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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

RELIEF REQUEST NUMBER RR-12 FOR THE
FOURTH TEN-YEAR INTERVAL INSERVICE INSPECTION PROGRAM

Ladies and Gentlemen:

The Fourth Ten-Year Interval Inservice Inspection (ISI) program and associated plan for H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, was submitted to the NRC by letter dated August 17, 2001. Additional information was submitted by HBRSEP, Unit No. 2, in a letter dated April 5, 2002. A revised version of Relief Request Number RR-12 was included in that submittal. In a conference call on April 23, 2002, with the NRC contract reviewer for this ISI program relief request, it was determined that Relief Request Number RR-12 would be improved by including information similar to that contained in the Relief Request Number RR-25 from the previous ISI interval. Therefore, Relief Request Number RR-12 is provided as an attachment to this letter. This version of Relief Request Number RR-12 includes the requested additional information and other minor clarifications, including the consistent use of "system leakage test" and minor corrections to Table 1. This version of Relief Request Number RR-12 supersedes the previous versions of this relief request.

The Fourth Ten-Year ISI Interval for HBRSEP, Unit No. 2, started on February 19, 2002. Therefore, approval this relief request is requested as soon as practicable to allow efficient implementation of ISI program requirements.

If you have any questions regarding this matter, please contact Mr. C. T. Baucom.

Sincerely,

B. L. Fletcher III
Manager - Regulatory Affairs

Robinson Nuclear Plant
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CAC/cac

Attachment

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

FOURTH TEN-YEAR INTERVAL
INSERVICE INSPECTION PROGRAM

RELIEF REQUEST NUMBER RR-12

Relief Request Number RR-12

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, Class 1 pressure test boundaries subject to system leakage testing in accordance with IWB-5222, "Boundaries," subsection (b).

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWB-5222(b), requires that the pressure retaining boundary during the system leakage test conducted at or near the end of each inspection interval be extended to all Class 1 pressure retaining components within the system boundary.

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWB-5222(b), regarding extension of the pressure retaining boundary during system leakage tests conducted at or near the end of the inspection interval to Class 1 pressure retaining components within the system boundary.

Basis for Relief

HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(a)(3)(ii) on the basis that hardship and unusual difficulty exists, without a compensating increase in the level of quality and safety, regarding extension of the pressure retaining boundary during system leakage tests to all Class 1 pressure retaining components within the system boundary.

Table 1 identifies the Class 1 pressure retaining components that are associated with the requested relief.

The HBRSEP, Unit No. 2, design of Class 1 vents and drains typically consists of a single isolation valve with a capped end that constitutes the Class 1 system boundary. Many of these valves are not readily accessible due to their physical locations and radiation/contamination levels in the area. System leakage testing is performed in Mode 3 and would involve opening these single isolation valves to pressurize to the extended Class 1 system boundary. After performance of the required VT-2 visual examination, these single isolation valves would be closed, isolating a high temperature, pressurized volume of water between the isolation valve and the capped end. This results in an undesirable configuration that would be conducive to pressure lock or the initiation of system leakage from valve packing or capped ends.

The HBRSEP, Unit No. 2, design also requires substantial effort to extend the Class 1 system boundary where check valves or non-redundant components serve as the first system isolation from the reactor coolant system. Such configurations may require check valve disassembly or other temporary configurations to achieve test pressures at upstream piping and valves. Since the Class 1 system leakage testing is performed in Mode 3, these temporary configurations could conflict with Technical Specification requirements. Establishing and restoring such temporary configurations could also result in an unwarranted increase in worker radiation exposures.

Based on the above, extension of the pressure-retaining boundary during system leakage tests to Class 1 pressure retaining components within the system boundary represents a hardship and unusual difficulty that does not provide a compensating increase in the level of quality and safety.

(The following is specific information pertaining to the various pipe segments for which relief has been requested).

Small Size Class I Vent, Drain, Test, and Fill Lines

Relief is requested from fully pressurizing piping between the first and second isolation device on small size vent, drain, test, and fill lines. There are twenty-six vent, drain, test and fill lines in the Reactor Coolant System (RCS) ranging in size from 0.75 inch to two inches. The configurations are either two small isolation valves in series, a valve and blind flange, or a valve and cap. In some configurations, the piping between the two vent and drains will tee to a third valve that is also the second isolation boundary. The piping segments provide the design-required double isolation barrier for the reactor coolant pressure boundary. The Code-required leakage test would be performed in MODE 3 at the normal operating pressure of 2235 psig and at a nominal temperature of about 547 °F.

