H. L. Sumner, Jr.
Vice President
Hatch Project

Southern Nuclear
Operating Company, Inc.
Post Office Box 1295
Birmingham, Alabama 35201

Tel 205.992.7279

SOUTHERN COMPANY
Energy to Serve Your World℠

March 30, 2005

Docket Nos.: 50-321
50-366

NL-05-0532

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant
Third and Fourth 10-Year Interval Inservice Inspection Programs

Ladies and Gentlemen:

The 3rd inservice inspection interval for Hatch Nuclear Plant Unit 1 will end on December 31, 2005. It is the intent of Southern Nuclear Company (SNC) to complete the remaining Third 10-Year Interval examinations and pressure tests during the 22nd refueling outage (1R22), which is currently scheduled to begin in February 2006 (just after the scheduled end of the Third 10-Year Interval). The extension of examinations beyond the end of the interval to coincide with a refueling outage is allowable per IWB-2412 of the 1989 Edition of ASME Section XI and per IWA-2430 in more current ASME Section XI Codes. It is also SNC's intent to start the Fourth 10-Year Interval examinations during the 1R22 outrage; therefore, both Third 10-Year Interval and Fourth 10-Year Interval examinations will be conducted during the outage. In no case, will an examination performed during 1R22 be used to satisfy the requirements of both intervals.

Several changes to the ISI program are required to support the 1R22 outage ISI activities. It should be noted that the Third 10-Year Interval changes will apply only to Unit 1 for the 1R22 outage, while the Fourth 10-Year Interval changes will begin with 1R22 and continue throughout the Fourth 10-Year Interval for both units. The details are provided in the following nine enclosures.

Enclosure 1 ISI-CODE-1: Pursuant to 10 CFR 50.55a(g)(4)(iv), SNC is requesting approval to use the 2001 Edition of ASME Section XI through the 2003 Addenda for the Third 10-Year Interval examinations and system pressure tests performed during 1R22.

Enclosure 2 RR-41: Pursuant to 10 CFR 50.55a(a)(3)(i), SNC is requesting approval to use Code Case N-700 as an alternative for selecting Third 10-Year Interval reactor vessel attachment welds for examination.

Enclosure 3 ISI-ALT-1: Pursuant to 10 CFR 50.55a(a)(3)(i), SNC is requesting approval to use Appendix VIII examinations for the Fourth 10-Year Interval reactor vessel-to-flange weld and head-to-flange weld in lieu of the existing requirement to use Section V.

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Enclosure 4	ISI-ALT-2: Pursuant to 10 CFR 50.55a(a)(3)(i)(i), SNC is requesting approval to continue to use the philosophy established by Third 10-Year Interval Relief Request RR-10 for marking of components during Fourth 10-Year Interval examinations.
Enclosure 5	ISI-ALT-3: Pursuant to 10 CFR 50.55a(a)(3)(i), SNC is requesting approval to continue to use the philosophy established by Third 10-Year Interval Relief Request RR-39 for Fourth 10-Year Interval examinations of welds in accordance with the augmented requirements of NUREG-0313 and Generic Letter 88-01.
Enclosure 6	ISI-ALT-4: Pursuant to 10 CFR 50.55a(a)(3)(i), SNC is requesting approval to continue to use the philosophy established by Third 10-Year Interval Relief Request RR-36 to implement Appendix VIII, Supplement 11 for Fourth 10-Year Interval requirements via the Performance Demonstration Initiative.
Enclosure 7	ISI-ALT-05: Pursuant to 10 CFR 50.55a(a)(3)(i), SNC is requesting approval to continue to use the philosophy established by Third 10-Year Interval Relief Request RR-17 to perform the Class 1 leakage test with the inboard drain and vent valves in the closed position.
Enclosure 8	ISI-ALT-06: Pursuant to 10 CFR 50.55a(a)(3)(i), SNC is requesting approval to continue to use the philosophy established by Third 10-Year Interval Relief Request GR-03-01 to implement Appendix VIII, Supplement 10 for Fourth 10-Year Interval requirements via the Performance Demonstration Initiative.
Enclosure 9	ISI-EX-01: SNC requests an exemption from 10 CFR 50.55a(b)(2)(ix)(G) requirement for VT-3 examination of the containment vent system. SNC proposes to continue to use the philosophy established by Third 10-Year Interval Relief Request RR-MC-9 to implement the visual requirement.

Southern Nuclear Operating Company requests approval of Enclosure 1 (use of a later edition of the Section XI Code) by June 1, 2005 to support procedure development for the 1R22 outage. Approval for the remaining requests is needed by December 1, 2005 to support outage preparation activities.

This letter contains no NRC commitments. If you have any questions, please advise.

Sincerely,

H. L. Sumner, Jr.

HLS/ifl/daj

Enclosures:
1. ISI-CODE-1, Version 1
2. RR-41, Version 1
3. ISI-ALT-1, Version 1
4. ISI-ALT-2, Version 1
5. ISI-ALT-3, Version 1
6. ISI-ALT-4, Version 1
7. ISI-ALT-5, Version 1
8. ISI-ALT-6, Version 1
9. ISI-EX-01, Version 1

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President
Mr. G. R. Frederick, General Manager – Plant Hatch
RTYPE: CHA02.004

U. S. Nuclear Regulatory Commission
Dr. W. D. Travers, Regional Administrator
Mr. C. Gratton, NRR Project Manager – Hatch
Mr. D. S. Simpkins, Senior Resident Inspector – Hatch

Enclosure 1
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-CODE-1, VERSION 1.0
USE OF A SUBSEQUENT CODE IN ACCORDANCE WITH 10 CFR 50.55a(g)(4)(iv)

Plant Site-Unit: Edwin I. Hatch Nuclear Plant-Unit 1

Background: The 3rd inservice inspection interval for Hatch Nuclear Plant Unit 1 will end on December 31, 2005. It is the intent of Southern Nuclear Company (SNC) to complete the remaining 3rd interval examinations and pressure tests during the 22nd refueling outage (1R22), which is currently scheduled to begin in February 2006 (just after the scheduled end of the 3rd interval). This is allowable per IWB-2412 of the 1989 Edition of Section XI (no addenda) and per IWA-2430 in more current Section XI Codes.

Additionally, SNC intends to begin 4th interval examinations during 1R22; therefore, both 3rd and 4th interval examinations will be performed during 1R22. In no case, will an examination performed during 1R22 be used to satisfy the requirements of both intervals; therefore, this is an acceptable practice.

Third interval examinations are currently required to be performed to the 1989 Edition of Section XI (no addenda) and the new 4th interval examinations are required to be performed to the 2001 Edition of ASME Section XI through the 2003 Addenda (with specific NRC limitations and modifications defined in 10 CFR 50.55a).

To optimize the outage inservice inspection work activities, pursuant to 10 CFR 50.55a(g)(4)(iv), SNC is requesting to use the 2001 Edition of ASME Section XI through the 2003 Addenda for examinations and system pressure tests, and repair/replacement activities performed during the 22nd refueling outage.

