

June 6, 2005

Mr. David A. Christian
Sr. Vice President and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Blvd.
Glen Allen, Virginia 23060-6711

SUBJECT: SURRY POWER STATION, UNITS 1 AND 2 - REQUEST FOR ADDITIONAL
INFORMATION REGARDING ASME SECTION XI INSERVICE INSPECTION
PROGRAM END OF INTERVALS SYSTEM PRESSURE TESTING RELIEF
REQUESTS

Dear Mr. Christian:

By letter dated January 10, 2005, Virginia Electric and Power Company (VEPCO) submitted proposed Relief Requests SPT-005 through SPT-007 for Surry Power Station, Unit 1 and proposed Relief Requests SPT-004 through SPT-006 for Surry Power Station, Unit 2. Based on its review of the January 10, 2005, submittal, the NRC staff has determined that additional information is required to complete its review.

The NRC staff's questions are provided in the Enclosure. VEPCO is requested to provide a response to this request for additional information within 45 days of the date of this letter.

Sincerely,

/RA/

Stephen Monarque, Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-280 and 50-281

Enclosure: As stated

cc w/enclosure:
See next page

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By letter dated January 10, 2005, Virginia Electric and Power Company (VEPCO) submitted proposed Relief Requests SPT-005 through SPT-007 for Surry Power Station, Unit 1 and proposed Relief Requests SPT-004 through SPT-006 for Surry Power Station, Unit 2. Based on its review of the January 10, 2005, submittal, the NRC staff has determined that additional information is required to complete its review.

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REQUEST FOR ADDITIONAL INFORMATION
ASME SECTION XI INSERVICE INSPECTION PROGRAM
END OF INTERVALS SYSTEM PRESSURE TESTING RELIEF REQUESTS
SPT-005, 006, AND 007 FOR SURRY, UNIT 1,
SPT-004, 005, AND 006 FOR SURRY, UNIT 2,
VIRGINIA ELECTRIC AND POWER COMPANY
DOCKET NOS. 50-280 AND 50-281

1.0 SCOPE

By letter dated January 10, 2005, Virginia Electric and Power Company (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 Surry Power Station, Units 1 and 2:

1. Surry, Unit 1 - SPT-005, 006, and 007
2. Surry, Unit 2 - SPT-004, 005, and 006

The requests for relief are for the third 10-year inservice inspection (ISI) interval in which Surry, Units 1 and 2 adopted the 1998 Edition of ASME Section XI, including the 2000 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. 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 test requirements by the ASME Code.

Pacific Northwest National Laboratory (PNNL) reviewed the licensee's submittal and, based on this review, determined the following information is required to complete the evaluation.

2.0 REQUESTS FOR ADDITIONAL INFORMATION

2.1 **General Information**

- 2.1(a) Please provide the start and end dates for the fourth 10-year inspection intervals at Surry, Units 1 and 2.

2.2 Requests for Additional Information for Surry, Unit 1

2.2.1 Request for Relief SPT-005, Examination Category B-P, Pressure-Retaining Components in the Residual Heat Removal and Safety Injection Systems

- 2.2.1(a) For each of the piping segments listed in Relief Request SPT-005, please state the piping material, nominal pipe size, and overall length of the segment.
- 2.2.1(b) Request for Relief SPT-005 states that, “the areas between [valves] 1-SI-108 and 1-SI-HCV-1850B, 1-SI-129 and 1-SI-HCV-1850D, and 1-SI-146 and 1-SI-HCV-1850F would also be examined at or near the end of the interval by using an external pressurization source, or by opening the isolation valves separating the lines from the safety injection accumulator pressure. The test pressure would again correspond to the safety injection accumulator nominal operating pressure.”

Please explain why the subject piping segments cannot be pressurized to a test pressure approaching the nominal reactor coolant system (RCS) pressure associated with 100-percent rated reactor power. Discuss the methods that have been considered to increase the test pressure for these segments. For instance, can the safety injection system running in recirculation mode be used to pressurize these segments to higher pressures than 660 psig, as listed in the submitted alternative? Describe any methods by which the 10-year leakage test pressure for these piping segments may be increased and why these methods would present a hardship or unusual difficulty.

Also, if the piping segments listed above can be pressurized to the required test pressure or test pressures higher than safety injection operating pressure, discuss why all 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 the Surry technical specifications (TS) prevent such a pressurization or if injecting water inventory into the RCS is a concern, discuss what maximum test pressure could be used as an alternative leakage test.

2.2.2 Request for Relief SPT-006, Examination Category B-P, Pressure-Retaining Components in the Residual Heat Removal System

- 2.2.2(a) For the piping segment listed in Relief Request SPT-006, please state the piping material, nominal pipe size, and overall length of the segment.
- 2.2.2(b) For the piping segment associated with relief request SPT-006, the licensee states 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 RHR piping from being overpressurized by the RCS. Please verify that the Surry, Unit 1 TS prevent 1-RH-MOV-1700 from being opened during modes of plant operation when the RCS pressure is at 100-percent rated power.

