September 26, 2002

Mr. J. W. Moyer, Vice President
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant,
Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550

SUBJECT: FOURTH 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN REQUESTS FOR RELIEF (1-17) FOR H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT 2 (TAC NO. MB2773)

Dear Mr. Moyer:

By letter dated August 17, 2001, as supplemented by letters dated April 5, 2002, May 14, 2002, and September 20, 2002, Carolina Power & Light Company, licensee for H. B. Robinson Steam Electric Plant, Unit 2 (HBRSEP2), pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Sections 50.55a(a)(3)(i), 50.55a(a)(3)(ii), and 50.55a(g)(6)(i), submitted 17 relief requests for their fourth 10-year interval inservice inspection program.

The staff reviewed the relief requests and associated proposed alternative testing method against the requirements of American Society of Mechanical Engineers(ASME) Boiler and Pressure Vessel Code, 1995 Edition with 1996 Addenda, which are incorporated by reference in 10 CFR 50.55a. The staff findings are provided in the enclosed Safety Evaluation.

The disposition of these 17 reliefs is summarized in the Table attached to the Enclosure that identifies the Code requirements, issues, and the appropriate 10 CFR 50.55a sections authorizing the reliefs. Relief request RR-03 was not needed and was therefore not granted. Relief requests RR-06, -13, and -14 were withdrawn by the licensee.

These reliefs are authorized for the fourth 10-year interval for HBRSEP2, which began on February 19, 2002, and is scheduled to end on February 18, 2012.

If you have any questions, please contact R. Subbaratnam at 301-415-1478.

Sincerely,

/RA/
Allen G. Howe, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure: Safety Evaluation

cc w/encl: See next page

These reliefs are authorized for the fourth 10-year interval for HBRSEP2, which began on February 19, 2002, and is scheduled to end on February 18, 2012.

If you have any questions, please contact R. Subbaratnam at 301-415-1478.

Sincerely,

/RA/
Allen G. Howe, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure: Safety Evaluation

cc w/encl: See next page

DISTRIBUTION:

PUBLIC	KJabbour	Ahowe	ALee
HBerkow	SCahill, Region II	SRosenberg (e-mail)	SCoffin
RSubbaratnam	EDunnington	OGC	TMcLellan
PDII Reading	GHill (2 Hard Copies)	ACRS	TChan

ACCESSION NO. ML022700601
*Staff SE Dated 9- 23-2002

OFFICE	PDIIS2/PM	PDIIS2:LA	EMCB:DE	PDIIS2:SC	OGC(NLO/w comments(Incorporated)
NAME	RSubbaratnam	EDunnington	SCoffin/TChan*	AHowe	SBrock
DATE	09/26/02	09/ 24/02	09/ 23 /02	09/ 26 /02	09/ /02

OFFICIAL RECORD COPY

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

FOURTH 10-YEAR INTERVAL INSERVICE INSPECTION REQUESTS FOR RELIEF

CAROLINA POWER & LIGHT COMPANY

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT 2

DOCKET NUMBER 50-261

1.0 INTRODUCTION

The Office of Nuclear Reactor Regulation, with technical assistance from Brookhaven National Laboratory (BNL), has reviewed the information concerning inservice inspection (ISI) program requests for relief for the H. B. Robinson Steam Electric Plant, Unit 2 (HBRSEP2) fourth 10-year interval ISI program provided in Carolina Power & Light Company (the licensee) letter dated August 17, 2001. The licensee provided additional information in its letters dated April 5, 2002, and May 14, 2002. In its letter dated September 20, 2002, the licensee withdrew Request for Relief No. RR-06.

2.0 REGULATORY EVALUATION

ISI of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components is to be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10 CFR 50.55a(g), except where specific relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states 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, "Rules for Inservice Inspection (ISI) of Nuclear Power Plant Components," 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 Code of record for the HBRSEP2 fourth

10-year ISI interval is the 1995 Edition through the 1996 Addenda of the ASME Code, Section XI.

The staff adopts the evaluations and recommendations for authorizing alternatives and granting requests for relief contained in the Technical Letter Report (TLR) prepared by BNL, which is included as Attachment 1. Attachment 2 lists each relief request and the status of approval.

3.0 TECHNICAL EVALUATION

For Requests for Relief Nos. RR-01, RR-04, and RR–05, the staff determined that the Code-required examinations are impractical to perform on the components contained in the subject requests for relief. In order to perform the Code-required examinations to the extent required by the Code, the subject components would require significant design modifications. Furthermore, the licensee's proposed alternatives provide reasonable assurance of structural integrity of the subject components in the licensee's requests for relief.

For Request for Relief Nos. RR-02, RR-07, RR-08, RR-11, and RR-12, the staff determined that to require the licensee to comply with the Code requirements would result in a hardship or unusual difficulty without a compensating increase in the level quality and safety. Furthermore, the licensee's proposed alternatives provide reasonable assurance of structural integrity of the subject components in the licensee's requests for relief.

For Request for Relief Nos. RR-09, RR-16, and RR-17, the licensee's proposed alternatives to use Code Cases N-533-1, N-498-1, N-623, and N-573, respectively, provide reasonable assurance of quality and safety.

For Request for Relief Nos. RR-10 and RR-15, the licensee's proposed alternative contained in the subject request for relief provides reasonable assurance of quality and safety.

Relief request RR-03 was not needed and was therefore not granted. Relief requests RR-06, -13, and -14 were withdrawn by the licensee.

4.0 CONCLUSION

HBRSEP2's requests for relief to the Code requirements have been reviewed by the staff with the assistance of its contractor, BNL. The TLR provides BNL's evaluation of these requests for relief. The staff has reviewed the TLR and adopts the evaluations and recommendations for granting reliefs and authorizing the licensee's proposed alternatives contained in its requests for relief. A summary of each request for relief determination is presented in Attachment 2.

For Request for Relief Nos. RR-01, RR-04, and RR-05, the NRC staff concludes that the Code-required examinations are impractical to perform on the components contained in the subject requests for relief. Furthermore, the licensee's proposed alternatives provide reasonable assurance of structural integrity of the subject components in the licensee's requests for relief. Therefore, the licensee's Request for Relief Nos. RR-01, RR-04, and RR–05 are granted pursuant to 10 CFR 50.55a(g)(6)(i).

For the alternatives contained in Request for Relief Nos. RR-02, RR-07, RR-08, RR-11, and RR-12, the NRC staff concludes that the imposition of the Code requirements would result in hardship without a compensating increase in the level of quality and safety and the proposed

alternatives provide reasonable assurance of structural integrity of the subject components in the licensee's requests for relief. Therefore, the licensee's proposed alternatives are authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the fourth 10-year ISI interval.

The NRC staff concludes that for Request for Relief Nos. RR-09, RR-16, and RR-17, the licensee's proposed alternatives to use Code Cases N-533-1, N-498-1, N-623, and N-573, respectively, provide an acceptable level of quality and safety. Therefore, the licensee's proposed alternatives are authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the fourth 10-year interval or until such time Code Cases N-533-1, N-498-1, N-623, and N-573 are referenced in a future revision of Regulatory Guide (RG) 1.147. At that time, if the licensee intends to continue to implement Code Cases N-533-1, N-498-1, N-623, and N-573, the licensee should follow all provisions in the subject Code cases with the limitations listed in RG 1.147, if any.

For Request for Relief No. RR-10, the NRC staff concludes that the licensee's proposed alternative contained in the subject request for relief provides a reasonable assurance of quality and safety and is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the fourth 10-year ISI interval.

Principal Author:T.McLellan, NRR

Date: September 26, 2002

Attachment:

BNL Technical Letter Report

TECHNICAL LETTER REPORT
ON FOURTH 10-YEAR INSERVICE INSPECTION INTERVAL
REQUESTS FOR RELIEF
FOR
CAROLINA POWER & LIGHT COMPANY
H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT 2
DOCKET NUMBER: 50-261

1.0 SCOPE

By letter dated August 17, 2001, the licensee, Carolina Power and Light (CP&L) Company, submitted multiple requests for relief from the requirements of the ASME Code, Section XI, for the H. B. Robinson Steam Electric Plant, Unit 2. The licensee provided additional information in letters dated April 5, 2002 and May 14, 2002. In its letter dated September 19, 2002, the licensee withdrew Request for Relief No. RR-06. These relief requests are for the fourth 10-year inservice inspection (ISI) interval. Brookhaven National Laboratory (BNL) reviewed the information submitted by the licensee and the evaluation of the subject requests for relief are discussed in the following section.

2.0 EVALUATION

The information provided by CP&L in support of the fourteen requests for relief from ASME Code requirements and the licensee responses to requests for additional information (RAI) in letters dated April 5, 2002 and May 14, 2002 have been evaluated and the bases for disposition are documented below. The Code of Record for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit 2, fourth 10-year ISI interval, which began on February 19, 2002, is the 1995 Edition with 1996 Addenda of Section XI of the ASME Boiler and Pressure Vessel Code.

2.1 Request for Relief No. RR-01

Code Requirement: ASME Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-D, "Full Penetration Welded Nozzles in Vessels - Inspection Program B," Item Number B3.120, "Nozzle Inside Radius Section," requires a volumetric examination of the pressurizer surge line nozzle inside radius section during each inspection interval in accordance with Figure No. IWB-2500-7.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(g)(5), the licensee requested relief from performing Code-required 100% volumetric examination of the pressurizer surge line nozzle inside radius section.

Licensee's Basis for Requesting Relief: (as stated)
HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(g)(6)(i) on the basis that performance of the Code-required volumetric examination of the pressurizer surge line nozzle inside radius section is impractical to perform.

The pressurizer surge line nozzle inside radius section is not accessible for volumetric examination from the exterior of the pressurizer due to interference associated with the pressurizer heater penetrations. Examination from the interior of the pressurizer is precluded due to access restrictions caused by the pressurizer retaining basket. Major design modifications to the pressurizer bottom head, involving significant worker radiation exposures, would be required to establish a configuration that would allow Code-required volumetric examination of the pressurizer surge line nozzle inside radius section. Based on the configurations of the exterior and interior areas surrounding the pressurizer surge line nozzle inside radius section, and the significant modifications that would be required to allow performance of the Code-required examinations, HBRSEP, Unit No. 2, has concluded that these Code-required examinations are impractical to perform.

In its response dated April 5, 2002 to the staff's RAI, the licensee stated:
Relief was requested for the pressurizer surge line nozzle inner radius volumetric examination, Examination Category B-D, Item Number B3.120. The drawing (labeled "Pressurizer Bottom")[1] provided in Attachment III[2] shows that this weld is surrounded by pressurizer heater electrical connections.