Requested Date for Approval: Approval of this request is needed by June 1, 2005 to support procedure development for the 1R22 outage, which is currently scheduled for February 2006.

ASME Code Components Affected: All Class 1, 2, and 3 components.

Current Applicable Code Edition and Addenda: Third interval examinations are currently performed to the 1989 Edition of Section XI (no addenda).

Enclosure 1
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-CODE-1, VERSION 1.0
USE OF A SUBSEQUENT CODE IN ACCORDANCE WITH 10 CFR 50.55a(g)(4)(iv)

Proposed Subsequent Code Edition and Addenda:

SNC is requesting to use the 2001 Edition of ASME Section XI through the 2003 Addenda for all examinations and system pressure tests performed during the 22nd refueling outage. Specifically, during 1R22, the implementation of the 2001 Edition of ASME Section XI through the 2003 Addenda for the 3rd interval examinations will be performed as follows:

- The examinations and pressure tests defined for the 3rd interval in the current inservice inspection plan will not change due to the implementation of the new Code. Therefore, examinations and pressure tests will not be deleted, added, or deferred as a result of using the later Code.
- Existing 3rd interval relief requests and applicable Code Cases applied during the 3rd interval will remain in effect.
- All other activities will be performed in accordance with the applicable sections of the 2001 Edition of ASME Section XI through the 2003 Addenda.

Related Requirements:

All 2001 Edition of Section XI through the 2003 Addenda Code requirements are subject to the limitations and modifications defined in 10 CFR 50.55a(b)(2).

Duration of Proposed Request:

The proposed request is for the 1R22 refueling outage currently scheduled to start in February 2006.

Status:

Awaiting NRC approval.

Enclosure 2
SOUTHERN NUCLEAR OPERATING COMPANY
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)
RR-41, VERSION 1.0

Plant Site-Unit:

Edwin I. Hatch Nuclear Plant-Unit 1.

Interval-Interval Dates:

3rd ISI Interval-January 1, 1996 through December 31, 2005.

Requested Date for Approval and Basis

Approval is requested by December 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006).

ASME Code Components Affected:

Class 1, ASME Section XI Category B-K, Item B10.10, reactor pressure vessel (RPV):

- stabilizer brackets 1B11/SB-1, 1B11/SB-2, 1B11/SB-3, and 1B11/SB-4, and
- support skirt weld 1B11/C-6.

Applicable Code Edition and Addenda:

ASME Section XI, 1989 Edition with no addenda is the Code of Record for the 3rd Interval. The selection of welded attachments is currently performed per Code Case N-509. (However, 1R22 non-destructive examinations will be performed per the requirements of the 2001 Edition of ASME Section XI through the 2003 Addenda – See ISI-CODE-1 in this same submittal package).

Applicable Code Requirements:

Code Case N-509, Category B-K, Item B10.10, requires that the RPV skirt weld and all four RPV stabilizer bracket welds be examined.

Reason for Request:

Per footnote 4 of Code Case N-509, when there are multiple vessels, only one welded attachment weld on one of the vessels requires examination. However, when there is a single vessel (such as the RPV), footnote 4 does not apply and all of the welded attachment welds require examination. Code Case N-700 (approved by ASME on November 18, 2003) was developed to align the examination requirements for single vessels with those for multiple vessels.

The Hatch Unit 1 RPV skirt weld and the four RPV stabilizer bracket welds were examined during the 2nd interval with no service-induced indication detected. The RPV skirt weld along with one of the stabilizer bracket welds have been re-examined during the 3rd Interval, with no service-induced indications detected.

Proposed Alternative and Basis for Use:

SNC proposes using Code Case N-700 to select RPV welded attachments for examination in lieu of using the Code Case N-509 footnote 4 requirements.

Code Case N-700 states that, "For single vessels, only one welded attachment shall be selected for examination. The attachment selected for examination on one of the multiple vessels or the single vessel, as applicable, shall be an attachment under continuous load during normal system operation, or an

attachment subject to a potential intermittent load (seismic, water hammer, etc.) during normal system operation if an attachment under continuous load does not exist." The examination of the HNP-1 RPV skirt weld will satisfy Code Case N-700 examination requirements because this weld is under a continuous load during normal system operation, while the stabilizer bracket welds are potentially loaded only during a major seismic event.

Code Case N-509 was developed by ASME Section XI (and subsequently incorporated into the Section XI Code) because of the results of industry experience. Industry experience indicated that attachment weld failures occurred due to abnormal loading of the attachment weld by the associated support and that this condition was evidenced by deformation of the support. Therefore, Code Case N-509 was written with a requirement to examine an attachment weld if an associated support was found to be deformed (e.g., broken, bent, parts pulled out, etc.). In lieu of completely deleting the previously existing inservice examination requirements for welded attachments (not associated with deformed supports), Section XI provided a sampling program for examination of piping attachment welds on multiple vessels (via footnote 4); however, single vessels were not addressed.

Code Case N-700 was developed by Section XI Code personnel to modify the editions/addenda of the Section XI Code (containing the Code Case N-509 methodology) to include a sampling system for the examination of single vessels (with multiple welded attachments) and to provide specific criteria for selection of the attachment weld to be examined. However, it does not change the requirement to examine an attachment weld if an associated support is found to be deformed. Therefore, the use of the Code Case N-700 to modify footnote 4 of Code Case N-509 during the 1R22 outage, as requested, will continue to provide an acceptable level of quality and safety; therefore, approval of this request per 10 CFR 50.55a(a)(3)(i) should be granted.

Duration of Proposed Alternative: The proposed alternative is applicable for the 1R22 outage. Since the RPV skirt has already been examined during the 3rd interval, with approval of this request, 3rd Interval examinations are complete.

Precedents: NA

References: None

Status: Awaiting NRC approval.

