



Carolina Power & Light Company

Robinson Nuclear Plant
3581 West Entrance Road
Hartsville SC 29550

Serial: RNP-RA/00-0111

JUL 28 2000

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

REVISED REQUEST FOR RELIEF FROM ASME BOILER AND PRESSURE
VESSEL CODE, SECTION XI, REGARDING SYSTEM PRESSURE TESTING

Ladies and Gentlemen:

This letter revises the request for relief submitted January 20, 1999, in accordance with 10 CFR 50.55a(a)(3) from the requirements of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components." The relief request involves alternatives to hydrostatic testing for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2.

Relief is requested to perform alternative examinations from those specified in Code Case N-498-1, "Alternative Rules for 10-Year System Hydrostatic Testing for Class 1, 2, and 3 Systems." The alternative examinations relate to system boundaries for Class 1 systems and system pressure hold time for Class 2 and 3 systems not required to operate during normal reactor operation. Code Case N-498-1 has been found acceptable in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability ASME Section XI Division 1," Revision 12.

By letter dated August 27, 1999, the NRC indicated that it does not normally grant generic relief from Code Case N-498-1 requirements, but that system and situation specific relief has been granted for other licensees. Accordingly, this Relief Request No. 25 has been revised to describe the system specific relief for NRC review and approval to support activities in Refueling Outage 20.

The proposed alternative examinations will allow demonstration of leak tightness without causing hardship and unusual difficulty associated with unusual system alignments or running pumps in a minimum flow recirculation mode for extended periods.

A047

HBRSEP, Unit No. 2 is currently in its Third Ten Year Inservice Inspection Interval, which began on February 19, 1992. This relief, if approved, will be implemented during the HBRSEP, Unit No. 2 Third Ten Year Inservice Inspection Interval. This relief is requested to be approved by February 1, 2001.

If you have any questions concerning this matter, please contact Mr. H. K. Chernoff.

Sincerely,


R. L. Warden
Manager - Regulatory Affairs

ALG/alg

Attachments

- I. Relief Request No. 25, Revision 1, "Alternative Examinations to the 10-Year Hydrostatic Test for Class 1, 2, and 3 Systems"
- II. Relief Request No. 25, Revision 1 - "Situation and System Specific Relief Information"

c: Mr. L. A. Reyes, NRC, Region II
Mr. R. Subbaratnam, NRC, NRR
NRC Resident Inspector, HBRSEP

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

RELIEF REQUEST NO. 25, REVISION 1
ALTERNATIVE EXAMINATIONS TO THE
10-YEAR HYDROSTATIC TEST FOR CLASS 1, 2, AND 3 SYSTEMS

Code Requirements for Which Relief is Requested

American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," 1986 Edition with no addenda, Table IWB-2500-1, "Examination Categories," Examination Category B-P for Class 1 systems requires a system hydrostatic test in accordance with paragraph IWB-5222, "System Hydrostatic Test," for the reactor vessel, pressurizer, steam generators, heat exchangers, piping, pumps, and valves in the pressure retaining boundary.

ASME B&PV Code, Section XI, 1986 Edition with no addenda, Table IWC-2500-1, Examination Category C-H for Class 2 systems requires a system hydrostatic test in accordance with paragraph IWC-5222, "System Hydrostatic Test," for pressure vessels, piping, pumps, and valves that are pressure retaining components.

ASME B&PV Code, Section XI, 1986 Edition with no addenda, Table IWD-2500-1, Examination Categories D-A, D-B, and D-C for Class 3 systems requires a system hydrostatic test in accordance with paragraph IWD-5223, "System Hydrostatic Test," for pressure vessels, piping, pumps, and valves.

The required examination method for these examinations is a visual VT-2 examination.

ASME B&PV Code Case N-498-1, "Alternative Rules for 10-Year System Hydrostatic Testing of Class 1, 2, and 3 Systems, Section XI, Division 1," allows as an alternative to a system hydrostatic test a system leakage test in accordance with paragraph IWB-5221, "System Leakage Test," for Class 1 systems and a system pressure test for examination of Class 2 and 3 systems.

Code Case N-498-1 has been incorporated into Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability ASME Section XI Division 1," Revision 12, May 1999.