Licensee's Proposed Alternative Examination: (as stated)
No alternative examinations are proposed.

The pressurizer surge line nozzle is examined by VT-2 visual examination during pressure testing each refueling outage in accordance with the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-P. This Code-required pressure testing provides reasonable assurance of structural integrity.

Staff Evaluation:
The Code requires a 100% volumetric examination of all pressurizer surge line nozzle inside radius sections during each inspection interval in accordance with Figure No. IWB-2500-7. Based on the drawings provided by the licensee, the surge nozzle inner radius is not accessible due to the heater's electrical connections to the bottom head around the nozzle and restrictions inside by the retaining basket. These limitations make volumetric examinations impractical. To gain access for examination, the pressurizer surge nozzle would require design modifications and/or replacement of the pressurizer, involving significant worker radiation exposures. Imposition of this requirement would create an undue burden on the licensee.

The pressurizer surge line nozzle is examined by VT-2 visual examination during pressure testing each refueling outage in accordance with the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-P. This Code-required VT-2 visual examination performed during system pressure tests provides reasonable assurance of structural integrity of this nozzle.

---

1. The drawing labeled "Pressurizer Bottom" is not included in this TLR.

2. Attachment III to licensee's letter dated April 5, 2002 is not included in this TLR.

Based on the impracticality of meeting the Code examination requirements for the subject pressurizer surge nozzle inside radius, and the reasonable assurance provided by the pressure testing each refueling outage, it is recommended that relief be granted pursuant to 10 CFR 50.55a(g)(6)(i).

2.2 Request for Relief No. RR-02

Code Requirement: ASME Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-B, "Pressure Retaining Welds in Vessels Other Than Reactor Vessels," Item Numbers B2.51, "Circumferential," and B2.80, "Tubesheet-to-Vessel Welds," require volumetric examination of the regenerative heat exchanger vessel head weld and the tube sheet-to-head weld.

ASME Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-D, "Full Penetration Welded Nozzles in Vessels - Inspection Program B," Item Numbers B3.150, "Nozzle-to-Vessel Welds," and B3.160, "Nozzle Inside Radius Section," require volumetric examination of the regenerative heat exchanger nozzle shell welds and inside radius section.

ASME Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-J, "Pressure Retaining Welds in Piping," Item Numbers B9.32, "Branch Pipe Connection Welds Less Than NPS 4," and B9.21, "Circumferential Welds" (less than NPS 4), require surface examination of the inlet, outlet, and intermediate connecting piping welds between the shell courses.

ASME Section XI, 1995 Edition with 1996 Addenda, Table IWF-2500-1, Examination Category F-A, "Supports," Item Number F1.40, "Supports Other Than Piping Supports (Class 1, 2, 3, and MC)," requires VT-3 visual examination of all supports.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee requested relief from the Code-required examination coverage of the following components located inside the regenerative heat exchanger room:

Regenerative heat exchanger vessel head weld and the tube sheet-to-head weld:	Volumetric
Regenerative heat exchanger nozzle shell welds and inside radius section:	Volumetric
Inlet, outlet, and intermediate connecting piping welds between the shell courses:	Surface
All supports other than piping supports	VT-3 Visual

Licensee's Basis for Requesting Relief: (as stated)
HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(a)(3)(ii) on the basis that performance of the Code-required examinations associated with the regenerative heat exchanger would result in hardship and unusual difficulty without compensating increase in the level of quality and safety.

Radiation surveys in the regenerative heat exchanger room identified general area dose rates of 1 to 2 Rem/hour, and heat exchanger contact dose rates of 3 to 4 Rem/hour. As a result, significant worker exposure would result from the preparation for and performance of the Code-required examinations. In order to maintain occupational exposures As Low As Reasonably Achievable (ALARA), relief from these requirements is being requested. Additionally, the VT-2 visual examination performed each refueling outage during pressure testing provides reasonable assurance of structural integrity.

In its response dated April 5, 2002 to the staff's RAIs, the licensee stated:
The drawing of the regenerative heat exchanger in Attachment III[2] specifically identifies the applicable welds in conjunction with the Table 1[3]. Table 1 also includes estimated dose rates and projected doses for weld examinations. The welds and supports identified in this Table 1 are located inside the regenerative heat exchanger room.

The time required for VT-2 examination is significantly less than the time required for a surface or volumetric examination. ASME Section XI, 1995 Edition - 1996 Addenda, IWA-5242(a) states, "Essentially vertical surfaces of insulation need only be examined at the lowest elevation where leakage may be detectable. Essentially horizontal surfaces of insulation shall be examined at each insulation joint." IWA-5242(b) states, "When examining insulated components, the examination of the surrounding area (including floor areas or equipment surfaces located underneath the component) for evidence of leakage, or other areas to which such leakage may be channeled, shall be required." A VT-2 examination can be performed from a distance in a short period of time, thereby lowering radiation exposure to the examiner.

Surface and volumetric examinations may require scaffolding in addition to insulation removal and weld preparation. The asbestos insulation on the regenerative heat exchanger is original insulation and would have to be replaced in its entirety based on the brittleness of the insulation. Surface examination requires a hands-on application in the performance of these examinations.

The total estimated dose associated with examination of the regenerative heat exchanger is approximately 70 Rem. This is based on approximately 30 Rem estimated for preparation and examination, and 40 Rem for insulation and scaffolding.

There are geometric restrictions associated with these components which also cause difficulty in the performance of Code-required examinations. The nozzle-to-vessel welds and nozzle inside radius sections of the heat exchanger were not designed for ultrasonic examination from the outside diameter. The small diameter of the heat exchanger shell prevents a meaningful ultrasonic examination of these components. The Code-required volumetric examination on the heat exchanger head circumferential welds is limited due to the weld crown, radius of the closure caps, and the nozzles. The Code-required volumetric examination of the tubesheet welds is limited by the weld crown and is obstructed by a support clamp. The clamp must be removed prior to the examination of these welds.

---

3. Table 1 in licensee's letter dated April 5, 2002 is not included in this TLR.

Based on review of the North Anna Relief Request discussed in the request for additional information, HBRSEP, Unit No. 2, further proposes to perform a VT-3 general visual examination of the regenerative heat exchanger, without insulation removal, once each inspection period, as an alternative to the required surface/volumetric examination. Relief Request No. RR-02 has been revised to include the proposed alternative examination and is provided in Attachment II[4].

Licensee's Proposed Alternative Examination: (as stated)
In its response dated April 5, 2002 to the staff's RAIs, the licensee stated:
HBRSEP, Unit No. 2, will perform a VT-3 general visual examination of the regenerative heat exchanger, without insulation removal, once each inspection period, as an alternative examination to the required surface/volumetric examination.

The regenerative heat exchanger pressure-retaining boundary is examined by VT-2 visual examination during pressure testing that is performed during each refueling outage in accordance with Table IWB-2500-1, Examination Category B-P. This Code-required pressure testing provides reasonable assurance of structural integrity.

Staff Evaluation:
The Code requires volumetric examination of the regenerative heat exchanger vessel head weld and the tube sheet-to-head weld, volumetric examination of the regenerative heat exchanger nozzle shell welds and inside radius section, surface examination of the inlet, outlet, and intermediate connecting piping welds between the shell courses, and VT-3 visual examination of all supports. All of these welds and supports are located inside the regenerative heat exchanger room.

The Code-required examinations of the subject welds and supports would result in personnel receiving excessive radiation exposure and potential exposure to asbestos insulation on the regenerative heat exchanger. Also, geometric restrictions associated with some of these welds would preclude performing the 100% Code-required volumetric examinations using ultrasonic technique. Based on the ALARA concerns surrounding the performance of these examinations, the performance of the Code-required examinations associated with the regenerative heat exchanger room would result in hardship and unusual difficulty for the licensee without a compensating increase in the level of quality and safety.

As an alternative examination to the Code-required surface/volumetric examination, the licensee proposes to perform a VT-2 visual examination for evidence of leakage during the system pressure testing each refueling outage in accordance with Table IWB-2500-1, Examination Category B-P. In addition, the licensee will perform a VT-3 general visual examination of the subject welds inside the regenerative heat exchanger room, without insulation removal, once each inspection period (i.e., every 40 months) instead of the Code-required surface/volumetric examinations in each inspection interval (i.e., 10 years). This will provide reasonable assurance of the continued inservice structural integrity of the subject welds inside the regenerative heat exchanger

4. Attachment II to licensee's letter dated April 5, 2002 is not included in this TLR.

room. Therefore, it is recommended that the proposed alternative be authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the fourth ISI interval.

2.3 Request for Relief No. RR-03

Code Requirement: ASME Section XI, 1995 Edition with 1996 Addenda, IWA-2232, "Ultrasonic Examination," requires that ultrasonic examination be conducted in accordance with Appendix I, "Ultrasonic Examinations." Appendix I requires that calibration block material be of the same material specification, product form, and heat treatment condition as the materials being joined.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(g)(5), the licensee requested to use SA-533, Grade B, material in lieu of SA-302, Grade B, material, and use SA-508 material in lieu of SA-336 material for the reactor vessel calibration blocks. The requested relief would also use SA-533, Grade B, material in lieu of SA-302, Grade B, material for the pressurizer calibration blocks. Additionally, the relief request would authorize the use of existing, manually clad calibration blocks for reactor vessel examinations in lieu of the automatically clad blocks required by the Code.

Licensee's Basis for Requesting Relief: (as stated)
HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(g)(6)(i) on the basis that compliance with Code requirements for calibration block materials is impractical, i.e., the required calibration block material are not available.

Based on chemical and physical properties, SA-533, Grade B, is considered to be essentially equivalent to SA-302, Grade B. This parity is also evident in the properties of the SA-336 and SA-508 materials. These materials are considered to be acoustically equivalent, thereby meeting the intent of the Code.

The use of manually clad reactor vessel calibration blocks would facilitate comparison of data obtained during the Fourth Ten-Year ISI Interval with examination data obtained during the previous interval.

Based on the above, there is reasonable assurance that the requested relief will provide assurance of structural integrity, and that an acceptable level of quality and safety will be maintained during the Fourth Ten-Year ISI Interval.

In its response dated April 5, 2002 to the staff's RAIs, the licensee stated:
The subject calibration blocks have been used for previous ISI intervals. The continued use of these calibration blocks will provide consistent results. The procurement of calibration blocks of the exact materials is not feasible because the material was not retained for this purpose when the reactor vessel was fabricated. An increase in plant safety would not result from requiring the fabrication of new calibration blocks to current Code requirements because the physical properties of the subject materials are equivalent.