Enclosure 3
SOUTHERN NUCLEAR OPERATING COMPANY (SNC)
ISI-ALT-1, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Plant Site-Unit:	Edwin I. Hatch Nuclear Plant-Units 1 and 2.
Interval-Interval Dates:	4th ISI Interval extending from January 1, 2006 through December 31, 2015.
Requested Date for Approval and Basis:	Approval is requested by December 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006).
ASME Code Components Affected:	Category B-A, reactor pressure vessel (RPV) shell-to-flange weld (Item B1.30) and head-to-flange weld (Item B1.40).
Applicable Code Edition and Addenda:	ASME Section XI, 2001 Edition through the 2003 Addenda.
Applicable Code Requirements:	These welds require volumetric examination per the requirements of Table IWB-2500-1, Items B1.30 and B1.40. Volumetric examinations are conducted per Section XI, Appendix I. Per I-2100(b), ultrasonic examination of the subject welds shall be conducted in accordance with Article 4 of Section V, except that it is permissible to use alternative beam angles. An additional requirement is to use Table I-2000-1.
Reason for Request:	The use of this alternative will allow all of the RPV seam welds to be performed using Performance Demonstration Initiative (PDI) techniques.
Proposed Alternative and Basis for Use:	<u>Shell-to-Flange Weld Alternative</u> Shell Side - In lieu of the using Section V requirements, it is proposed to perform examinations using procedures, personnel, and equipment that have been qualified through PDI for a single sided examination of a vessel weld. Flange Side - Perform a non-Appendix VIII supplemental 0-degree examination from the flange surface. <u>Head-to-Flange Weld Alternative</u> Head Side - In lieu of the using Section V requirements, perform the examination from the head side using a procedure that has been qualified through PDI for a single sided examination of a vessel weld. Flange Side - No examination from the flange side is practical due to the configuration. (Same as previous examinations). Nuclear utilities created the PDI to implement performance demonstration requirements contained in Appendix VIII of Section XI. To this end, PDI developed an extensive program for qualifying equipment, procedures, and

personnel using stringent controls and practices. While these flange configurations have not been qualified per PDI, PDI has successfully demonstrated the ability to detect cracking in vessel welds of this material and thickness range from one side of the weld.

SNC concludes that the use of procedures, personnel, and equipment that have been successfully demonstrated to detect cracking in vessel welds of this material and thickness range is inherently better than the use of the general requirements established by Article 4 of Section V. Therefore, use of this proposed alternative will continue to provide an acceptable level of quality and safety. Approval is requested pursuant to 10 CFR 50.55a(a)(3)(i).

Duration of Proposed Alternative: The proposed alternative is applicable for the 4th Inservice Inspection Interval.

Precedents: NA

References: None

Status: Awaiting NRC approval.

Enclosure 4
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-2, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(ii)

Plant Site-Unit:	Edwin I. Hatch Nuclear Plant-Units 1 and 2
Interval-Interval Dates:	4th ISI Interval extending from January 1, 2006 through December 31, 2015.
Requested Date for Approval:	Approval is requested by December 1, 2005 to support 4th interval examinations performed during 1R22 (scheduled for February 2005).
ASME Code Components Affected:	All welds and areas in the ISI Program that are subject to surface or volumetric examination.
Applicable Code Edition and Addenda:	ASME Section XI, 2001 Edition through the 2003 Addenda.
Applicable Code Requirements:	IWA-2610 requires that a reference system be established for all welds and areas subject to surface or volumetric examination. The system shall permit identification of each weld, location of each weld centerline, and designation of regular intervals along the length of the weld.
Reason for Request:	This alternative is a re-submittal of NRC approved 3rd interval relief request RR-10. RR-10 was based on the 1989 Edition of Section XI (no addenda) while this 4th interval request is based on the 2001 Edition through the 2003 Addenda; however, there have been no substantive changes to the Code requirements or to the *Basis for Use* which would alter the previous NRC Safety Evaluation conclusions. See References for dates and TAC numbers associated with RR-10.
Proposed Alternative and Basis for Use:	It is proposed that in lieu of marking all of the welds as required by the Code, each weld undergoing a surface or volumetric examination will receive the Code required reference markings and identification, as the examinations are being performed. For an operating plant, establishing a weld reference system for all welds and areas subject to surface or volumetric examination is a major effort and, in some cases, is prohibitive due to inaccessibility and/or high radiation areas. To establish a comprehensive weld reference system for all of the welds and areas subject to volumetric or surface examinations in accordance with the Code requirements would require many man-hours of work and many man-rem of exposure to locate the welds, remove the insulation, mark the welds, and re-install the insulation. Since only a small percentage of welds are normally examined, the majority of the welds that would be marked per the Code requirement would never receive an inservice examination. To require the marking all of the welds and areas subject to surface or volumetric examination in an operating plant environment, even though most will not require examination, would result in a hardship without a compensating increase in quality and

safety.

Marking the welds that are receiving an examination will provide assurance, that when performing subsequent examinations, that the correct weld is being re-examined and that recorded indications can be correlated with previous data. Not marking the welds which are not receiving examinations, will have little, if any, affect on safety and quality at Plant Hatch; therefore, approval of this request per 10 CFR 50.55a(a)(3)(ii) should be granted.

Duration of Proposed Alternative: The proposed alternative is applicable for the 4th Inservice Inspection Interval (January 1, 2006 through December 31, 2015).

Precedents: This request was approved for the 3rd Inservice Inspection Interval as RR-10.

SNC letter dated October 17, 1995 submitting RR-10.

References: RR-10 was approved for 3rd Interval by NRC TAC number M93918 and M93919 dated June 16, 1997.

Status: Awaiting NRC approval.

Enclosure 5
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-3, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Plant Site-Unit:	Edwin I. Hatch Nuclear Plant-Units 1 and 2
Interval-Interval Dates:	4th ISI Interval extending from January 1, 2006 through December 31, 2015.
Requested Date for Approval:	Approval is requested by December 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006).
ASME Code Components Affected:	All high alloy steel welds (e.g., stainless) and high nickel alloy welds (e.g., Inconel) covered by the augmented requirements of NUREG-0313 and Generic Letter 88-01.
Applicable Code Edition and Addenda:	ASME Section XI, 2001 Edition through the 2003 Addenda.
Applicable Code Requirements:	IWB-2412 requires examinations to be completed in accordance with Table IWB-2412-1, except for the examinations that may be deferred until the end of the inspection interval. Table IWB-2412-1 defines a minimum and maximum number of examinations to be performed each inspection period. IWC-2430 provides scope expansion rules when flaws exceed the acceptance standards of Table IWC-3410-1. IWB-2500 requires components to be examined as specified in Table IWB-2500-1. The *Extent and Frequency of Examination* requires that all Category B-F welds be examined and that a minimum of 25% of Category B-J welds be examined over the ten-year ISI interval.
Reason for Request:	This alternative is a re-submittal of NRC approved 3rd interval relief request RR-39. RR-39 was based on the 1989 Edition of Section XI (no addenda) while this 4th interval request is based on the 2001 Edition through the 2003 Addenda; however, there have been no substantive changes to the Code requirements or to the *Basis for Use* which would alter the previous NRC Safety Evaluation conclusions. See References for dates and TAC numbers associated with RR-39.
Proposed Alternative and Basis for Use:	It is proposed to use the schedules and frequencies specified in the BWRVIP-75 (Technical Basis for Revisions to Generic Letter 88-01 Inspection Schedules) in lieu of the above listed Code requirements when examining high alloy steel welds and high nickel alloy welds. The *Examination Method* listed in Table IWB-2500-1 is not affected by this request.