Leakage testing of these piping segments at nominal operating pressure in MODE 3 would require the opening of the inboard isolation valve at the normal operating RCS temperature and pressure conditions. In so doing, the design requirement for two primary coolant pressure boundary isolation devices would be violated. Additionally, opening of these valves introduces the potential risk for spills and personnel contamination. For configurations where blind flanges or caps are installed as the isolation device, opening of the inboard valve introduces the possibility of a personnel safety hazard if a flange or cap fails in the presence of inspection personnel.

These piping segments are VT-2 inspected through the entire length as part of the Class 1 system inspection at the conclusion of each refueling outage. The leakage test will not specifically pressurize past the first isolation valve for this inspection. No external or visible leakage will be allowed for a test to be successful. Since this type of test will assure that the combined first and second isolation devices are effective in maintaining

the reactor coolant pressure boundary at normal operating temperature and pressure, the increase in safety achieved from the Code-required leakage test is not commensurate with the hardship of performing such testing.

Larger Size Class 1 Piping Segments

14 Inch Residual Heat Removal Motor Operated Valves

This piping segment consists of 42 feet of 10 inch piping between Residual Heat Removal (RHR) inlet valves RHR-750 and RHR-751. These valves are interlocked at a required setpoint of ≤ 474 psig to avoid over-pressurization of the RHR system. The interlock prevents manual opening of the valves from the Control Room with RCS pressure above the setpoint. There are no test connection points in this segment of the line. This segment was last tested during the Second Ten-Year Inservice Inspection interval, with the vessel defueled, as part of the RCS hydrostatic test.

The piping segment is VT-2 inspected through the entire length as part of the Class 1 system inspection at the conclusion of each refueling outage. The proposed system pressure test will not specifically pressurize past the first isolation valve for this inspection. It is possible that the piping becomes pressurized due to minor leakage past the first isolation valve. No external or visible leakage will be allowed for the test to be successful. This test will provide assurance that the combined first and second isolation valves are effective in maintaining the reactor coolant pressure boundary at normal operating temperature and pressure.

Safety Injection Loops Low Head Check Valves SI-875A, B, and C, and Upstream Piping

These three piping segments consist of a 3 foot 8 inch piping span connected by a tee to a 10-inch piping span along with a short 0.75 inch connection. These lines are for injecting low head Emergency Core Cooling System (ECCS) water from the accumulators and the low head safety injection system (i.e., RHR system in ECCS configuration). The primary isolation and secondary isolation devices for the 8 inch and 10 inch lines are check valves oriented to flow into the RCS. The piping segments provide the design-required double isolation barrier for the reactor coolant pressure boundary.

Leakage testing in MODE 3 would require a pressure source be connected at each segment location. In so doing, the design requirement for two primary coolant pressure boundary isolation devices would be violated. For test locations located overhead and away from normal personnel access areas, ladders or scaffolding would have to be installed to provide access to the piping segment and to open the valve. This process would add to the occupational dose associated with leakage testing these lines.

These lines are located in areas involving occupational radiation exposure, and leakage testing of these lines would increase occupational radiation dose.

The leakage test will not specifically pressurize past the first isolation valve for this inspection. It is possible that the piping becomes pressurized due to minor leakage past the first isolation valve. Otherwise, the pressure in the segment will be at least at the operating pressure of the ECCS accumulators, which are pressurized to between 600 and 660 psig. No external or visible leakage will be allowed for the test to be successful. Since this test will assure that the combined first and second isolation devices are effective in maintaining the reactor coolant pressure boundary at normal operating temperature and pressure, the increase in safety achieved from the Code-required leakage test is not commensurate with the hardship of performing such testing.

Safety Injection Loop "B" and "C" High Head Check Valves SI-874A and B, and Upstream Piping

These two piping segments consist of a 2-inch piping span between two check valves oriented toward the RCS. These lines are for injecting high head ECCS water into the hot legs after an accident. The primary and secondary isolation devices are an inboard check valve oriented to flow into the RCS and an outboard motor-operated valve. The piping segments provide the design-required double isolation barrier for the reactor coolant pressure boundary. Leakage testing of these piping segments at nominal operating pressure in MODE 3 would require a modification to allow pressurizing to the normal operating RCS temperature and pressure conditions.