Licensee's Proposed Alternative Examination: (as stated)

As an alternative to the calibration material requirements provided within IWA-2232 and Appendix I, examinations will be performed using calibration blocks fabricated of similar materials, i.e., SA-533, Grade B, in lieu of SA-302, Grade B, and SA-508 in lieu of SA-336.

Staff Evaluation:
In accordance with the ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda (specifically, Article I-2000 of Appendix I), the configuration and fabrication of ultrasonic calibration blocks are required to meet conditions specified in the Code. Since this request for relief does not apply to components which are required to be examined in accordance with Appendix VIII, Article 4 of Section V of the ASME Code, as supplemented by Table I-2000-1, is applicable for vessels greater than 2 inches in thickness, and Appendix III of Section XI, as supplemented by Table I-2000-1, is applicable for vessels 2 inches and less in thickness.

The licensee can change the calibration block design and material for the existing UT technique by following the requirements of paragraph III-1100(d) of the ASME Code, which states that an alternative calibration block design and material may be used for an existing UT technique as provided by paragraph IWA-2240 of the ASME Code. Paragraph IWA-2240 permits the use of alternative blocks provided an Authorized Nuclear Inservice Inspector (ANII) is satisfied that the results are demonstrated to be equivalent or superior to those of the specified UT method. This demonstration includes not only a witnessed (physical) demonstration, but documentation which supports the ANII's determination of equivalency or superiority.

Based on the information provided in this request for relief, the ASME Code already provides a means of considering the use of alternative calibration blocks under the provisions of IWA-2240. The licensee's implementation of IWA-2240 regarding the application of alternative calibration blocks obviate the need for this relief request. Therefore, it is recommended that this request for relief is not needed.

2.4 Request for Relief No. RR-04

Code Requirement: ASME Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-A, "Pressure Retaining Welds in Reactor Vessel," Item Number B1.21, "Circumferential Head Welds," requires volumetric examination of essentially 100% weld length of the reactor pressure vessel closure head peel segment-to-disk circumferential weld in accordance with Figure No. IWB-2500-3.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(g)(5), the licensee requested relief from the Code-required volumetric examination of the reactor pressure vessel closure head peel segment-to-disk circumferential weld.

Licensee's Basis for Requesting Relief: (as stated)
HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(g)(6)(i) on the basis that performance of the Code-required volumetric examination of the reactor pressure vessel closure head peel segment-to-disk circumferential weld is impractical to perform.

Accessibility for examination of this weld was not provided in the original plant design, which occurred prior to issuance of the Section XI ISI examination requirements. The closure head peel segment-to-disk weld is completely enclosed within the pattern of Control Rod Drive Mechanism (CRDM) penetrations inside the reactor vessel shroud, such that no portion of the weld is accessible for either surface or volumetric examination. Therefore, this weld is considered inaccessible for volumetric examination due to physical space constraints.

In its response dated April 5, 2002 to the staff's RAIs, the licensee stated:
Relief was requested for the head peel segment-to-disk weld (weld #1) that is completely enclosed within the pattern of Control Rod Drive Mechanism (CRDM) penetrations inside the reactor vessel shroud. The drawing (HBR2-10618/Sheet 1)[5] provided in Attachment III shows additional details regarding the impracticality of this volumetric examination.

Licensee's Proposed Alternative Examination: (as stated)
No alternative examinations are proposed.

The reactor pressure vessel closure head peel segment-to-disk circumferential weld is examined by VT-2 visual examination during pressure testing each refueling outage in accordance with the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-P. This Code-required pressure testing provides reasonable assurance of structural integrity.

Staff Evaluation:
The Code requires volumetric examination of essentially 100% weld volume of the reactor pressure vessel closure head peel segment-to-disk circumferential weld in accordance with Figure No. IWB-2500-3. Based on the drawing HBR2-10618, Sheet 1 (Sketch CPL-101), the control rod drive (CRD) shroud and the control rod drive mechanism (CRDM) penetrations in the closure head preclude any access to closure head peel segment-to-disk circumferential weld No.1 for the Code-required volumetric examination. It is impractical without significant design changes to gain access for examination.

As an alternative, the reactor pressure vessel closure head peel segment-to-disk circumferential weld is examined by VT-2 visual examination during pressure testing each refueling outage in accordance with the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-P. This Code-required pressure testing will provide reasonable assurance of the continued inservice structural integrity of the subject weld.

The Code-required volumetric examination of the subject closure head peel segment-to-disk weld is impractical to perform. Compliance with this specific Code requirement would result in burden on the licensee as the component would be required to be redesigned. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), it is recommended that relief be granted as requested.

---

5. The drawing in Attachment III to licensee's letter dated April 5, 2002 is not included in this TLR.

2.5 Request for Relief No. RR-05

Code Requirement: ASME Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-J, "Pressure Retaining Welds in Piping," Item No. B9.11, "Circumferential Welds," requires volumetric and surface examination of the circumferential welds of NPS 4 or larger in accordance with Figure No. IWB-2500-8.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(g)(5), the licensee requested relief from performing the Code-required surface and volumetric examination of the following circumferential welds associated with the reactor coolant system piping cold leg circumferential butt welds: CPL-107/13 for loop "A," CPL-107A/13 for loop "B," and CPL-107B/13 for loop "C."

Licensee's Basis for Requesting Relief: (as stated)
HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(g)(6)(i) on the basis that performance of the Code-required volumetric and surface examinations associated with reactor coolant system piping cold leg circumferential butt welds are impractical to perform.

Accessibility for examination of these welds was not provided in the original plant design, which occurred prior to the issuance of Section XI ISI examination requirements. These welds are inaccessible for volumetric and surface examination due to being completely enclosed within the concrete structure that constitutes the biological shield wall.

In its response dated April 5, 2002 to the staff's RAIs, the licensee stated:
The subject welds (one weld on each reactor coolant loop cold leg) for which relief is requested are contained within the concrete biological shield wall surrounding the reactor vessel and are therefore inaccessible for examination. The three welds remain in the Examination Category B-J, B9.11, total population count to which the 25% selection (in accordance with 1974 Summer 1975 Code) is applied, but these three welds would not be selected for examination due to the inaccessibility of the subject welds.

Table 2[6] provides a list of Reactor Coolant System main piping welds. This table also shows that there are fourteen Examination Category B-J Reactor Coolant System main piping welds that are currently scheduled for inspection during the Fourth Ten-Year Interval.

Licensee's Proposed Alternative Examination: (as stated)
No alternative examinations are proposed.

The reactor coolant system piping cold leg circumferential butt welds are examined by VT-2 visual examination during pressure testing each refueling outage in accordance with the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table

6. Table 2 in licensee's letter dated April 5, 2002 is not included in this TLR.

IWB-2500-1, Examination Category B-P. This Code-required pressure testing provides reasonable assurance of structural integrity, thereby maintaining an acceptable level of quality and safety during the Fourth Ten-Year ISI Interval.

Staff Evaluation:
The Code requires surface and volumetric examination of the following circumferential welds associated with the reactor coolant system piping cold leg circumferential butt welds: CPL-107/13 for loop A, CPL-107A/13 for loop B, and CPL-107B/13 for loop C. The design of the reactor pressure vessel and biological shield makes the Code-required volumetric and surface examinations impractical to perform at H. B. Robinson, Unit 2. The subject welds are contained within the concrete biological shield wall surrounding the reactor vessel and are therefore inaccessible for examination. Based on the Table 2 listing (attached with the RAI responses) of all reactor coolant main piping welds, in each primary loop there are thirteen other B-J welds that are currently scheduled for inspection during the fourth 10-Year ISI interval.

As an alternative, the reactor coolant system piping cold leg circumferential butt welds are examined by VT-2 visual examination during pressure testing each refueling outage in accordance with the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-P. This Code-required pressure testing provides reasonable assurance of structural integrity of the subject component.

Since the subject welds were inaccessible, complying with the Code requirements is impractical. Imposition of the Code-required volumetric and surface examinations would necessitate replacement of piping or redesign of the piping configuration and creates an excessive burden on the licensee. Any existing degradation would be detected by the inspection of the remaining thirteen B-J welds in each main reactor coolant piping loop that will be performed during the fourth 10-Year ISI interval. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), it is recommended that relief be granted as requested.

2.5a Request for Relief No. RR- 6

This relief request was withdrawn by the licensee in their letter dated September 20, 2002.

2.6 Request for Relief No. RR-07

Code Requirement: ASME Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-F, “Pressure Retaining Dissimilar Metal Welds in Vessel Nozzles,” Item No. B5.10, requires volumetric and surface examination of the RPV nozzle-to-safe end welds in accordance with Figure No. IWB-2500-8.

Licensee’s Code Relief Request: Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee requested relief from performing Code-required volumetric and surface examinations of the following RPV nozzle-to-safe end welds:

Weld Identification Number	Location
CPL-107/1DM	Hot Leg “A”

CPL-107/14DM	Cold Leg “A”
CPL-107A/1DM	Hot Leg “B”
CPL-107A/14DM	Cold Leg “B”
CPL-107B/1DM	Hot Leg “C”
CPL-107B/14DM	Cold Leg “C”

Licensee’s Basis for Requesting Relief: (as stated)
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 performance of the Code-required volumetric and surface examinations of the RPV nozzle-to-safe end welds.

Examination of the RPV nozzle-to-safe end welds was not considered as part of the original plant design, which occurred prior to issuance of Section XI ISI requirements. Access to the affected welds from the refueling cavity is significantly limited. Additionally, due to the configuration of the RPV nozzles as they penetrate the biological shield wall, the weld area accessible for the Code-required examinations is approximately the top one-third of the weld outside diameter.

Significant personnel hazards are associated with examinations of the RPV nozzle-to-safe end welds that are not commensurate with the benefits gained from performing such examinations. Access to the affected welds from the refueling cavity involves entry into an area that is physically confined with elevated ambient temperatures. These ambient conditions, combined with the required use of personnel protective equipment, create the potential for heat stress and exhaustion. Detailed dose assessments have concluded that performance of the Code-required examinations is not consistent with the principal of “As Low As Reasonably Achievable” (ALARA). For example, with an assumed area dose rate of 600 mRem/hour, worker exposure for surface examination of the six affected welds is estimated at approximately 7.5 Rem.

Previous examination history supports the Proposed Alternative Examinations in lieu of the Code-required volumetric and surface examinations. No rejectable indications have been identified by examinations conducted during the Third Ten-Year ISI Interval. The dissimilar metal welds, as well as the safe end-to-pipe welds, were examined at the conclusion of the Third Ten-Year Interval for the ASME Code-required volume. Two indications were identified in the hot let [sic] “B” safe end on the nozzle side, and one indication was identified in the cold leg “C” nozzle side. These three indications were evaluated in accordance with Code requirements and found to be acceptable.