Enclosure 5
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-3, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

By letter dated May 14, 2002 the NRC issued their Final Safety Evaluation of BWRVIP-75. In that Safety Evaluation, the NRC staff concluded that, "licensee implementation of the guidelines of BWRVIP-75 report, as modified, will provide an acceptable level of quality for inspection of the safety-related components." Additionally, the NRC concluded that, "the revised BWRVIP-75 guidance is acceptable for licensee referencing at the technical basis for relief from, or as an alternative to, the ASME Code and 10 CFR 50.55a, in order to use the sample schedules and frequencies specified in the revised BWRVIP-75 report that are less than those required by the ASME Code."

SNC concludes that the use of BWRVIP-75 as defined by the NRC Final Safety Evaluation in lieu of the above specified requirements, will provide an acceptable level of quality and safety. Therefore, approval should be granted pursuant to 10 CFR 50.55a(a)(3)(i).

Duration of Proposed Alternative: The proposed alternative is applicable for the 4th Inservice Inspection Interval.

Precedents: This request was approved for the 3rd Inservice Inspection Interval as RR-39.

References: SNC letter dated March 29, 2004 submitting RR-39.

Approval for RR-39 was granted for the 3rd interval by NRC letter dated January 7, 2005 - TAC numbers MC2383 and MC2384.

Status: Awaiting NRC approval.

Enclosure 6
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-4, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Plant Site-Unit: Edwin I. Hatch Nuclear Plant-Units 1 and 2.

Interval-Interval Dates: 4th ISI Interval extending from January 1, 2006 through December 31, 2015.

Requested Date for Approval and Basis Approval is requested by December 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006).

ASME Code Components Affected: Class 1, Pressure Retaining Welds in Piping, subject to ASME Section XI, Appendix VIII, Supplement 11, examination (weld overlay examinations).

Applicable Code Edition and Addenda: ASME Section XI, 2001 Edition through the 2003 Addenda is the overall 4th Interval Code of Record. However, 10 CFR 50.55a(b)(2)(xxiv) prohibits the use of Appendix VIII and Supplements to Appendix VIII of the 2002 Addenda through the 2003 Addenda; therefore, the 2001 Edition is used.

Applicable Code Requirements: The Code requirements for which relief is requested are all contained within Appendix VIII, Supplement 11. For example, paragraph 1.1(d)(1), requires that all base metal flaws be cracks. Paragraph 1.1(e)(1) requires that at least 20% but less than 40% of the flaws shall be oriented within ±20 degrees of the pipe axial direction. Paragraph 1.1(e)(1) also requires that the rules of IWA-3300 shall be used to determine whether closely spaced flaws should be treated as single or multiple flaws. Paragraph 1.1(e)(2)(a)(1) requires that a base grading unit shall include at least 3 in. of the length of the overlaid weld. Paragraph 1.1(e)(2)(b)(1) requires that a overlay grading unit shall include the overlay material and the base metal-to-overlay interface of at least 6 sq. in. The overlay grading unit shall be rectangular, with minimum dimensions of 2 in. Paragraph 3.2(b) requires that all extensions of base metal cracking into the overlay material by at least 0.1 in. are reported as being intrusions into the overlay material.

Reason for Request: This alternative is a re-submittal of NRC approved 3rd interval relief request RR-36, which allowed SNC to use the Performance Demonstration Initiative (PDI) Program in lieu of Section XI, Appendix VIII, Supplement 11 requirements. RR-36 was based on the 1995 Edition with 1996 Addenda of Supplement 11 while this 4th interval request is based on the 2001 Edition of Supplement 11. However, a review of two Code indicated that there are no substantive differences between them.

Since RR-36 was submitted to the NRC, several changes have been made to the PDI program. These changes were made as a part of a continuing enhancement process to address issues raised by nuclear utility personnel and the NRC.

Enclosure 6
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-4, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

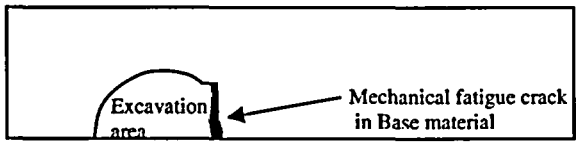
For review purposes, a comparison between Supplement 11 of the 2001 Edition of Section XI and the current PDI program is provided. Wording in this comparison is the same wording that was provided in a similar comparison for RR-36, except that the changes made to the PDI program, since the issuance of RR-36, have been included and are highlighted in **Bold**. (Note: The comparison with Code Case N-663 which was previously provided in RR-36 was omitted).

See References for dates and TAC numbers associated with RR-36.

Proposed Alternative and Basis for Use:

In lieu of the requirements of ASME Section XI, 2001 Edition, Appendix VIII, Supplement 11, the requirements of the PDI Program will be used. Major differences between 2001 Edition Appendix VIII requirements and PDI Program requirements are discussed below.

Paragraph 1.1(d)(1), requires that all base metal flaws be cracks. As illustrated below, implanting a crack requires excavation of the base material on at least one side of the flaw. While this may be satisfactory for ferritic materials, it does not produce a useable axial flaw in austenitic materials because the sound beam, which normally passes only through base material, must now travel through weld material on at least one side, producing an unrealistic flaw response. To resolve this issue, the PDI program revised this paragraph to allow use of alternative flaw mechanisms under controlled conditions. For example, alternative flaws shall be limited to when implantation of cracks precludes obtaining an effective ultrasonic response, flaws shall be semielliptical with a tip width of less than or equal to 0.002 inches, and at least 70 percent of the flaws in the detection and sizing test shall be cracks and the remainder shall be alternative flaws.



Relief is requested to allow closer spacing of flaws provided they didn't interfere with detection or discrimination. The existing specimens used to date for qualification to the Tri-party (NRC/BWROG/EPRI) agreement have a flaw population density greater than allowed by the current Code requirements. These samples have been used successfully for all previous qualifications under the Tri-party agreement program. To facilitate their use and provide continuity from the Tri-party agreement program to Supplement 11, the PDI Program has merged the Tri-party test specimens into their weld overlay program. For example: the requirement for using IWA-3300 for proximity flaw evaluation in paragraph 1.1(e)(1) was excluded, instead indications will be sized based on their individual merits; paragraph 1.1(d)(1) includes the statement that intentional overlay fabrication flaws shall not interfere with ultrasonic detection or characterization of the base metal flaws; paragraph 1.1(e)(2)(a)(1) was modified to require that a base metal grading unit include at least 1 in. of the length of the overlaid weld, rather

than 3 inches; paragraph 1.1(e)(2)(a)(3) was modified to require sufficient unflawed overlaid weld and base metal to exist on all sides of the grading unit to preclude interfering reflections from adjacent flaws, rather than the I inch requirement of Supplement 11; paragraph 1.1(e)(2)(b)(l) was modified to define an overlay fabrication grading unit as including the overlay material and the base metal-to-overlay interface for a length of at least 1 in, rather than the 6 sq. in. requirement of Supplement 11; and paragraph 1.1(e)(2)(b)(2) states that overlay fabrication grading units designed to be unflawed shall be separated by unflawed overlay material and unflawed base metal-to-overlay interface for at least 1 in. at both ends, rather than around its entire perimeter.