Specific Relief Requested

Relief is requested for Class 1, 2 and 3 systems pertaining to alternative examinations in accordance with ASME B&PV Code Case N-498-1, as described below with respect to system boundaries and pressurization hold times. System and situation specific relief request information has been provided in Attachment II.

Alternative Examinations

Class 1 Systems

CP&L requests that relief be granted from Code Case N-498-1, paragraph (a)(5), to not enter abnormal valve alignments, or to disassemble or install jumpers to pressurize the Class 1 system piping between two pressure isolation valves, flanges, or caps.

The boundary subject to test pressurization during the system leakage test shall, in accordance with paragraph IWA-5221, "System Leakage Test Boundary," extend to the pressure retaining components within the Reactor Coolant System (RCS) boundary with valves in the normal position, which is required for normal reactor startup. The system shall be maintained at nominal operating pressure during performance of the VT-2 visual examination. Test temperatures and pressures shall not exceed limiting conditions for the hydrostatic test curve as contained in the plant Technical Specifications. The VT-2 examination shall include Class 1 pressure retaining components within the system boundary.

Class 2 Systems

CP&L requests that relief be granted from Code Case N-498-1, paragraph (b)(3) to use a ten (10) minute hold time in lieu of the four (4) hour hold time requirement for insulated systems not required to operate during normal reactor operation prior to VT-2 examination.

Prior to performing the VT-2 visual examination, the system shall be pressurized to nominal operating pressure for a minimum of ten (10) minutes. The system shall be maintained at nominal operating pressure during performance of the VT-2 visual examination.

Class 3 Systems

CP&L requests that relief be granted from Code Case N-498-1, paragraph (c)(3) to use a ten (10) minute hold time in lieu of the four (4) hour hold time requirement for insulated systems not required to operate during normal reactor operation prior to VT-2 examination.

Prior to performing the VT-2 visual examination, the system shall be pressurized to nominal operating pressure for a minimum of ten (10) minutes. The system shall be maintained at nominal operating pressure during performance of the VT-2 visual examination.

Basis for Requesting Relief

In accordance with 10 CFR 50.55a(a)(3)(ii), relief is requested for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2 on the basis that compliance with the specified requirements of the Code would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Class 1 Systems

The proposed alternative examinations for Class 1 systems are designed to avoid abnormal system line-ups required to fully pressurize the RCS boundary. The RCS boundary normally extends to the second of two isolation barriers. Some RCS boundaries are isolated by two check valves in series. By altering the normal reactor coolant boundary in MODES 3 or 4 to pressurize the "dead legs" of piping between the two isolation barriers, Technical Specifications violations would occur. Additionally these abnormal alignments would increase occupational radiation exposure as a result of installation and removal of temporary bypass devices around each first isolation barrier in the RCS boundary.

Class 2 and 3 Systems

Alternative examinations are proposed for Class 2 and Class 3 systems not required to operate during normal reactor operations. These systems are designed to allow testing during normal reactor operation by operating the pumps with flow into minimum flow recirculation piping to preclude deadheading of the pumps. These pumps are capable of operating for extended periods under low flow conditions to perform their safety function, however, it is imprudent to incur the economic risk of extended operation of these pumps in the minimum flow recirculation mode during a test. For these systems, a proposed minimum ten (10) minute hold time is sufficient to detect small leaks that might originate from small through-wall cracks of the pressure boundary.

The NRC has recognized that most common causes of failure in Code Class 3 systems are flow-accelerated corrosion (FAC), microbiological induced corrosion (MIC), and general corrosion. HBRSEP, Unit No. 2 has in place procedures for monitoring FAC and for the surveillance and documentation of MIC in raw water systems.

Justification for Granting Relief

The NRC has accepted Code Case N-498-1 in lieu of Code required hydrostatic testing for Class 1, 2, and 3 systems. However, further relief is requested for Class 1 systems to avoid placing the plant in a condition in violation of the Technical Specifications. For Class 2 and 3 systems not required to operate during normal reactor operation, hold times in Code Case N-498-1 require operation of Class 2 and 3 pumps for a time period in excess of prudent operation periods in the recirculation mode. Therefore, the extended hold times from Code Case N-498-1 for certain Class 2 and 3 systems will result in unusual hardships and burden without a compensating increase in the level of safety margin.