In its response dated April 5, 2002 to the staff’s RAIs, the licensee stated:
a) Two indications identified in the hot leg “B” safe end on the nozzle side were evaluated to Table IWB-3514-2 and were found to be within the ASME Code allowable values. One indication was identified in the cold leg “C” nozzle side cladding and was evaluated to Table IWB-3514-1. This indication was also found to be within the ASME Code allowable values.

b) For the Third Ten-Year Interval, relief was granted from performing the surface examination under Relief Request No. 32. In lieu of the surface examination, a VT-2 examination was performed from the refueling floor through the access hatch. A surface

examination was performed in the Second Ten-Year Interval on the accessible portions. This examination did not identify any indications.

c) The indications identified were recorded and evaluated as acceptable relative to ASME Code requirements. Therefore, they do not require trending, but information relative to the size, shape, and location will be available to personnel performing future examinations.

Additional details regarding approval of the similar relief request for the Third Ten-Year Interval (TAC No. MB1541) are available within previously docketed correspondence.

Licensee's Proposed Alternative Examination: (as stated)
Ultrasonic examinations will be conducted from the inside diameter of the RPV nozzle and will include the Code-required weld volume, i.e., lower one-third, as well as the heat affected zone. These examinations will be performed concurrently with vessel examinations required at or near the end of the interval.

As an alternative to the Code-required surface examination, a VT-2 visual examination will be conducted in accordance with the ASME Code, Section XI, 1995 Edition with 1996 Addenda, IWA-5242, "Insulated Components."

Staff Evaluation:
The Code requires volumetric and surface examination of the RPV nozzle-to-safe end welds in accordance with ASME Code, Section XI, Figure No. IWB-2500-8.
H. B. Robinson, Unit 2 started commercial operation in 1971. Accessibility for examination of these welds was not provided in the original design, which occurred prior to issuance of the Section XI ISI examination requirements.

The difficulty in performing the Code-required examinations is caused by the cramped working conditions and physical obstructions. The narrow entry and limited working areas hinder movement while exposing the examiner to high radiation doses. In order for the examiner to perform a complete surface examination of the weld and to reduce dosage, the licensee would have to make significant design changes.

The licensee determined that the dosage could be reduced by replacing the limited surface examination with a limited VT-2 visual examination of the same surface area under IWA-5242 requirements. In the event of a through-wall crack, the borated water would go to the bottom of the insulation and drain out at the opening of the insulation joints. According to IWA-5242, a VT-2 examination of the horizontal insulated surface must be conducted at each insulation joint. Boron build-up and/or surface discoloration at the accessible insulation joints would indicate leakage. Removing the insulation to perform the visual examination at the top of the pipe would not compensate for the hardship due to high radiation exposure placed on the examiner to perform the Code-required VT-2 examination. Therefore, to impose the Code requirements on the licensee would be a hardship without a compensating increase in quality and safety.

For leakage to occur, there would have to be a through-wall crack. Such a crack would be detected during the proposed alternative (ultrasonic examinations will be conducted from the inside diameter of the RPV nozzle) ultrasonic examination of the inner 1/3

through-wall weld volume, as well as the heat affected zone. These examinations will be performed concurrently with vessel examinations required at or near the end of the interval.

A surface examination was performed in the Second 10-Year Interval on the accessible portions and identified no indications. For the Third 10-Year Interval, relief was granted from performing the surface examination. A VT-2 examination was performed from the refueling floor through the access hatch. The dissimilar metal welds, as well as the safe end-to-pipe welds, were examined at the conclusion of the Third 10-Year Interval for the ASME Code-required volume. Two indications were identified in the hot leg "B" safe end on the nozzle side, and one indication was identified in the cold leg "C" nozzle side. These three indications were evaluated in accordance with Table IWB-3514-2 and found to be within the ASME Code allowable values.

In lieu of the Code-required examinations, the licensee proposes to perform ultrasonic examinations from the inside diameter of the RPV nozzle and will include the Code-required weld volume, i.e., lower one-third, as well as the heat affected zone. These examinations will be performed concurrently with vessel examinations required at or near the end of the interval. As an alternative to the Code-required surface examination, a VT-2 (for insulated piping) visual examination will be conducted in accordance with IWA-5242. Based on the above, the staff determined that the UT examinations of the lower one-third as well as the heat affected zone, in conjunction with VT-2 (for insulated piping) visual examination, are acceptable because the limited achievable Code-required examinations provide adequate assurance of structural integrity of the subject welds. Therefore, it is recommended that the request for relief be authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the fourth ISI interval.

2.7 Request for Relief No. RR-08

Code Requirement: ASME Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-N-1, "Interior of Reactor Vessel," Item No. B13.10, requires a VT-3 visual examination during each inspection period of the reactor vessel interior surface that is made accessible for examination by removal of components during normal refueling outages.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee requested relief from performing Code-required VT-3 visual examination during each inspection period of the reactor vessel interior surface.

Licensee's Basis for Requesting Relief: (as stated)
HBRSEP, Unit No. 2, requests relief to perform the Proposed Alternative Examinations pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety.

Performance of visual examinations of the reactor vessel interior when the reactor vessel is disassembled for a normal refueling outage provides for an extremely limited examination. The lower internals and core barrel remain installed during a normal refueling outage, which generally limits the examination to the reactor vessel flange surface and inside nozzle surfaces. Such a limited examination provides negligible net

safety benefit when considering worker exposures and the potential for loose parts or foreign material to enter the vessel as a result of the equipment used to perform this examination.

Recent performance of these visual examinations during Refueling Outage 20 as part of the Third Ten-Year ISI interval identified no unacceptable conditions or indications that might warrant performance of these examinations on the Code-required periodicity.

Based on the above, the Proposed Alternative Examinations described below will provide an acceptable level of quality and safety when compared to the Code-required examinations.

In its response dated April 5, 2002 to the staff's RAIs, the licensee stated:
The subject relief request is for Examination Category B-N-1, which is required to be completed on the accessible areas each refueling outage. Examination Category B-N-2, Item Number B13.50 and B13.60, are for interior attachments within the beltline and beyond the beltline region, which are in accessible with the core barrel in place. Examination Category B-N-3, Item Number B13.70, requires the core barrel to be removed to facilitate the examination. Examinations B-N-2 and B-N-3 are normally performed coincident with the reactor vessel examination when the barrel and lower internals are removed at the end of the interval.

Relief Request No.8 states that the proposed examination frequency provides an acceptable level of quality and safety, based on the extremely limited examination that can be performed with the core barrel and lower internals installed. HBRSEP, Unit No. 2, proposes to perform the B-N-1 and B-N-2 examinations each outage that the lower internals and core barrel are removed. The statements in Relief Request No. 8, pertaining to examinations performed in Refueling Outage 20 are not the justification for the proposed alternative. This information is considered relevant to the current condition of the reactor vessel interior.

For additional details, refer to correspondence associated with the approval of the similar relief request for the Third Ten-Year Interval (TAC Nos. M89997 and MA3481).

Licensee's Proposed Alternative Examination: (as stated)
VT-3 visual examination of the reactor vessel interior surface will be performed during the third inspection period of the Fourth Ten-Year ISI Interval, coincident with the reactor vessel Ten-Year ISI examinations in accordance with Table IWB-2500-1, Examination Category B-N-1, Item No. B13.10. VT-3 visual examination will be performed prior to the third inspection period should the reactor vessel lower internals be removed for inspection, maintenance, or repair activities.

Staff Evaluation:
The Code requires a VT-3 visual examination during each inspection period of the reactor vessel interior surface that is made accessible for examination by removal of components during normal refueling outages. This is an extremely limited examination that can be performed on the vessel interior with the lower internals installed, that is, the reactor vessel flange surface and nozzle inner surface as access permits. The risk of dropping or losing parts or equipment in the vessel or potentially damaging the internals

with the equipment used for this examination outweigh the benefit if the examination is performed.

The licensee proposes to perform VT-3 visual examination of the reactor vessel interior surface during the third inspection period of the Fourth 10-Year ISI Interval, coincident with the reactor vessel 10-Year ISI examinations. Also, VT-3 visual examination will be performed prior to the third inspection period should the reactor vessel lower internals be removed for inspection, maintenance, or repair activities. Considering the risk of potentially damaging the internals the staff finds that following the Code-required examination is a hardship without a compensating increase in quality and safety. The licensee's proposed alternative to a VT-3 visual examination of the accessible areas of the reactor vessel interior each time the lower internals are removed for plant inspection, maintenance, or repair activities provides reasonable assurance of structural integrity of the subject component. Therefore, it is recommended that the request for relief be authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the fourth ISI interval.

2.8 Request for Relief No. RR-09

Code Requirement: ASME Section XI, 1995 Edition 1996 Addenda, IWA-5242, "Insulated Components," subsection (a), requires that for systems borated for the purpose of controlling reactivity, insulation shall be removed from pressure retaining bolted connections for VT-2 visual examination.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee requested relief from removing insulation from Class 1, 2, and 3 pressure retaining bolted connections to perform a VT-2 visual examination.

Licensee's Basis for Requesting Relief: (as stated)
HBRSEP, Unit No. 2, requests relief to perform the Proposed Alternative Examinations pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety.

For certain Class 1 and 2 systems borated for the purpose of controlling reactivity, achieving required test pressures would involve elevated system or component temperatures. With these elevated system temperatures, removal and reinstallation of insulation becomes [sic] a personnel safety concern.

System pressure testing and VT-2 visual examination in accordance with ASME Code Case N-533-1 provides an acceptable means to detect system leakage when the appropriate hold time is imposed after pressurization and prior to examination. Removal of insulation from bolted connections for performance of a VT-2 visual examination each refueling outage will detect evidence of borated water leakage in the form of boric acid residue or staining, and such visual examinations can provide effective results without pressurization of the effected system or component. Evidence of leakage identified during these examinations will be evaluated in accordance with IWA-5250, "Corrective Action."

ASME Code Case N-533-1 was approved for use by ASME on February 26, 1999, as an applicable alternative to the requirements of IWA-5242(a). This Code Case has not been

endorsed by the NRC via inclusion in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1." However, pursuant to 10 CFR 50.55a, licensees may implement such Code Cases provided specific authorization is granted. ASME Code Case N-533-1 recognizes that alternatives to IWA-5242(a) are available that provide an acceptable level of quality and safety. The Propose Alternative Examinations described below will adequately detect evidence of leakage in a manner comparable to the Code-required examinations.