2.2.2©) The licensee's alternative states that the subject piping segment will be examined for evidence of leakage at Class 2 pressure test requirements. Clearly state the actual test pressure and temperatures that will be applied to this segment during the system leakage test. In addition, describe the nominal system operating pressure for this segment of piping.

2.2.3 Request for Relief SPT-007, Examination Category B-P, Pressure-Retaining Components in the Class 1 Extended Boundary

2.2.3(a) Relief Request SPT-007, as written, seems to object to the scheduling (e.g., "following refueling outage") of the leakage test as required by IWB-5220. Please verify that the system leakage test proposed as an alternative in Relief Request SPT-007 will be performed at 2235 psig and that all other requirements of IWB-5200 for the end of the interval leakage test will be met. Also, please describe what tests will be conducted on systems, or portions of systems, prior to plant startup that are opened for inspection during the refueling outage.

2.2.3(b) In Request for Relief for SPT-007, general relief for all Class 1 components in the extended Class 1 boundary was requested. The NRC staff does not typically grant blanket requests for relief. For Relief Requests SPT-005 and -006, specific piping segments that require relief have been listed. For each of the piping segments that require relief under SPT-007, please state the specific system piping segments included in the subject request. Include the piping material, nominal pipe size, and overall length of the segment, and adequately describe the hardship or unusual difficulty associated with the ASME Code requirements from which relief is being sought.

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

2.3 Requests for Additional Information for Surry, Unit 2

2.3.1 Request for Relief SPT-004, Examination Category B-P, Pressure-Retaining Components in the Residual Heat Removal and Safety Injection Systems

2.3.1(a) For each of the piping segments listed in Relief Request SPT-004, please state the piping material, nominal pipe size, and overall length of the segment.

2.3.1(b) Request for relief SPT-004 states that, "the area between [valves] 2-SI-108 and 2-SI-HCV-2850B, 2-SI-129 and 2-SI-HCV-2850D, and 2-SI-146 and 2-SI-HCV-2850F would also be examined at or near the end of the interval by using an external pressurization source, or by opening the isolation valves separating the lines from the safety injection accumulator pressure. The test pressure would again correspond to the safety injection accumulator nominal operating pressure."

Please explain why the subject piping segments cannot be pressurized to a test pressure approaching the nominal RCS pressure associated with 100-percent rated reactor power. Discuss the methods that have been considered to increase the test pressure for these segments. For instance, can the safety injection system running in recirculation mode be used to pressurize these segments to higher pressure than 660 psig, as listed in the submitted alternative? Describe any methods by which the 10-year leakage test pressure for these piping segments may be increased and why these methods would present a hardship or unusual difficulty.

Also, if the piping segments listed above can be pressurized to the required test pressure or test pressures higher than safety injection operating pressure, discuss why all 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 the Surry TS prevent such a pressurization or if injecting cold water inventory into the RCS is a concern, discuss what maximum test pressure could be used as an alternative leakage test.

2.3.2 Request for Relief SPT-005, Examination Category B-P, Pressure-Retaining Components in the Residual Heat Removal System

- 2.3.2(a) For the piping segment listed in Relief Request SPT-005, please state the piping material, nominal pipe size, and overall length of the segment.
- 2.3.2(b) Relief Request SPT-005 states 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 RHR piping from being overpressurized by the RCS. Please verify that the Surry, Unit 2 TS prevent 2-RH-MOV-2700 from being opened during modes of plant operation when the RCS pressure is at 100-percent rated power.
- 2.3.2(c) The licensee's alternative states that the subject piping segment will be examined for evidence of leakage at Class 2 pressure test requirements. Clearly state the actual test pressure and temperatures that will be applied to this segment during the system leakage test. In addition, describe the nominal system operating pressure for this segment of piping.

2.3.3 Request for Relief SPT-006, Examination Category B-P, All Pressure-Retaining Components in the Class 1 Extended Boundary

- 2.3.3(a) Relief Request SPT-006, as written, seems to object to the scheduling (e.g., "following refueling outage") of the leakage test as required by IWB-5220. Please verify that the system leakage test proposed as an alternative in Relief Request SPT-006 will be performed at 2235 psig and that all other requirements of IWB-5200 for the end of the interval leakage test will be met. Also, please describe what tests will be conducted on systems or portions of systems prior to plant startup that are opened for inspection during the refueling outage.

- 2.3.3(b) In Request for Relief SPT-006, general relief for all Class 1 components in the extended Class 1 boundary was requested. The NRC staff does not typically grant blanket requests for relief. For relief requests SPT-004 and -005, specific piping segments that require relief have been listed. For each of the piping segments that require relief under SPT-006, please state the specific system piping segment and include the piping material, nominal pipe size, and overall length of the segment, and adequately describe the hardship or unusual difficulty associated with the ASME Code requirements from which relief is being sought.
- 2.3.3(c) The proposed alternative does not clearly state what the exact test pressure and temperature conditions will be, or when the licensee proposes to conduct the system leakage test. Please state the alternative system leakage test that is being proposed, including test pressure, test temperature, and plant status.

Surry Power Station, Units 1 & 2

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