Implementation Schedule

This relief will be implemented during the HBRSEP, Unit No. 2 Third Ten Year Inservice Inspection Interval. This relief is requested to be approved by February 1, 2001.

United States Nuclear Regulatory Commission

Attachment II to Serial: RNP-RA/00-0111

Page 1 of 6

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

RELIEF REQUEST NO. 25, REVISION 1

SITUATION AND SYSTEM SPECIFIC RELIEF INFORMATION

Relief Request No. 25 – Situation and System Specific Relief Information

EXCEPTION	CODE CLASS	CODE CAT.	RELIEF REQUEST
Drain legs below Pressurizer safety valve RC-551A (Pipe piece between RC-545 and RC-545A)	1	B-P	CP&L requests relief from cycling Valve RC-545 in order to pressurize downstream Class 1 pipe piece and valve RC-545A
Drain legs below Pressurizer Safety Valve RC-551B (pipe piece between RC-546 and RC-546A)	1	B-P	CP&L requests relief from cycling Valve RC-546 in order to pressurize downstream Class 1 pipe piece and Valve RC-546A
Drain legs below Pressurizer Safety Valve RC-551C (pipe piece between RC-547 and RC-547A)	1	B-P	CP&L requests relief from cycling Valve RC-547 in order to pressurize downstream Class 1 pipe piece and Valve RC-547A
Vent valve and blind flange line on Pressurizer Spray Line	1	B-P	CP&L requests relief from cycling Valve RC-527C in order to pressurize downstream Class 1 pipe piece and blind flange
Reactor Coolant System (RCS) loop intermediate Loop "A" drain valve and Liquid Waste Disposal Piping	1	B-P	CP&L requests relief from cycling Valve RC-505A in order to pressurize downstream Class 1 piping and valve RC -505B
RCS loop intermediate Loop "B" drain valve and Liquid Waste Disposal Piping	1	B-P	CP&L requests relief from cycling Valve RC-508A in order to pressurize downstream Class 1 piping and valves RC -508B, and RC-542

Relief Request No. 25 – Situation and System Specific Relief Information

EXCEPTION	CODE CLASS	CODE CAT.	RELIEF REQUEST
RCS loop intermediate Loop “C” drain valve and Liquid Waste Disposal Piping	1	B-P	CP&L requests relief from cycling Valve RC-515A in order to pressurize downstream Class 1 piping and valves RC -515B, and RC-601
Reactor Pressure Vessel (RPV) head vent valves and piping	1	B-P	CP&L requests relief from cycling Valve RC-567 in order to pressurize downstream class 1 piping and Valves RC -572, RC-571, RC-569, and RC-570
Chemical and Volume Control System (CVCS) Reactor Coolant Pump (RCP) “A” seal injection drain valve and blind flange	1	B-P	CP&L requests relief from cycling Valve CVC-300A in order to pressurize downstream pipe piece and flange
CVCS RCP “A” seal leakoff vent valve and blind flange	1	B-P	CP&L requests relief from cycling Valve CVC-300C in order to pressurize downstream pipe piece and flange
CVCS RCP “A” seal water bypass drain valve and cap	1	B-P	CP&L requests relief from cycling Valve CVC-307D in order to pressurize downstream pipe piece and cap
CVCS RCP “B” seal injection drain valve and blind flange	1	B-P	CP&L requests relief from cycling Valve CVC-300D in order to pressurize downstream pipe piece and flange
CVCS RCP “B” seal leakoff vent valve and blind flange	1	B-P	CP&L requests relief from cycling Valve CVC-300F in order to pressurize downstream pipe piece and flange