Licensee's Proposed Alternative Examination: (as stated)
A system pressure test and VT-2 visual examination, without removal of insulation, will be performed each refueling outage for Class 1 bolted connections, and each inspection period for Class 2 and 3 bolted connections, for systems borated for the purpose of controlling reactivity. The VT-2 visual examination will be performed after an appropriate hold time following pressurization.

Removal of insulation and VT-2 visual examination will be performed each refueling outage for Class 1 bolted connections, and each inspection period for Class 2 and 3 bolted connections, in systems borated for the purpose of controlling reactivity. These visual examinations will not require pressurization of the effected system or component. Evidence of leakage identified during these examinations will be evaluated in accordance with IWA-5250, "Corrective Action."

Staff Evaluation:
The Code requires the removal of all insulation from pressure-retaining bolted connections in systems borated for the purpose of controlling reactivity when performing VT-2 visual examinations during system pressure tests. For Class 1 systems the Code requires this examination each refueling outage, while Class 2 and 3 systems are required to receive this examination each inspection period. As an alternative to the Code requirements, the licensee has proposed to use Code Case N-533-1, "Alternative Requirements for VT-2 Visual Examination of Class 1, 2, and 3 Insulated Pressure-Retaining Bolted Connections Section XI, Division 1," for systems borated for the purpose of controlling reactivity.

The licensee's proposed alternative provides an acceptable approach to ensuring the leaktight integrity of systems borated for the purpose of controlling reactivity. A system pressure test and VT-2 visual examination will be performed each refueling outage for Class 1 systems and each inspection period for both Class 2 and 3 systems. The Code Case approach uses a two-step approach. First, the system pressure test will utilize a 4-hour hold time to allow any leakage to penetrate the insulation, thus providing a means of detecting any significant leakage with the insulation in place. Second, by removing the insulation while the system is not pressurized, the licensee will be able to detect minor leakage indicated by the presence of boric acid crystals or residue. Any evidence of leakage shall be evaluated in accordance with IWA-5250. Thus, this two step approach will provide an acceptable level of quality and safety for bolted connections in all Class 1, 2, and 3 systems borated for the purpose of controlling reactivity. Therefore, it is recommended that the licensee's proposed alternative to use Code Case N-533-1 for use on Class 1, 2, and 3 systems borated for the purpose of controlling reactivity is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the fourth interval, or until Code Case N-533-1 is approved for general use by reference in Regulatory Guide 1.147. After that

time, if the licensee wants to continue to use Code Case N-533-1, it must follow all conditions and exemptions, if any, specified in the regulatory guide.

2.9 Request for Relief No. RR-10

Code Requirement: ASME Section XI, 1995 Edition 1996 Addenda, IWA-5250, "Corrective Action," requires that if leakage occurs at a bolted connection on other than a gaseous system during the conduct of a system pressure test, one of the bolts shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100, "Evaluation." The bolt selected shall be the one closest to the source of leakage. When the removed bolt has evidence of degradation, all remaining bolting in the connection shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee requested relief from the Code-required actions to be taken when leakage occurs at a bolted connection other than a gaseous system during the conduct of a system pressure test. Specifically, removal and examination of one bolt closest to the source of leakage would be by VT-1 visual examination in lieu of the Code-required VT-3 visual examination. Additionally, relief is requested from the requirement to remove all remaining bolting when leakage is observed at a bolted connection and the examined bolt closest to the source of leakage has evidence of degradation.

Licensee's Basis for Requesting Relief: (as stated)
HBRSEP, Unit No. 2, requests relief to perform the Proposed Alternative Examinations pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provide [sic] an acceptable level of quality and safety.

The use of VT-1 examination in lieu of the Code-required VT-3 visual examination will provide a comparable level of quality and safety. The ASME B&PV Code, Section XI, reference the VT-1 visual examination for pressure retaining bolting. Guidance for performing VT-1 visual examinations of bolting are already incorporated within examination procedures and are considered more stringent than those associated with the VT-3 visual examination.

A comprehensive requirement to remove bolting where leakage has been observed does not recognize such variables as fluid corrosiveness, bolting and component materials, the type and location of the leakage, the service age of the bolting, and the physical configuration of the bolted connection.

The Proposed Alternative Examinations described below will provide an acceptable level of quality and safety when compared with the Code-required examinations.

In its response dated April 5, 2002 to the staff's RAIs, the licensee stated:
This relief request specifically identifies the actions that are necessary to address bolted connection removal required by IWA-5250 of the ASME Code. The Code requires removal of a bolt, closest to the source of the leakage, when leakage occurs at a bolted connection, and prescribes the actions necessary if degradation is identified. The Code does not specifically address the actions necessary to stop leakage at a bolted connection, since such leakage may have a variety of sources. Plant processes

(procedures) are in place to address the leakage source, such as generation of a corrective maintenance work order for leakage or evidence of leakage. This relief request is not directed at relief from correcting leakage sources, but is intended to address the actions necessary to address leakage identified at bolted connections, and required actions to be performed at the bolted connection, as required by IWA-5250, "Corrective Action."

Licensee's Proposed Alternative Examination: (as stated)
If leakage is identified at a bolted connection on other than a gaseous system during the conduct of a system pressure test, one of the following actions will be taken:

- The bolt closest to the source of leakage will be removed and a VT-1 visual examination performed. The condition will be evaluated in accordance with IWA-3100; or,

- An engineering evaluation will be performed to determine the susceptibility of the bolting to corrosion and to assess the potential for failure. The following factors will be considered, as applicable, when evaluating the condition:

    - Service age of the bolting
    - Bolt and component material
    - Corrosiveness of the process fluid
    - Leakage location and system function
    - Leakage history at the specific location
    - Visual evidence of corrosion (while connection is assembled)
    - Physical configuration of the bolted connection

If evaluation of the above criteria concludes that the condition has not degraded the bolting, no further action will be necessary.

If the evaluation is inconclusive or concludes that the bolting is degraded, the bolt closest to the source of leakage will be removed, a VT-1 visual examined [sic] performed, and the condition will be evaluated in accordance with IWA-3100. When the removed bolt shows evidence of degradation, the remaining bolting will be removed, a VT-1 visual examination performed, and the condition will be evaluated in accordance with IWA-3100.

Staff Evaluation:
The Code requires that if leakage occurs at a bolted connection on other than a gaseous system during the conduct of a system pressure test, one of the bolts shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100. The bolt selected shall be the one closest to the source of leakage. When the removed bolt has evidence of degradation, all remaining bolting in the connection shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100. The Code requirements provide assurance that bolting corroded by system leakage will be detected and that corrective actions will be taken. However, the Code requirements are often unnecessarily conservative since corrosion is dependent on other factors beyond system leakage. Additionally, removal and examination of all bolts may not be necessary to assure continued integrity of the bolted connections.

In lieu of these requirements, the licensee has proposed that if leakage is discovered at a bolted connection by VT-2 examination during a system pressure test, either the bolt closest to the source of leakage will be removed and a VT-1 examination will be conducted and evaluated in accordance with IWA-3100(a), or an engineering evaluation will be performed to determine the susceptibility of the bolting to corrosion and to assess the potential for failure. The following factors will be considered, as applicable, when evaluating the condition:

- Service age of the bolting
- Bolt and component material
- Corrosiveness of the process fluid
- Leakage location and system function
- Leakage history at the specific location
- Visual evidence of corrosion (while connection is assembled)
- Physical configuration of the bolted connection.

The licensee noted that when an evaluation of the above elements is concluded and the evaluation determines that the leaking condition has not degraded the fasteners, then no further action is necessary.

If the evaluation determines that the bolting is degraded, or is not conclusive in determining degradation, the bolt closest to the leak will be removed and VT-1 examined. The bolt will be evaluated per IWA-3100 and requires that the evaluation of flaws are in accordance with IWB-3000, IWC-3000, and IWD-3000 for Class 1, 2, and 3 pressure retaining components, respectively. When the removed bolt shows evidence of degradation, the remaining bolting will be removed, a VT-1 visual examination will be performed, and the condition will be evaluated in accordance with IWA-3100(a). The staff determined that removal and VT-1 examination of the bolt closest to the leak is a reasonable alternative since degradation of this bolt is most likely, and would be representative of the worst case condition of other bolts in the subject connection.

Based on the items included in the evaluation process, the staff finds that the evaluation proposed by the licensee presents a sound engineering approach. In addition, if the initial evaluation indicates the need for a more detailed analysis, the bolt closest to the source of leakage will be removed, VT-1 visually examined, and evaluated in accordance with IWA-3100(a). The VT-1 examination criteria are more stringent than the simple corrosion evaluation described in IWA-5250. Thus, the licensee's proposed alternative provides reasonable assurance of quality and safety. Therefore, it is recommended that the licensee's proposed alternative be authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the fourth interval.

2.10 Request for Relief No. RR-11

Code Requirement: ASME Section XI, 1995 Edition 1996 Addenda, Examination Category D-B, "All Pressure Retaining Components," Item Numbers D2.20, D2.40, D2.60, and D2.80 require that a system hydrostatic test be conducted on Class 3 components at or near the end of each inspection interval in accordance with IWD-5222, "System Hydrostatic Test."

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee requested relief from performing a system hydrostatic test on Class 3 components at or near the end of each inspection interval. In its response dated April 5, 2002 to the staff's RAIs, the licensee resubmitted this relief request and stated that HBRSEP, Unit No. 2, will conduct an end-of-interval system pressure test at normal operating pressure in the third inspection period on Class 3 systems required to operate during normal reactor operations with a four hour hold time. For Class 3 systems not required to operate during normal reactor operation (e.g., Auxiliary Feedwater), a ten-minute hold time will be performed prior to the VT-2 examination.

The requested relief will authorize the Proposed Alternative Examinations in lieu of the hydrostatic pressure test required by Table IWD-2500-1, Examination Category D-B, Item Nos. D2.20, D2.40, D2.60, and D2.80. This pressure test will also satisfy the third period system leakage test required by Examination Category D-B, Item Nos. D2.10, D2.30, D2.50, and D2.70. The test boundary will be as specified for hydrostatic testing in IWD-5240 of Section XI of the ASME Boiler and Pressure Vessel Code.

Licensee's Basis for Requesting Relief: (as stated)
The NRC has approved the performance of pressure tests at nominal operating pressure in lieu of hydrostatic test pressure. ASME Code Case N-498-1, "Alternative Rules for 10-Year System Hydrostatic Testing for Class 1, 2, and 3 Systems," has been approved for use in NRC Regulatory Guide 1.147. This Code Case allows an alternative to the hydrostatic pressure test required by Table IWD-2500-1 and requires that a system pressure test at nominal operating pressure be conducted at or near the end of each inspection interval.