Additionally, the requirement for axially oriented overlay fabrication flaws in paragraph 1.1(e)(1) was excluded from the PDI Program as an improbable scenario. Weld overlays are typically applied using automated gas tungsten arc welding techniques with the filler metal being applied in a circumferential direction. Because resultant fabrication induced discontinuities would also be expected to have major dimensions oriented in the circumferential direction axial overlay fabrication flaws are unrealistic.

The PDI Program revised paragraph 2.0 allowing the overlay fabrication and base metal flaw tests to be performed separately. The requirement in paragraph 3.2(b) for reporting all extensions of cracking into the overlay is omitted from the PDI Program because it is redundant to the RMS calculations performed in paragraph 3.2(c) and it's presence adds confusion and ambiguity to depth sizing as required by paragraph 3.2(c). This also makes the weld overlay program consistent with the Supplement 2 depth sizing criteria.

In Paragraph 1.1(e)(2)(a)(1) the phrase *"and base metal on both sides"*, was inadvertently included in the description of a base metal grading unit. The PDI program intentionally excludes this requirement because some of the qualification samples include flaws on both sides of the weld.

To avoid confusion several instances of the term "cracks" or "cracking" were changed to the term "flaws" because of the use of alternative flaw mechanisms. Additionally, to avoid confusion, the overlay thickness tolerance contained in paragraph 1.1(b) last sentence, was reworded and the phrase *"and the remainder shall be alternative flaws"* was added to the next to last sentence in paragraph 1.1(d)(1). Additional editorial changes were made to the PDI program to address an earlier NRC RAI.

PDI and the NRC have worked closely to reach agreement on the criteria related to the subject examination requirements and both agree that the PDI program is an acceptable alternative to Appendix VIII, Supplement 11. Compliance with the PDI program will provide an adequate level of quality and safety for examination of the affected welds (i.e., weld overlay repairs). Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), SNC requests approval to use the PDI program, in lieu of the ASME Section XI, Appendix VIII, Supplement 11 requirements.

Enclosure 6
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-4, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Duration of Proposed Alternative:	The proposed alternative is applicable for the 4th Inservice Inspection Interval.
Precedents:	This request was approved for the 3rd Inservice Inspection Interval as RR-36.
References:	SNC letter dated January 18, 2002 submitting RR-36. Approval for RR-36 was granted for the 3rd interval by NRC letter dated January 14, 2003 - TAC numbers MB3875 and MB3876.
Status:	Awaiting NRC approval.

Enclosure 6
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-4, VERSION 1.0
COMPARISON OF SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI VERSUS THE PDI PROGRAM

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
1.0 SPECIMEN REQUIREMENTS	
Qualification test specimens shall meet the requirements listed herein, unless a set of specimens is designed to accommodate specific limitations stated in the scope of the examination procedure (e.g., pipe size, weld joint configuration, access limitations). The same specimens may be used to demonstrate both detection and sizing qualification.	No Change
1.1 General. The specimen set shall conform to the following requirements.	No Change
(a) Specimens shall have sufficient volume to minimize spurious reflections that may interfere with the interpretation process.	No Change
(b) The specimen set shall consist of at least three specimens having different nominal pipe diameters and overlay thicknesses. They shall include the minimum and maximum nominal pipe diameters for which the examination procedure is applicable. Pipe diameters within a range of 0.9 to 1.5 times a nominal diameter shall be considered equivalent. If the procedure is applicable to pipe diameters of 24 in. or larger, the specimen set must include at least one specimen 24 in. or larger but need not include the maximum diameter. The specimen set must include at least one specimen with overlay thickness within -0.1 in. to +0.25 in. of the maximum nominal overlay thickness for which the procedure is applicable.	*(b)* The specimen set shall consist of at least three specimens having different nominal pipe diameters and overlay thicknesses. They shall include the minimum and maximum nominal pipe diameters for which the examination procedure is applicable. Pipe diameters within a range of 0.9 to 1.5 times a nominal diameter shall be considered equivalent. If the procedure is applicable to pipe diameters of 24 in. or larger, the specimen set must include at least one specimen 24 in. or larger but need not include the maximum diameter. The specimen set shall include specimens with **overlays not thicker than 0.1 in. more than the minimum thickness, nor thinner than 0.25 in. of the** maximum nominal overlay thickness for which the examination procedure is applicable.
(c) The surface condition of at least two specimens shall approximate the roughest surface condition for which the examination procedure is applicable.	No Change
(d) Flaw Conditions	
(1) Base metal flaws. All flaws must be cracks in or near the butt weld heat-affected zone, open to the inside surface, and extending at least 75% through the base metal wall. Flaws may extend 100% through the base	(1) Base metal flaws. All flaws must be in or near the butt weld heat-affected zone, open to the inside surface, and extending at least 75% through the base metal wall. Intentional overlay fabrication flaws shall

Enclosure 6
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-4, VERSION 1.0
COMPARISON OF SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI VERSUS THE PDI PROGRAM

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
metal and into the overlay material; in this case, intentional overlay fabrication flaws shall not interfere with ultrasonic detection or characterization of the cracking. Specimens containing IGSCC shall be used when available.	not interfere with ultrasonic detection or characterization of the base metal flaws. Specimens containing IGSCC shall be used when available. At least 70 percent of the flaws in the detection and sizing tests shall be cracks and the remainder shall be alternative flaws. Alternative flaw mechanisms, if used, shall provide crack-like reflective characteristics and shall be limited by the following: (a) **The use of Alternative flaws shall be limited to when the implantation of cracks produces spurious reflectors that are uncharacteristic of actual flaws.** (b) Flaws shall be semielliptical with a tip width of less than or equal to 0.002 inches.
(2) Overlay fabrication flaws. At least 40% of the flaws shall be non-crack fabrication flaws (e.g., sidewall lack of fusion or laminar lack of bond) in the overlay or the pipe-to-overlay interface. At least 20% of the flaws shall be cracks. The balance of the flaws shall be of either type.	No Change
(e) Detection Specimens	
(1) At least 20% but less than 40% of the flaws shall be oriented within ±20 deg. of the pipe axial direction. The remainder shall be oriented circumferentially. Flaws shall not be open to any surface to which the candidate has physical or visual access. The rules of IWA-3300 shall be used to determine whether closely spaced flaws should be treated as single or multiple flaws.	(1) At least 20% but less than 40% of the base metal flaws shall be oriented within ±20 deg. of the pipe axial direction. The remainder shall be oriented circumferentially. Flaws shall not be open to any surface to which the candidate has physical or visual access.
(2) Specimens shall be divided into base and over-lay grading units. Each specimen shall contain one or both types of grading units.	(2) Specimens shall be divided into base metal and overlay fabrication grading units. Each specimen shall contain one or both types of grading units. Flaws shall not interfere with ultrasonic detection or characterization of other flaws.
(a)(1) A base grading unit shall include at least 3 in. of the length of the overlaid weld. The base grading unit includes the outer 25% of the overlaid weld and base metal on both sides. The base grading unit shall	*(a)(1)*A base metal grading unit **includes the overlay material and the outer 25% of the original overlaid weld. The base metal grading unit shall extend circumferentially for at least 1 in. and shall start**