The leakage test will not specifically pressurize past the first isolation valve for this inspection. It is possible that the piping becomes pressurized due to minor leakage past the first isolation valve. No external or visible leakage will be allowed for the test to be successful. This test will assure that the combined first and second isolation valves are effective in maintaining the reactor coolant pressure boundary at normal operating temperature and pressure.

Proposed Alternative Examinations

The Class 1 system boundary during leakage tests will be maintained in a normal, operational alignment with items identified within Table 1 constituting exceptions to the Code-required boundary. The VT-2 visual examination will extend to the Class 1 boundary.

Items within Table 1 will be visually examined for evidence of leakage during system leakage testing without being pressurized.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which began on February 19, 2002.

Table 1
Relief Request Number RR-12
Affected Class 1 Pressure Retaining Components

Affected Line or Component	Code Class	Pipe Dia.	Pipe Sch.	Approx. Length	Examination Category	Drawing No.	Boundary Exception(s)
Drain line below PZR safety valve RC-551A (pipe piece between RC-545 and RC-545A)	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1971, Sheet 2	Valve RC-545 remains closed to avoid pressurizing downstream Class 1 pipe piece and valve RC-545A
Drain line below PZR safety valve RC-551B (pipe piece between RC-546 and RC-546A)	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1971, Sheet 2	Valve RC-546 remains closed to avoid pressurizing downstream Class 1 pipe piece and valve RC-546A
Drain line below PRZ safety valve RC-551C (pipe piece between RC-547and RC-547A)	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1971, Sheet 2	Valve RC-547 remains closed to avoid pressurizing downstream Class 1 pipe piece and valve RC-547A
Vent valve and blind flange on PZR spray line	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1971, Sheet 2	Valve RC-527C remains closed to avoid pressurizing downstream Class 1 pipe piece and blind flange
RCS loop intermediate loop "A" drain valve and liquid waste disposal piping	1	2 in.	A376 TP316 SMLS Sch. 160	1 ft.	B-P	5379-1971, Sheet 1	Valve RC-505A remains closed to avoid pressurizing downstream Class 1 piping and valve RC-505B
RCS loop intermediate loop "B" drain valve and liquid waste disposal piping	1	2 in.	A376 TP316 SMLS Sch. 160	7 in.	B-P	5379-1971, Sheet 1	Valve RC-508A remains closed to avoid pressurizing downstream Class 1 piping and valves RC-508B and RC-542
		0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 in.			
RCS loop intermediate loop "C" drain valve and liquid waste disposal piping	1	2 in.	A376 TP316 SMLS Sch. 160	8 in.	B-P	5379-1971, Sheet 1	Valve RC-515A remains closed to avoid pressurizing downstream Class 1 piping and valves RC-515B and RC-601
		0.75 in.	A376 TP316 SMLS Sch. 160	1 ft.			

Table 1 (Continued)
Relief Request Number RR-12
Affected Class 1 Pressure Retaining Components

Affected Line or Component	Code Class	Pipe Dia.	Pipe Sch.	Approx. Length	Examination Category	Drawing No.	Boundary Exception(s)
RPV head vent valves and piping	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1971, Sheet 1	Valves RC-567 and RC-568 remain closed to avoid pressurizing downstream Class 1 piping and valves RC-569, RC-570, RC-571, RC-572, RC-573, RC-574, and RC-575
		1 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.			
RCP "A" seal injection drain valve and blind flange	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-300A remains closed to avoid pressurizing downstream pipe piece and flange
RCP "A" seal leakoff vent valve and blind flange	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-300C remains closed to avoid pressurizing downstream pipe piece and flange
RCP "A" seal water bypass drain valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-307D remains closed to avoid pressurizing downstream pipe piece and cap
RCP "B" seal injection drain valve and blind flange	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-300D remains closed to avoid pressurizing downstream pipe piece and flange
RCP "B" seal leakoff vent valve and blind flange	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-300F remains closed to avoid pressurizing downstream pipe piece and flange
RCP "B" seal water bypass drain valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-307E remains closed to avoid pressurizing downstream pipe piece and cap

Table 1 (Continued)
Relief Request Number RR-12
Affected Class 1 Pressure Retaining Components