The NRC has recognized that the most common causes of failure in Class 3 systems are flow-accelerated corrosion (FAC), microbiologically induced corrosion (MIC), and general corrosion. HBRSEP, Unit No. 2, has in place programs to monitor both FAC and MIC. These programs provide additional assurance that leakage will be detected without reliance on a hydrostatic test performed once every ten years. Leakage from general corrosion is readily apparent to inspectors when performing VT-2 inspection during system pressure tests and to operations and maintenance personnel during their normal daily routine activities in the plant. Most of the systems that are subject to the required hydrostatic testing are in operation at normal operating pressure and temperature when reactor is in operation. This provides additional "hold time" for the insulation to saturate and leakage to become readily visible.

Hydrostatic tests are difficult to perform because testing at higher than normal operating pressure requires unique system lineups, special equipment installation, the removal or blocking of pressure relief devices and, in some cases, pinning of spring hangers. The increase in time, scope, and resources results in additional radiation dose for systems in radiologically controlled areas, which is contrary to ALARA principles. Performing hydrostatic tests can generate a significant amount of wastewater, requiring processing and disposal. The time required to complete the testing, as compared to system pressure test, results in a significant increase in work scope and required resources, and a potentially extended outage.

Alternative examinations are proposed for Class 3 systems not required to operate during normal reactor operations (Auxiliary Feedwater). This system is 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. The subject pumps are capable of running for extended periods of time under certain low flow conditions to perform their intended safety functions. However, to perform the required testing (4-hour hold time for insulated components) the pumps would be required to run for an extended period of time in the mini-flow condition. Due to excessive heat loading caused by reduced flow through the recirculation lines and the possibility of hydraulic instability, the subject pumps are prohibited by site operating procedures and manufacturers' specifications from running for extended periods of time in the mini-flow condition.

Based on the information above, there is reasonable assurance that the structural integrity and an acceptable level of quality and safety will be maintained during the Fourth Ten-Year ISI Interval.

Licensee's Proposed Alternative Examination: (as stated)
HBRSEP, Unit No. 2, will conduct an end-of-interval system pressure test at nominal operating pressure in the third inspection period on systems required to operate during normal reactor operation. Prior to performing the VT-2 visual examination, the system shall be pressurized to nominal operating pressure for a minimum of four (4) hours. The system shall be maintained at nominal operating pressure during performance of the VT-2 visual examination. For Class 3 systems not required to operate during normal reactor operation (e.g., Auxiliary Feedwater), 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.

A pressure test at nominal operating pressure will be conducted at the end of the interval in the third inspection period. This pressure test will be conducted in lieu of the hydrostatic pressure test required by Table IWD-2500-1, Examination Category D-B, Item Nos. D2.20, D2.40, D2.60, and D2.80. It will also satisfy the third period system leakage test required by Examination Category D-B, Item Nos. D2.10, D2.30, D2.50, and D2.70. The test boundary will be as specified for hydrostatic testing in IWD-5240 of the ASME Boiler and Pressure Vessel Code, Section XI.

Staff Evaluation:
The ASME Code, Section XI, Examination Category D-B, "All Pressure Retaining Components," Item Numbers D2.20, D2.40, D2.60, and D2.80 requires that a system hydrostatic test be conducted on Class 3 components at or near the end of each inspection interval in accordance with IWD-5222, "System Hydrostatic Test.

The licensee proposed as an alternative to Class 3 Systems hydrostatic testing that prior to performing the Code-required VT-2 visual examination, the system will be pressurized to nominal operating pressure for a minimum of four (4) hours and the system will be maintained at nominal operating pressure during performance of the VT-2 visual examination. Furthermore, the licensee proposed that for Class 3 systems not required to operate during normal reactor operation (e.g., Auxiliary Feedwater), prior to performing the VT-2 visual examination, the system will be pressurized to nominal operating

pressure for a minimum of ten (10) minutes and the system will be maintained at nominal operating pressure during performance of the VT-2 visual examination.

The ASME Code, Section XI, 1995 Edition with addenda up to and including the 1996 Addenda, eliminated the system hydrostatic test requirement for Class 1 and 2 components, while keeping the system hydrostatic test requirement for Class 3 components. The system hydrostatic testing at higher test pressure increases the use of resources for the licensee resulting from use of auxiliary equipment, special valve line-ups, increased testing time, and possible radiation exposure. The minimal increase in assurance of structural integrity provided by a slightly higher test pressure is not considered commensurate with the increase radiation exposure. The staff has determined that the Code-required hydrostatic testing for Class 3 systems is a hardship without a compensating increase in quality and safety. Furthermore the licensee's proposed alternative for the Class 3 systems provides a reasonable assurance of leakage integrity of the subject systems.

For Class 3 systems that are not required to operate during normal reactor operation the licensee has proposed in lieu of the required 4-hour hold time to use a 10-minute hold time prior to VT-2 examination in order to reduce or eliminate the possibility of heat loading hazards. The staff determined that in these specific cases that the Code requirements are a hardship without a compensating increase in quality and safety. The licensee's proposed alternative for a 10-minute hold time for these specific cases is sufficient to identify any leakage and provides a reasonable assurance of leakage integrity of the subject systems.

Therefore, it is recommended that the licensee's proposed alternative to perform the system pressure test in lieu of the Code-required system hydrostatic test for Class 3 components be authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the fourth 10-year ISI interval.

2.11 Request for Relief No. RR-12

Code Requirement: ASME Section XI, 1995 Edition 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.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee requested 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 each inspection interval to Class 1 pressure retaining components within the system boundary. Table 1[7] identifies the Class 1 pressure retaining components that are associated with the required relief.

7. Table 1 is part of the licensee's letter dated May 14, 2002 and has been recreated below.

Table 1: Relief Request Number RR-12 Affected Class 1 Pressure Retaining Components - Examination Category B-P					
Affected Line or Component	**Pipe Dia. (In.)**	**Pipe Schedule**	**Approx Length**	**Drawing No.**	**Boundary Exception(s)**
Drain Line below PZR safety valve RC-551A (pipe piece between RC-545 and RC-545A)	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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)	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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-547 and RC-547A)	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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	2	A376 TP316 SMLS Sch. 160	1 ft.	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	2	A376 TP316 SMLS Sch. 160	7 in.	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	A376 TP316 SMLS Sch. 160	≤ 1 in.		
RCS loop intermediate loop “C” drain valve and liquid waste disposal piping	2	A376 TP316 SMLS Sch. 160	8 in.	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	A376 TP316 SMLS Sch. 160	1 ft.		
RPV head vent valves and piping	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	5379-1971, Sheet 1	Valve RC-567 remains closed to avoid pressurizing downstream Class 1 piping and valves RC-572, RC-571, RC-569, and RC-570
	1	A376 TP316 SMLS Sch. 160	≤ 1 ft.		
RCP “A” seal injection drain valve and blind flange	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft	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	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	5379-685, Sheet 1	Valve CVC-307C remains closed to avoid pressurizing downstream pipe piece and cap

Table 1: Relief Request Number RR-12 Affected Class 1 Pressure Retaining Components - Examination Category B-P					
Affected Line or Component	**Pipe Dia. (In.)**	**Pipe Schedule**	**Approx Length**	**Drawing No.**	**Boundary Exception(s)**
RCP “B” seal injection drain valve and blind flange	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft	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	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	5379-685, Sheet 1	Valve CVC-307E remains closed to avoid pressurizing downstream pipe piece and cap
RCP “B” seal water bypass drain valve and cap	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	5379-685, Sheet 1	Valve CVC-307C remains closed to avoid pressurizing downstream pipe piece and cap
Auxiliary spray valve and downstream piping	2	A376 TP316 SMLS Sch. 160	500 ft.	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	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	5379-685, Sheet 1	Valve CVC-460H remains closed to avoid pressurizing downstream pipe piece and cap
CVCS letdown drain valve and downstream cap	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	5379-685, Sheet 1	Valve CVC-460G remains closed to avoid pressurizing downstream pipe piece and cap
CVCS letdown drain valve and downstream cap	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	5379-1082, Sheet 4	Valve SI-875N remains closed to avoid pressurizing downstream pipe piece and cap
Safety injection loop “2" cold leg injection vent valve and cap	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	5379-1082, Sheet 4	Valve SI-875T remains closed to avoid pressurizing downstream pipe piece and cap

Table 1: Relief Request Number RR-12 Affected Class 1 Pressure Retaining Components - Examination Category B-P					
Affected Line or Component	**Pipe Dia. (In.)**	**Pipe Schedule**	**Approx Length**	**Drawing No.**	**Boundary Exception(s)**
Safety injection loop “1" cold leg injection check valve SI-875A and upstream piping	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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	A376 TP316 SMLS Sch. 120	3 ft.		
	10	A376 TP316 SMLS Sch. 140	62 ft.		
Safety injection loop “2" cold leg injection check valve SI-875B and upstream piping	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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	A376 TP316 SMLS Sch. 120	5 ft.		
	10	A376 TP316 SMLS Sch. 140	52 ft.		
Safety injection loop “3" cold leg injection check valve SI-875C and upstream piping	0.75	A376 TP316 SMLS Sch. 160	≤ 1 ft.	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	A376 TP316 SMLS Sch. 120	8 ft.		
	10	A376 TP316 SMLS Sch. 140	63 ft.		
Safety injection loop “2" hot leg injection check valve SI-874B and upstream piping	2	A376 TP316 SMLS Sch. 160	92 ft.	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	2	A376 TP316 SMLS Sch. 160	44 ft.	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	14	A376 TP316 SMLS Sch. 140	42 ft.	5379-1484, Sheet 1	Valve RHR-750 to remain closed to avoid pressurizing downstream piping and valve RHR-751, which would result in single valve isolation between hydrostatic test boundary and decay heat removal system

Licensee's Basis for Requesting Relief: (as stated)
HBRSEP, Unit No. 2, requests 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 above 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 1 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^{o}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 $\leq$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 to 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 lead to the occupational dose associated with leakage testing these lies.

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.

Licensee's Proposed Alternative Examination: (as stated)
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.

Staff Evaluation:

The Code 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. Each component is discussed below for which relief is requested from the Code requirements.

Small Size Class 1 System Vent, Drain, Test and Fill Lines

There are 25 vent, test and fill lines ($\leq$ 1 ft. long) in the RCS ranging in diameter from 3/4 inch to 2 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 drain lines will tee to a third valve that is also the second isolation boundary. 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. In addition, there will be personnel exposure to radiation during opening and closing the valves, and installing scaffolding. Based on the above evaluation, it is determined that imposition of the Code requirements on the licensee would cause a hardship that would not be compensated by an increase in the level of quality and safety. The licensee's proposed alternative to perform VT-2 visual inspection of the entire length as part of the Class 1 system inspection at the conclusion of each refueling outage provides reasonable assurance that the subject line segments' leakage integrity will be maintained.