Enclosure 6
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-4, VERSION 1.0
COMPARISON OF SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI VERSUS THE PDI PROGRAM

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
not include the inner 75% of the overlaid weld and base metal overlay material, or base metal-to-overlay interface.	**at the weld centerline and be wide enough in the axial direction to encompass one half of the original weld crown and a minimum of 0.50" of the adjacent base material.**
(a)(2) When base metal cracking penetrates into the overlay material, the base grading unit shall include the overlay metal within 1 in. of the crack location. This portion of the overlay material shall not be used as part of any overlay grading unit.	(a)(2) When base metal flaws penetrate into the overlay material, the base metal grading unit shall not be used as part of any overlay fabrication grading unit.
(a)(3) When a base grading unit is designed to be unflawed, at least 1 in. of unflawed overlaid weld and base metal shall exist on either side of the base grading unit. The segment of weld length used in one base grading unit shall not be used in another base grading unit. Base grading units need not be uniformly spaced around the specimen.	(a)(3) Sufficient unflawed overlaid weld and base metal shall exist on all sides of the grading unit to preclude interfering reflections from adjacent flaws.
(b)(l) An overlay grading unit shall include the overlay material and the base metal-to-overlay interface of at least 6 sq. in. The overlay grading unit shall be rectangular, with minimum dimensions of 2 in.	*(b)*(l) An overlay fabrication grading unit shall include the overlay material and the base metal-to-overlay interface for a length of at least 1 in.
(b)(2) An overlay grading unit designed to be unflawed shall be surrounded by unflawed overlay material and unflawed base metal-to-overlay interface for at least 1 in. around its entire perimeter. The specific area used in one overlay grading unit shall not be used in another overlay grading unit. Overlay grading units need not be spaced uniformly about the specimen.	(b)(2) Overlay fabrication grading units designed to be unflawed shall be separated by unflawed overlay material and unflawed base metal-to-overlay interface for at least 1 in. at both ends. Sufficient unflawed overlaid weld and base metal shall exist on both sides of the overlay fabrication grading unit to preclude interfering reflections from adjacent flaws. The specific area used in one overlay fabrication grading unit shall not be used in another overlay fabrication grading unit. Overlay fabrication grading units need not be spaced uniformly about the specimen.
(b)(3) Detection sets shall be selected from Table VIII-S2-1. The minimum detection sample set is five flawed base grading units, ten unflawed base grading units, five flawed overlay grading units, and ten unflawed overlay grading units. For each type of grading unit, the set shall contain at least twice as many unflawed as flawed grading units.	(b)(3) Detection sets shall be selected from Table VIII-S2-1. The minimum detection sample set is five flawed base metal grading units, ten unflawed base metal grading units, five flawed overlay fabrication grading units, and ten unflawed overlay fabrication grading units. For each type of grading unit, the set shall contain at least twice as many unflawed as flawed grading units. For initial procedure qualification, detection sets shall include the equivalent of three personnel

Enclosure 6
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-4, VERSION 1.0
COMPARISON OF SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI VERSUS THE PDI PROGRAM

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
	qualification sets. To qualify new values of essential variables, at least one personnel qualification set is required.
(f) Sizing Specimen	
(1) The minimum number of flaws shall be ten. At least 30% of the flaws shall be overlay fabrication flaws. At least 40% of the flaws shall be cracks open to the inside surface.	(1) The minimum number of flaws shall be ten. At least 30% of the flaws shall be overlay fabrication flaws. At least 40% of the flaws shall be open to the inside surface. **Sizing sets shall contain a distribution of flaw dimensions to assess sizing capabilities.** For initial procedure qualification, sizing sets shall include the equivalent of three personnel qualification sets. To qualify new values of essential variables, at least one personnel qualification set is required.
(2) At least 20% but less than 40% of the flaws shall be oriented axially. The remainder shall be oriented circumferentially. Flaws shall not be open to any surface to which the candidate has physical or visual access.	No Change
(3) Base metal cracking used for length sizing demonstrations shall be oriented circumferentially.	(3) Base metal flaws used for length sizing demonstrations shall be oriented circumferentially.
(4) Depth sizing specimen sets shall include at least two distinct locations where cracking in the base metal extends into the overlay material by at least 0.1 in. in the through-wall direction.	(4) Depth sizing specimen sets shall include at least two distinct locations where **a base metal flaw extends** into the overlay material by at least 0.1 in. in the through-wall direction.

Enclosure 6
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-4, VERSION 1.0
COMPARISON OF SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI VERSUS THE PDI PROGRAM

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
2.0 CONDUCT OF PERFORMANCE DEMONSTRATION	
The specimen inside surface and identification shall be concealed from the candidate. All examinations shall be completed prior to grading the results and presenting the results to the candidate. Divulgence of particular specimen results or candidate viewing of unmasked specimens after the performance demonstration is prohibited.	The specimen inside surface and identification shall be concealed from the candidate. All examinations shall be completed prior to grading the results and presenting the results to the candidate. Divulgence of particular specimen results or candidate viewing of unmasked specimens after the performance demonstration is prohibited. The overlay fabrication flaw test and the base metal flaw test may be performed separately.
2.1 Detection Test.	
Flawed and unflawed grading units shall be randomly mixed. Although the boundaries of specific grading units shall not be revealed to the candidate, the candidate shall be made aware of the type or types of grading units (base or overlay) that are present for each specimen.	Flawed and unflawed grading units shall be randomly mixed. Although the boundaries of specific grading units shall not be revealed to the candidate, the candidate shall be made aware of the type or types of grading units (base metal or overlay fabrication) that are present for each specimen.
2.2 Length Sizing Test	
(a) The length sizing test may be conducted separately or in conjunction with the detection test.	No Change
(b) When the length sizing test is conducted in conjunction with the detection test and the detected flaws do not satisfy the requirements of 1.1(f), additional specimens shall be provided to the candidate. The regions containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the length of the flaw in each region.	No Change
(c) For a separate length sizing test, the regions of each specimen containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the length of the flaw in each region.	No Change
(d) For flaws in base grading units, the candidate shall estimate the length of that part of the flaw that is in the outer 25% of the base wall thickness.	*(d)* For flaws in base metal grading units, the candidate shall estimate the length of that part of the flaw that is in the outer 25% of the base metal wall thickness.