Relief Request No. 25 – Situation and System Specific Relief Information

EXCEPTION	CODE CLASS	CODE CAT.	RELIEF REQUEST
CVCS RCP "B" seal water bypass drain valve and cap	1	B-P	CP&L requests relief from cycling Valve CVC-307E in order to pressurize downstream pipe piece and cap
CVCS RCP "B" seal water bypass drain valve and cap	1	B-P	CP&L requests relief from cycling Valve CVC-307F in order to pressurize downstream pipe piece and cap
CVCS RCP "C" seal injection drain valve and blind flange	1	B-P	CP&L requests relief from cycling Valve CVC-300G in order to pressurize downstream pipe piece and flange
CVCS RCP "C" seal leakoff vent valve and blind flange	1	B-P	CP&L requests relief from cycling Valve CVC-300J in order to pressurize downstream pipe piece and flange
CVCS RCP "C" sealwater bypass drain valve and cap	1	B-P	CP&L requests relief from cycling Valve CVC-307C in order to pressurize downstream pipe piece and cap
CVCS auxiliary spray valve and downstream piping	1	B-P	CP&L requests relief from cycling Valve CVC-311 in order to pressurize downstream piping to check Valve CVC-313
CVCS letdown drain valve and downstream cap	1	B-P	CP&L requests relief from cycling Valve CVC-460H in order to pressurize downstream pipe piece and cap
CVCS letdown vent valve and downstream cap	1	B-P	CP&L requests relief from cycling Valve CVC-460G in order to pressurize downstream pipe piece and cap
CVCS letdown drain valve and downstream cap	1	B-P	CP&L requests relief from cycling Valve CVC-475 in order to pressurize downstream pipe piece and cap

Relief Request No. 25 – Situation and System Specific Relief Information

EXCEPTION	CODE CLASS	CODE CAT.	RELIEF REQUEST
Safety Injection (SI) Loop "A" low head vent valve and cap	1	B-P	CP&L requests relief from cycling Valve SI-875N in order to pressurize downstream pipe piece and cap
SI Loop "B" low head vent valve and cap	1	B-P	CP&L requests relief from cycling Valve SI-875P in order to pressurize downstream pipe piece and cap
SI Loop "A" low head vent valve and cap	1	B-P	CP&L requests relief from cycling Valve SI-875T in order to pressurize downstream pipe piece and cap
SI Loop "A" low head check Valve SI-875A and upstream piping	1	B-P	CP&L requests relief from disassembling or installing jumpers in order to pressurize upstream piping and Valves SI-873A, SI-850B, SI-876A, SI-875H, and SI-865A to RCS pressure
SI Loop "B" low head check Valve SI-875B and upstream piping	1	B-P	CP&L requests relief from disassembling or installing jumpers in order to pressurize upstream piping and Valves SI-875S, SI-873E, SI-850D, SI-876E, and SI-876B, SI-875J, and SI-875E to RCS pressure
SI Loop "A" low head check Valve SI-875C and upstream piping	1	B-P	CP&L requests relief from disassembling or installing jumpers in order to pressurize upstream piping and Valves SI-875R, SI-873D, SI-850F, SI-875L, SI-875F, and SI-876C to RCS pressure
SI Loop "B" high head check Valve SI-874B and upstream piping	1	B-P	CP&L requests relief from disassembling or installing jumpers in order to pressurize upstream piping and Valves SI-874C, and SI-866B

Relief Request No. 25 – Situation and System Specific Relief Information

EXCEPTION	CODE CLASS	CODE CAT.	RELIEF REQUEST
SI Loop "C" high head check Valve SI-874A and upstream piping	1	B-P	CP&L requests relief from disassembling or installing jumpers in order to pressurize upstream piping and Valves SI-874D, and SI-866A
Residual Heat Removal (RHR) motor operated valves	1	B-P	CP&L requests relief from cycling valve RHR-750 in order to pressurize downstream piping and valve RHR-751
Containment Spray (CS) Pump and associated piping	2	C-H	CP&L requests relief to use a 10 minute hold time in lieu of the 4 hour hold time requirement for insulated systems prior to VT-2 examination
SI Pumps and associated piping	2	C-H	CP&L requests relief to use a 10 minute hold time in lieu of the 4 hour hold time requirement for insulated systems prior to VT-2 examination
Auxiliary Feedwater (AFW) Pumps and associated piping	3	D-A	CP&L requests relief to use a 10 minute hold time in lieu of the 4 hour hold time requirement for insulated systems prior to VT-2 examination
AFW Pump steam supply and associated piping	3	D-A	CP&L requests relief to use a 10 minute hold time in lieu of the 4 hour hold time requirement for insulated systems prior to VT-2 examination