14 Inch Residual Heat Removal Motor Operated Valves

The licensee noted that the subject piping segment consists of 42 feet of 10-inch piping between RHR inlet valves RHR-750 and RHR-751. These valves are interlocked and 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 10-year ISI interval successfully, with the vessel defueled, as part of the RCS hydrostatic test. This 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 allow external or visible leakage for the test. Based on the above evaluation, it is found that imposition of the Code requirements on the licensee would cause a significant burden that would not be compensated by an increase in the level of quality and safety. The licensee's proposed alternative provides reasonable assurance that the subject line segments' leakage integrity will be maintained.

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 to a tee to a 10 inch piping span along with a short 0.75 inch connection. Pressure 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. In addition, these lines are located in areas involving occupational radiation exposure, and leakage testing of these lines would increase occupational radiation dose.

The 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 proposed system pressure test will not specifically pressurize past the first isolation valve for this inspection. The licensee noted that it is possible that the piping becomes pressurized due to minor leakage past the first isolation valve. However, 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. The licensee further stated that no external or visible leakage will be allowed for the test to be successful. Based on the above evaluation, it is found that imposition of the Code requirements on the licensee would cause a significant burden that would not be compensated by an increase in the level of quality and safety. The licensee's proposed alternative provides reasonable assurance that the subject line segments' leakage integrity will be maintained.

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. Pressure 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 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 licensee's proposed system pressure test will not specifically pressurize past the first isolation valve for this inspection. The licensee noted that it is possible that the piping becomes pressurized due to minor leakage past the first isolation valve. The licensee stated that no external or visible leakage will be allowed for the test to be successful.

Based on the above evaluation, it is found that compliance with the Code requirement to perform the system pressure test on the subject line segments would result in a hardship for the licensee that would not be compensated by an increase in quality and safety. The licensee's proposed alternative provides reasonable assurance that the subject line segments' leakage integrity will be maintained. Therefore, it is recommended that the licensee's proposed alternative contained in Request for Relief No. RR-12 to perform the system pressure test in normal operating configuration for the components noted in Table 1 be authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the fourth 10-year ISI interval.

2.11a Request for Relief No. RR- 13 and 14

These two relief requests were withdrawn by the licensee in their letter dated April 5, 2002.

2.12 Request for Relief No. RR-15

Code Requirement: The preservice and inservice functional testing of all HBRSEP Unit 2 safety-related ASME Code Class 1, 2, and 3 snubbers will be performed ASME Section XI, 1995 Edition 1996 Addenda per Article IWF-5000 of ASME Code, 1995 Edition through 1996 Addenda, Section XI.

Licensee's Code Relief Request: The licensee requested relief from the requirements of ASME Code Section XI, 1995 Edition through 1996 Addenda, Subsections IWF-5200 and IWF-5300, with regard to visual examination and functional testing of snubbers, associated with the HBRSEP Unit 2 fourth ten-year interval ISI program. Subsections IWF-5200 and IWF-5300 references first Addenda to ASME/ANSI OM-1987, Part 4 (OMa-4).

Licensee's Proposed Alternative Examination: (as stated): Instead, the licensee proposes that these snubber inspection will be performed in accordance with the HBRSEP Unit 2 Technical Requirements Manual (TRM), Section 3.18, "Snubbers."

Licensee's Basis for Requesting Relief: (as stated) The licensee stated that these TRM requirements represent those of the HBRSEP Unit 2 Technical Specifications that were relocated as part of an Improved Technical Specifications Upgrade Project. The licensee stated that the snubber surveillance requirements described within TRM Section 3.18 covers such activities as visual inspection and functional testing of both hydraulic and mechanical snubbers. In addition, the TRM also includes the requirement of monitoring and verifying the snubber service life, which shall not be exceeded in the next 18 month cycle by review of service life records.

Staff Evaluation: The staff has reviewed the above TRM, Section 3.18, "Snubbers," and found the requirements to be acceptable.The licensee also stated that VT-3 visual examination of snubbers will be performed in accordance with Table IWF-2500-1, Examination Category F-A, "Supports," for Class 1, 2, and 3 snubbers, as scheduled within the HBRSEP Unit 2 fourth ten-year interval ISI program. Specifically, visual examinations will be performed to verify: (a) no visible indications of damage or impaired operability; (b) attachments to foundation or supporting structure are secure; and (c) freedom of movement in those locations where snubber movement can be manually induced without disconnecting the snubber. This is acceptable to the staff.

Based on the above, the staff determined that snubber visual examinations and functional testing, conducted per TRM, Section 3.18, meets the intent of the ASME Code, Section XI, requirements and provides reasonable assurance of snubber operability and component integrity. Therefore, the staff finds that the alternative proposed in the relief request provides an acceptable level of quality and safety, which is equal to or greater than would otherwise be performed under ASME Code, 1995 Edition through 1996 Addenda, Section XI, Article IWF-5000, which references OM-1987, Part 4 (OMa-4).

2.12 Request for Relief No. RR-16

Code Requirement: ASME Section XI, 1995 Edition 1996 Addenda, Table IWB-2500-1, Examination Category B-A, "Pressure Retaining Welds in Reactor Vessel," Item Nos. B1.30 and B1.40, require volumetric examination of the RPV shell-to-flange weld once each inspection interval and both volumetric and surface examinations of the RPV head-to-flange weld once each inspection interval, respectively. The footnotes to Table IWB-2500-1 provide partial deferrals for both of these welds. Footnote 3 specifies that when using Inspection Program B, the shell-to-flange weld examination may be performed during the first and third periods, in which case 50% of the shell-to-flange weld shall be examined by the end of the first period, and the remainder by the end of the third

period. During the first period, the examination need only be performed from the flange face, provided this same portion is examined from the shell during the third period. Footnote 4 specifies that deferral is not permissible for the head-to-flange weld. However, during the first and second periods, the examination need only be performed from the flange face, provided these same portions are examined from the head during the third period.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee requested relief from scheduling the examinations for RPV shell-to-flange and head-to-flange welds. The licensee requests to use ASME Code Case N-623, "Deferral of Inspections of the Shell-to-Flange and Head-to-Flange Welds of a Reactor Vessel." This Relief Request allows deferral of these examinations to the end of the interval.

Licensee's Basis for Requesting Relief: (as stated)
Code Case N-623 has been issued in Supplement 4 of the 1998 Code Cases issued by the ASME. This Code Case has not been approved in the latest NRC Regulatory Guide 1.147, Rev.12. Code Case N-623 is identified as acceptable in Table 1 of the Draft Regulatory Guide DG-1091.

These examinations are performed from the reactor flange, from the reactor inside diameter (ID) surface, and from the surface of the reactor head. Personnel performing these examinations are exposed to high levels of radiation. By performing the reactor closure head to flange weld at the end of the interval, mobilization and demobilization can be reduced for preparatory work from three times to one time.

Performing the required surface and volumetric examinations on the reactor vessel closure head circumferential and meridional welds at the end of the interval, as opposed to one-third each period, achieves a reduction in radiation exposure by elimination of repetitive tasks. Each time the welds are examined, scaffolding, insulation removal, and weld prep is required. The preparation activities are reduced when the activity is performed in its entirety, as opposed to performing one-third of the scope each period, due to ultrasonic/magnetic particle examination overlap and set-up/removal time for preparation activities. In addition, performing the examination as one activity at the end of the interval provides consistency in the examination, since it is completed by one set of technicians with the same equipment and transducers rather than three different sets of technicians, equipment, and transducers.

These welds are examined by VT-2 visual examination during pressure tests required by Section XI, Table IWB-2500-1, Examination Category B-P. There have been no unacceptable indications identified by examinations performed in previous intervals.

There is reasonable assurance that the structural integrity and an acceptable level of quality and safety will be maintained during the Fourth Ten-Year ISI Interval based on no unacceptable indications identified in previous examinations and the continued performance of VT-2 visual examination during pressure tests each refueling outage, as required by Section XI, Table IWB-2500-1, Examination Category B-P.

Licensee's Proposed Alternative Examination: (as stated)

The alternate requirements of Code Case N-623 will allow deferral of the inspection of the shell-to-flange weld and head-to-flange welds provided the following conditions are met:

(a) No welded repair/replacement activities have ever been performed on the shell-to-flange or head-to-flange weld.
(b) Neither the shell-to-flange weld nor the head-to-flange weld contains identified flaws or relevant conditions that currently require successive inspections in accordance with IWB-2420(b).
(c) The vessel is not in the first inspection interval.

Staff Evaluation:
ASME Section XI, 1995 Edition 1996 Addenda, Table IWB-2500-1, Examination Category B-A, "Pressure Retaining Welds in Reactor Vessel," Item Nos. B1.30 and B1.40, require volumetric examination of the RPV shell-to-flange weld once each inspection interval and both volumetric and surface examinations of the RPV head-to-flange weld once each inspection interval, respectively. The footnotes to Table IWB-2500-1 provide partial deferrals for both of these welds. Footnote 3 of Table IWB-2500-1 specifies that when using Inspection Program B, the shell-to-flange weld examination may be performed during the first and third periods, in which case 50% of the shell-to-flange weld shall be examined by the end of the first period, and the remainder by the end of the third period. During the first period, the examination need only be performed from the flange face, provided this same portion is examined from the shell during the third period. Footnote 4 of Table IWB-2500-1 specifies that deferral is not permissible for the head-to-flange weld. However, during the first and second periods, the examination need only be performed from the flange face, provided these same portions are examined from the head during the third period.

The licensee proposes to use ASME Code Case N-623 which allows deferral of these examinations to the end of the interval. The staff finds the licensee meets the requirements listed in Code Case N-623 and that deferral of the weld examinations to the end of the inspection interval is supported by the operating history of the industry. The industry experience to date indicates that examinations performed on the reactor pressure vessels shell-to-flange and head-to-flange welds have not identified any detrimental flaws or relevant conditions and that changing the schedule for examining these welds to the end of the licensee's fourth 10-year ISI interval will provide a suitable frequency for verifying the integrity of the subject welds. The subject weld will still receive the same examinations that have been required by the ASME Code Section XI since the reactor was placed in commercial service. The only change is that the RPV shell-to-flange weld and the RPV head-to-flange weld examinations will be deferred to the end of the inspection interval without conducting partial examinations from the flange face earlier in the inspection interval. No changes are being made to the volumes or areas of material that are examined, nor to the nondestructive examination (NDE) personnel qualifications. This relief request does not involve changes to NDE methods or acceptance criteria.