Enclosure 6
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-4, VERSION 1.0
COMPARISON OF SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI VERSUS THE PDI PROGRAM

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
2.3 Depth Sizing Test.	
For the depth sizing test, 80% of the flaws shall be sized at a specific location on the surface of the specimen identified to the candidate. For the remaining flaws, the regions of each specimen containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the maximum depth of the flaw in each region.	**(a) The depth sizing test may be conducted separately or in conjunction with the detection test.**
	(b) When the depth sizing test is conducted in conjunction with the detection test and the detected flaws do not satisfy the requirements of 1.1(f), additional specimens shall be provided to the candidate. The regions containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the maximum depth of the flaw in each region.
	(c) For a separate depth sizing test, the regions of each specimen containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the maximum depth of the flaw in each region.

Enclosure 6
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-4, VERSION 1.0
COMPARISON OF SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI VERSUS THE PDI PROGRAM

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
3.0 ACCEPTANCE CRITERIA	
3.1 Detection Acceptance Criteria.	
Examination procedures, equipment, and personnel are qualified for detection when the results of the performance demonstration satisfy the acceptance criteria of Table VIII-S2-1 for both detection and false calls. The criteria shall be satisfied separately by the demonstration results for base grading units and for overlay grading units.	**a) Examination procedures are qualified for detection when;** **1) All flaws within the scope of the procedure are detected and the results of the performance demonstration satisfy the acceptance criteria of Table VIII-S2-1 for false calls.** **(a) At least one successful personnel demonstration has been performed meeting the acceptance criteria defined in (b).** **(b)Examination equipment and personnel are qualified for detection when the** **results of the performance demonstration satisfy the acceptance criteria of Table VIII-S2-1 for both detection and false calls.** **(c) The criteria in (a), (b) shall be satisfied separately by the demonstration results for base metal grading units and for overlay fabrication grading units.**
3.2 Sizing Acceptance Criteria.	
Examination procedures, equipment, and personnel are qualified for sizing when the results of the performance demonstration satisfy the following criteria.	No Change
(a) The RMS error of the flaw length measurements, as compared to the true flaw lengths, is less than or equal to 0.75 inch. The length of base metal cracking is measured at the 75% through-base-metal position.	*(a)* The RMS error of the flaw length measurements, as compared to the true flaw lengths, is less than or equal to 0.75 inch. The length of base metal flaws is measured at the 75% through-base-metal position.
(b) All extensions of base metal cracking into the overlay material by at least 0.1 in. are reported as being intrusions into the overlay material.	This requirement is omitted.
(c) The RMS error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125 in.	*(b)* The RMS error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125 in.

Enclosure 7
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-05, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)(i)

Plant Site-Unit:	Edwin I. Hatch Nuclear Plant-Units 1 and 2
Interval-Interval Dates:	4th ISI Interval extending from January 1, 2006 through December 31, 2015.
Requested Date for Approval:	Approval is requested by December 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006).
ASME Code Components Affected:	Approximately 50 (per unit), small diameter (≤ 1 inch), Class 1, reactor coolant system (RCS) pressure boundary vent and drain connections.
Applicable Code Edition and Addenda:	ASME Section XI, 2001 Edition through the 2003 Addenda.
Applicable Code Requirements:	IWB-5222 (b) requires that the pressure retaining boundary during the system leakage test conducted at or near the end of each inspection interval extend to all Class 1 pressure retaining components within the system boundary.
Reason for Request:	This alternative is a re-submittal of NRC approved 3rd interval relief request RR-17. RR-17 was based on the 1989 Edition of Section XI (no addenda) while this 4th interval request is based on the 2001 Edition through the 2003 Addenda; however, there have been no substantive changes to this alternative, to the Code requirements or to the basis for use which would alter the previous NRC Safety Evaluation conclusions. (See References for dates and TAC numbers associated with RR-17). SNC believes that there are potential personnel safety and ALARA issues associated with pressurizing these connections. These issues are as follows: 1. Pressure testing these connections to the outboard valve requires the inboard isolation valves to be opened and subjects the valves and piping to RCS nominal operating pressure and near operating temperature. Opening the inboard valve at these conditions is contradictory to the requirement for double isolation of the RCS and thus creates the possibility for safety concerns for personnel performing visual examination of the connections. 2. Performing the test with the inboard valves open requires several man-hours to position the valves for the test and then to restore them after the test is complete. All of these valves are located in close proximity of the RCS main loop piping thus requiring personnel entry into high radiation areas within the containment. Based on estimates from Operations Department and Health Physics department personnel and previous outage data, it was previously estimated for Relief Request 17, that the dose associated with valve alignment and realignment would be approximately 1.6 man-Rem per test.

3. Since this test would be performed near the end of an outage, when all RCS work has been completed, the time required to open and then close these vent/drain valves could impact the outage schedule.

Proposed Alternative and Basis for Use:

It is proposed that the 10-year Class 1 System Leakage Test be performed with the subject vent and drain valves in the closed position. These connections are equipped with manual valves which provide for double isolation of the reactor coolant system (RCS) pressure boundary. These valves are generally maintained closed during normal operation; therefore, the piping outboard of the first isolation valve is not normally pressurized. The proposed alternative provides reasonable assurance that the structural integrity of the Reactor Coolant Pressure Boundary will be maintained, based on the following:

1. ASME Section XI Code, paragraph IWA-4540, provides the requirements for hydrostatic pressure testing of piping and components after repairs by welding to the pressure boundary. IWA-4540(b)(6) excludes component connections, piping, and associated valves that are 1 inch nominal pipe size and smaller from the hydrostatic pressure test requirement after welded repairs. Therefore, requiring a leakage test and visual examination of these ≤ 1 inch diameter RCS vent/drain connections once each 10-year interval is unwarranted considering that a repair weld on the same connections is exempted by the ASME XI Code.

2. The non-isolable portion of the RCS vent and drain connections will be pressurized and visually examined as required. Only the isolable portion of these small diameter vent and drain connections will not pressurized.

3. A typical vent/drain connection includes two manual valves separated by a short pipe nipple which is connected to the RCS via another short pipe nipple and a half coupling. All connections are typically socket-welded and the welds received a surface examination after installation. The piping and valves are nominally heavy wall (Sch. 160 pipe and 6000# valve bodies). The vents and drains are not subjected to high stresses or cyclic loads, and the design ratings are significantly greater than RCS operating or design pressure.

4. The Technical Specifications (TS) require RCS leakage monitoring (TS 3.4.4 and 3.4.5) during normal operation. Should any of the TS limits be exceeded, then appropriate corrective actions, which may include shutting the plant down, are required to identify the source of the leakage and restore the RCS boundary integrity.

As shown above, the proposed alternative will provide reasonable assurance that structural integrity is being maintained. Additionally, imposition of the Code requirements would cause a burden that would not be compensated for by an increase in quality and safety. Therefore, the proposed alternative should be granted pursuant to 10CFR50.55a(a)(3)(ii).

Duration of Proposed Alternative: The proposed alternative is applicable for the 4th Inservice Inspection Interval.

