) requires that the system leakage test shall be conducted at a pressure not less than nominal system operating pressure associated with normal system operation. However, in the Basis for Relief section provided in SPT-012 it is stated that normal RCS pressure at 100-percent rated power is 2235 psig. It is unclear whether the piping segments listed in Relief Request SPT-012 are considered part of the RCS. If not, please discuss what the normal operating pressure is for the piping segments in the portion of the subject Safety Injection System and explain why the system leakage test cannot be conducted at normal operating pressure for these piping segments.

In the alternative proposed for SPT-012, it is stated that test pressures and temperatures will be based upon a Class 2 system functional test. The 1995 Edition with the 1996 Addenda of Section XI does not contain a definition of a

"system functional" test. Please state what exact test conditions are being proposed in the alternative system leakage test.

Dominion Response:

The ASME Section XI Code in the 1995 Edition through the 1996 Addenda specifies pressure as not less than nominal system operating pressure associated with normal system operation. Dominion originally read the sentence to apply to safety injection system operating pressure (approximately 120 psig) consistent with the implied position in the NRC question. The piping segments in question are part of the safety injection system. However, given that interpretation no relief would be necessary. Dominion requested an intent inquiry (not yet published) as to what was meant concerning this wording. The response from ASME was similar to interpretation XI-1-98-68 for the N-498 Code Cases. Essentially, the reactor coolant system nominal operating pressure (approximately 2235 psig for North Anna) is required for all Class 1 piping (i.e., system designation change does not matter). This ASME interpretation response necessitated our relief request.

Specifically, the reference to a functional test was in error for that Code edition. The proposed alternative will be a system leakage test to the safety injection system pressure (approximately 120 psig) and nominal operating temperature (corresponding to refueling water storage tank temperature or approximately 40°F and similar to initial accident conditions). This would represent the actual accident pressure and only involves Class 1 piping beyond the second closed valve from the reactor coolant system. The test pressure corresponds to the adjacent Class 2 safety injection piping pressure test requirements and would identify through-wall leakage. Additionally, the piping would be visually examined (VT-2) each refueling as part of the normal Class 1 system leakage test (normal valve line-up) for evidence of leakage.

Case number: N-731

Approval Date: February 22, 2005

The ASME Boiler and Pressure Vessel Standards Committee took action to eliminate Code Case expiration dates effective March 11, 2005. This means that all Code Cases listed in this Supplement and beyond will remain available for use until annulled by the ASME Boiler and Pressure Vessel Standards Committee.

Case N-731
Alternative Class 1 System Leakage Test Pressure Requirements
Section XI, Division 1

Inquiry: What alternative Class 1 system leakage test pressure requirements may be used for portions of Class 1 systems that are continuously pressurized during an operating cycle by a statically-pressurized passive safety injection system of a pressurized water reactor, in lieu of the requirements of IWB-5221(a)?

Reply: It is the opinion of the Committee that, for portions of Class 1 safety injection systems that are continuously pressurized during an operating cycle, the pressure associated with a statically-pressurized passive safety injection system of a pressurized water reactor may be used.