Affected Line or Component	Code Class	Pipe Dia.	Pipe Sch.	Approx. Length	Examination Category	Drawing No.	Boundary Exception(s)
RCP "B" seal water bypass drain valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-307F remains closed to avoid pressurizing downstream pipe piece and cap
RCP "C" seal injection drain valve and blind flange	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-300G remains closed to avoid pressurizing downstream pipe piece and flange
RCP "C" seal leakoff vent valve and blind flange	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-300J remains closed to avoid pressurizing downstream pipe piece and flange
RCP "C" seal water bypass drain valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-307C remains closed to avoid pressurizing downstream pipe piece and cap
Auxiliary spray valve and downstream piping	1	2 in.	A376 TP316 SMLS Sch. 160	500 ft.	B-P	5379-685, Sheet 1	Valve CVC-311 remains closed to avoid pressurizing downstream piping to check valve CVC-313
CVCS letdown drain valve and downstream cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-460H remains closed to avoid pressurizing downstream pipe piece and cap
CVCS letdown vent valve and downstream cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-460G remains closed to avoid pressurizing downstream pipe piece and cap
CVCS letdown drain valve and downstream cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-475 remains closed to avoid pressurizing downstream pipe piece and cap
Safety injection loop "1" cold leg injection vent valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1082, Sheet 4	Valve SI-875N remains closed to avoid pressurizing downstream pipe piece and cap

Table 1 (Continued)
Relief Request Number RR-12
Affected Class 1 Pressure Retaining Components

Affected Line or Component	Code Class	Pipe Dia.	Pipe Sch.	Approx. Length	Examination Category	Drawing No.	Boundary Exception(s)
Safety injection loop "2" cold leg injection vent valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1082, Sheet 4	Valve SI-875P remains closed to avoid pressurizing downstream pipe piece and cap
Safety injection loop "3" cold leg injection vent valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1082, Sheet 4	Valve SI-875T remains closed to avoid pressurizing downstream pipe piece and cap
Safety injection loop "1" cold leg injection check valve SI-875A and upstream piping	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1082, Sheet 4	Check valve to remain closed to avoid disassembly or other temporary configurations required to achieve test pressures at upstream piping and valves SI-873F, SI-850B, SI-876A, SI-875H, SI-875D, and SI-875M
		8 in.	A376 TP316 SMLS Sch. 120	3 ft.			
		10 in.	A376 TP316 SMLS Sch. 140	62 ft.			
Safety injection loop "2" cold leg injection check valve SI-875B and upstream piping	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1082, Sheet 4	Check valve to remain closed to avoid disassembly or other temporary configurations required to achieve test pressures at upstream piping and valves SI-875S, SI-873E, SI-876E, SI-876B, SI-875J, SI-850D, and SI-875E
		8 in.	A376 TP316 SMLS Sch. 120	5 ft.			
		10 in.	A376 TP316 SMLS Sch. 140	52 ft.			
Safety injection loop "3" cold leg injection check valve SI-875C and upstream piping	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1082, Sheet 4	Check valve to remain closed to avoid disassembly or other temporary configurations required to achieve test pressures at upstream piping and valves SI-875R, SI-873D, SI-875L, SI-850F, SI-876C, and SI-875F
		8 in.	A376 TP316 SMLS Sch. 120	8 ft.			
		10 in.	A376 TP316 SMLS Sch. 140	63 ft.			

Table 1 (Continued)
Relief Request Number RR-12
Affected Class 1 Pressure Retaining Components

Affected Line or Component	Code Class	Pipe Dia.	Pipe Sch.	Approx. Length	Examination Category	Drawing No.	Boundary Exception(s)
Safety injection loop "2" hot leg injection check valve SI-874B and upstream piping	1	2 in.	A376 TP316 SMLS Sch. 160	92 ft.	B-P	5379-1082, Sheet 4	Check valve to remain closed to avoid disassembly or other temporary configurations required to achieve test pressures at upstream piping and valves SI-874C and SI-866B
Safety injection loop "3" hot leg injection check valve SI-874A and upstream piping	1	2 in.	A376 TP316 SMLS Sch. 160	44 ft.	B-P	5379-1082, Sheet 4	Check valve to remain closed to avoid disassembly or other temporary configurations required to achieve test pressures at upstream piping and valves SI-874D and SI-866A
Residual heat removal motor-operated valve RHR-750 and common suction piping	1	14 in.	A376 TP316 SMLS Sch. 140	42 ft.	B-P	5379-1484, Sheet 1	Valve RHR-750 to remain closed to avoid pressuring downstream piping and valve RHR-751, which would result in single valve isolation between hydrostatic test boundary and decay heat removal system