The licensee's proposed alternative has met all conditions specified by Code Case N-623. The staff has determined that the licensee's proposed alternative to use Code Case N-623 provides an acceptable level of quality and safety. Therefore, it is recommended that the licensee's proposed alternative be authorized pursuant to

10 CFR 50.55a(a)(3)(i) for the fourth 10-year inservice inspection interval, or until such time as Code Case N-623 is incorporated into a future revision of Regulatory Guide 1.147. Upon issuance of the regulatory guide, the licensee will follow all provisions in Code Case N-623, including any exceptions or limitations discussed in the regulatory guide.

2.13 Request for Relief No. RR-17

Code Requirement: ASME Section XI, 1995 Edition 1996 Addenda, Article IWA-4000, "Repair/Replacement Activities," including IWA-4440, "Welding and Welder Qualification (Including Welding Operators)," provides welding brazing procedure qualification requirements.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee requested relief from the Code-required welding and brazing procedure qualification requirements.

Licensee's Basis for Requesting Relief: (as stated)
HBRSEP, Unit No. 2, requests relief to perform the Proposed Alternative Requirements pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternatives provide an acceptable level of quality and safety.

A substantial number of welding and brazing procedures are required to be qualified, and each procedure receives a Procedure Qualification Record (PQR). Provided that conservative and specific administrative processes are established, there is no adverse effect on safety or quality by allowing a PQR qualified by one Owner to be used by another Owner. HBRSEP, Unit No. 2, would intend to implement an administrative process that is consistent with that provided by ASME Code Case N-573, "Transfer of Procedure Qualification Records Between Owners, Section XI, Division 1.

Licensee's Proposed Alternative Requirements: (as stated)
In lieu of the Code-required repair/replacement activities specified for welding and brazing procedure qualification requirements HBRSEP, Unit No. 2, would intend to implement an administrative process that is consistent with that provided by ASME Code Case N-573, "Transfer of Procedure Qualification Records Between Owners, Section XI, Division 1." Specifically, a PQR qualified by one Owner may be used by another Owner provided the following requirements are met:

- The Owner that performed the procedure qualification test will certify, by signing the PQR, that testing was performed in accordance with Section IX.

- The Owner that performed the procedure qualification test will certify, in writing, that the procedure qualification was conducted in accordance with a Quality Assurance Program that satisfies the requirements of IWA-1400.

- The Owner accepting the completed PQR will accept responsibility for obtaining any additional supporting information needed for WPS development.

- The Owner accepting the completed PQR will document, on each resulting WPS, the parameters applicable to welding. Each WPS will be supported by all necessary PQRs.

- The Owner accepting the completed PQR will accept responsibility for the PQR. Acceptance will be documented by the Owner's approval of each WPS that references the PQR.

- The Owner accepting the completed PQR will demonstrate technical competence in application of the received PQR by completing a performance qualification test using the parameters of a resulting WPS.

- The Owner may accept and use a PQR only when it is received directly from the Owner that certified the PQR.

- Use of this administrative process will be shown on the NIS-2 form documenting welding and brazing.

Staff Evaluation:
The Code Section IWA-4440(a) requires that all welding be performed in accordance with Welding Procedure Specifications (WPS) that have been qualified by the Owner or Repair/Replacement Organization in accordance with the requirements of the codes specified in the Repair/Replacement Plan. The licensee has proposed the use of Code Case N-573, "Transfer of Procedure Qualification Records Between Owners." This Code Case essentially allows the use of a welding or brazing procedure qualification record (PQR) qualified by one Owner to be used by another Owner for the development of the WPS. The specification requirements listed in Code Case N-573 shall be met by the Owner that performed the procedure qualification, and by the Owner intending to use the PQR.

The staff has determined that qualification of a procedure for the purpose of joining materials by either welding or brazing may be performed by any Owner, if the applicable requirements for procedure qualification are maintained. Furthermore, Owners may use procedures qualified by other Owners provided the conditions/requirements listed in Code Case N-573 are met. The licensee has committed to comply with the requirements specified in the Code Case N-573. The staff has determined that the licensee's proposed alternative to use Code Case N-573 provides an acceptable level of quality and safety. Therefore, it is recommended that the use of the licensee's proposed alternative be authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the fourth 10-year inspection interval, or until Code Case N-573 is approved for general use by reference in Regulatory Guide 1.147. After that time, if the licensee wants to continue to use Code Case N-573, it must follow all conditions and limitations, if any, specified in the regulatory guide.

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
Fourth 10-Year ISI Interval

TABLE 1
SUMMARY OF RELIEF REQUESTS

Relief Request Number	TLR Sec.	System or Component	Exam Category	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
RR-01	2.1	Pressurizer Surge Line Nozzle	B-D	B3.120	Nozzle Inside Radius Section	Volumetric Examination	Pressure Testing	Granted per 10 CFR 50.55a(g)(6)(i)
RR-02	2.2	Regenerative Heat Exchanger	B-B B-D B-J F-A	B2.51, B2.80 B3.150, B3.160 B9.32. B9.21 F1.40	Welds inside the Regenerative Heat Exchanger Room	Surface and Volumetric, and VT-3 Examinations	Pressure Testing	Authorized per 10 CFR 50.55a(a)(3)(ii)
RR-03	2.3	Reactor Vessel and Pressurizer	IWA-2232	N/A	Calibration Blocks	Use of Original Vessel Materials	Use of Equivalent Materials	IWA-2240 permits alternative blocks. Therefore, relief is not needed.
RR-04	2.4	Reactor Vessel	B-A	B1.21	RPV Closure Head Peel Segment-to-Disk Weld	Volumetric Examination	Pressure Testing	Granted per 10 CFR 50.55a(g)(6)(i)
RR-05	2.5	RCS Piping Cold Leg	B-J	B9.11	Circumferential Butt Welds	Surface and Volumetric Examinations	Pressure Testing	Granted per 10 CFR 50.55a(g)(6)(i)
RR-06	2.5a	Steam Generator	B-D	B3.140	Inside Radius Section	Volumetric Examination	Pressure Testing	Withdrawn by the licensee in its letter dated September 20, 2002
RR-07	2.7	Reactor Pressure Vessel	B-F	B5.10	Nozzle-to-Safe End Welds	Surface and Volumetric Examinations	Deferred to Vessel Examination and VT-2 Visual Examination	Authorized per 10 CFR 50.55a(a)(3)(ii)
RR-08	2.8	Reactor Pressure Vessel	B-N-1	B13.10	Reactor Vessel Interior	VT-3 Visual Examination	Deferred to the third inspection period	Authorized per 10 CFR 50.55a(a)(3)(ii)
RR-09	2.9	Bolting Connections	IWA-5242(a)	N/A	Insulation Removal	VT-2 Visual Examination	Code Case N-533-1	Authorized per 10 CFR 50.55a(a)(3)(i)
RR-10	2.10	Class 1, 2, and 3 Bolting Connections	IWA-5250	N/A	If Leakage Occurs, Bolts to Be Removed	VT-3 Visual Examination	An Engineering Evaluation	Authorized per 10 CFR 50.55a(a)(3)(i)
RR-11	2.11	Class 3 components	D-B	D2.20, D2.40, D2.60, D2.80	Hydrostatic Test	At Higher System Pressure than Operating Pressure	Pressure Testing	Authorized per 10 CFR 50.55a(a)(3)(ii)
RR-12	2.12	Class 1 Pressure Boundary	IWB-5222(b)	N/A	System Leakage Test	Deferral of testing at the end of the interval	Perform testing at system pressure within the operating boundary	Authorized per 10 CFR 50.55a(a)(3)(ii)
RR-13	2.11a	Class 2 and High Energy Class II Piping	IWC-3123 and 3124	N/A	-	N/A	_	Withdrawn by the licensee in its letter dated April 5, 2002
RR-14	2.11a	Moderate Energy Class III carbon steel piping	IWA-4000, as invoked by IWB-3123	N/A	-	N/A	-	Withdrawn by the licensee in its letter dated April 5, 2002

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
Fourth 10-Year ISI Interval

TABLE 1
SUMMARY OF RELIEF REQUESTS

Relief Request Number	TLR Sec.	System or Component	Exam Category	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
RR-15	-	Snubber	F-A	N/A	N/A	VT-3 visual examination	Observe for no visible indications of damage or impaired operability	Authorized per 10 CFR 50.55a(a)(3)(i)
RR-16	2.13	Reactor Pressure Vessel	B-A	B1.30, B1.40	Shell-to-Flange and Head-to-Flange Welds	Deferral of Testing	Code Case N-623	Authorized per 10 CFR 50.55a(a)(3)(i)
RR-17	2.14	Welding and Brazing	IWA-4440	N/A	Welding and Welder Qualification	Procedure Qualification Record	Code Case N-573	Authorized per 10 CFR 50.55a(a)(3)(i)

Mr. J. W. Moyer
Carolina Power & Light Company

H. B. Robinson Steam Electric
Plant, Unit No. 2

cc:

Mr. William D. Johnson
Vice President and Corporate Secretary
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602

Ms. Karen E. Long
Assistant Attorney General
State of North Carolina
Post Office Box 629
Raleigh, North Carolina 27602

U.S. Nuclear Regulatory Commission
Resident Inspector's Office
H. B. Robinson Steam Electric Plant
2112 Old Camden Road
Hartsville, South Carolina 29550

Mr. T. P. Cleary
Plant General Manager
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant, Unit No. 2
3581 West Entrance Road
Hartsville, SC 29550

Mr. Chris L. Burton
Director of Site Operations
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant, Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550

Public Service Commission
State of South Carolina
Post Office Drawer 11649
Columbia, South Carolina 29211

Mr. C. T. Baucom
Supervisor, Licensing/Regulatory Programs
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant,
Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550

Ms. Beverly Hall, Acting Director
N.C. Department of Environment
and Natural Resources
Division of Radiation Protection
3825 Barrett Dr.
Raleigh, North Carolina 27609-7721

Mr. Robert P. Gruber
Executive Director
Public Staff - NCUC
4326 Mail Service Center
Raleigh, North Carolina 27699-4326

Mr. Virgil R. Autry, Director
South Carolina Department of Health
Bureau of Land & Waste Management
Division of Radioactive Waste Management
2600 Bull Street
Columbia, South Carolina 29201

Mr. Terry C. Morton
Manager
Performance Evaluation and
Regulatory Affairs CPB 7
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602-1551

Mr. John H. O'Neill, Jr.
Shaw, Pittman, Potts & Trowbridge
2300 N Street, NW.
Washington, DC 20037-1128

Mr. B. L. Fletcher III
Manager - Regulatory Affairs
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant,
Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550-0790