Precedents: This was approved for the 3rd Inservice Inspection Interval as RR-17.

References: SNC letter HL-5583 dated February 27, 1998 submitting RR-17.

Approval for RR-17 was granted for the 3rd Interval by NRC letter dated September 3, 1998 - TAC numbers MA2118 and MA2119.

Status: Awaiting NRC approval.

Enclosure 8
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Plant Site-Unit:	Edwin I. Hatch Nuclear Plant-Units 1 and 2.
Interval-Interval Dates:	4th ISI Interval extending from January 1, 2006 through December 31, 2015.
Requested Date for Approval and Basis	Approval is requested by December 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006).
ASME Code Components Affected:	Class 1, Pressure Retaining Welds in Piping, subject to ASME Section XI, Appendix VIII, Supplement 10, examination (dissimilar metal weld examinations).
Applicable Code Edition and Addenda:	ASME Section XI, 2001 Edition through the 2003 Addenda is the overall 4th Interval Code of Record. However, 10 CFR 50.55a(b)(2)(xxiv) prohibits the use of Appendix VIII and Supplements to Appendix VIII of the 2002 Addenda through the 2003 Addenda; therefore, the 2001 Edition is used.
Applicable Code Requirements:	The Code requirements for which relief is requested are all contained within Appendix VIII, Supplement 10.
Reason for Request:	This alternative is a re-submittal of applicable portions of NRC approved 3rd interval relief request GR-03-01, which allows SNC to use the Performance Demonstration Initiative (PDI) Program in lieu of Section XI, Appendix VIII requirements. GR-03-01 was based on the 1995 Edition with 1996 Addenda of Supplement 10 while this new 4th interval request is based on the 2001 Edition of Supplement 10. GR-03-01 listed eleven items where PDI differed from the 1995 Code with 1996 Addenda; however, ten of these items were subsequently incorporated into the 2001 Edition of the Code. However, Item 11 which addressed modifications to Table VIII-S2-1 was not incorporated into the 2001 Edition; therefore, approval to continue to use the PDI modified version of Table VIII-S2-1 is needed. There have been no substantive changes to the Code requirements or to the *Basis for Use* which would alter the previous NRC Safety Evaluation conclusion. See References for dates and TAC numbers associated with RR-GR-03-01.
Proposed Alternative and Basis for Use:	In lieu of the requirements of ASME Section XI, 2001 Edition, Appendix VIII, Supplement 10, Table VIII-S2-1 requirements, the marked-up table shown below will be used. Table VIII-S2-1 was revised to reflect the reduced number of unflawed grading units and allowable false calls. As a part of ongoing Section XI Code activities, Pacific Northwest National Laboratory (PNNL) reviewed the statistical significance of these revisions and offered the modified table.

Enclosure 8
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

	10 TABLE VIII-S2-1 PERFORMANCE DEMONSTRATION DETECTION TEST ACCEPTANCE CRITERIA

Detection Test Acceptance Critera		False Call Test Acceptance Criteria	
No. of Flawed Grading Units	Minimum Detection Criteria	No. of Unflawed Grading Units	Maximum Number of False Calls
~~5~~	~~5~~	~~10~~	~~0~~
~~6~~	~~6~~	~~12~~	~~1~~
~~7~~	~~6~~	~~14~~	~~1~~
~~8~~	~~7~~	~~16~~	~~2~~
~~9~~	~~7~~	~~18~~	~~2~~
10	8	~~20~~ 15	~~3~~ 2
11	9	~~22~~ 17	~~3~~ 3
12	9	~~24~~ 18	~~3~~ 3
13	10	~~26~~ 20 21	~~4~~ 3 3
14	10	~~28~~ 23	~~5~~ 3
15	11	~~30~~ 24	~~5~~ 4
16	12	~~32~~ 26	~~6~~ 4
17	12	~~34~~ 27	~~6~~ 4
18	13	~~36~~ 29	~~7~~ 4
19	13	~~38~~ 30	~~7~~ 5
20	14	~~40~~	~~8~~

The NRC staff has previously determined that the above proposed alternative to Supplement 10, as administered by the EPRI-PDI Program, will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), SNC requests approval to use alternative, in lieu of the ASME Section XI, Appendix VIII, Supplement 10 requirements.

Duration of Proposed Alternative:	The proposed alternative is applicable for the 4th Inservice Inspection Interval.

Enclosure 8
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

Precedents:	This request was approved for the 3rd Inservice Inspection Interval as GR-03-01.
References:	SNC letter NL-03-0596 dated May 14, 2003 submitting GR-03-01. Approval for GR-03-01 was granted for the 3rd interval by NRC letter dated August 6, 2003 - TAC numbers MB9023 and MB9024.
Status:	Awaiting NRC approval.

Enclosure 8
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
1.0 SPECIMEN REQUIREMENTS	
Qualification test specimens shall meet the requirements listed herein, unless a set of specimens is designed to accommodate specific limitations stated in the scope of the examination procedure (e.g., pipe size, weld joint configuration, access limitations). The same specimens may be used to demonstrate both detection and sizing qualification.	No Change
1.1 General. The specimen set shall conform to the following requirements.	No Change
(a) Specimens shall have sufficient volume to minimize spurious reflections that may interfere with the interpretation process.	No Change
(b) The specimen set shall consist of at least three specimens having different nominal pipe diameters and overlay thicknesses. They shall include the minimum and maximum nominal pipe diameters for which the examination procedure is applicable. Pipe diameters within a range of 0.9 to 1.5 times a nominal diameter shall be considered equivalent. If the procedure is applicable to pipe diameters of 24 in. or larger, the specimen set must include at least one specimen 24 in. or larger but need not include the maximum diameter. The specimen set must include at least one specimen with overlay thickness within -0.1 in. to +0.25 in. of the maximum nominal overlay thickness for which the procedure is applicable.	*(b)* The specimen set shall consist of at least three specimens having different nominal pipe diameters and overlay thicknesses. They shall include the minimum and maximum nominal pipe diameters for which the examination procedure is applicable. Pipe diameters within a range of 0.9 to 1.5 times a nominal diameter shall be considered equivalent. If the procedure is applicable to pipe diameters of 24 in. or larger, the specimen set must include at least one specimen 24 in. or larger but need not include the maximum diameter. The specimen set shall include specimens with **overlays not thicker than 0.1 in. more than the minimum thickness, nor thinner than 0.25 in. of the** maximum nominal overlay thickness for which the examination procedure is applicable.
(c) The surface condition of at least two specimens shall approximate the roughest surface condition for which the examination procedure is applicable.	No Change
(d) Flaw Conditions	
(1) Base metal flaws. All flaws must be cracks in or near the butt weld heat-affected zone, open to the inside surface, and extending at least 75% through the base metal wall. Flaws may extend 100% through the base	(1) Base metal flaws. All flaws must be in or near the butt weld heat-affected zone, open to the inside surface, and extending at least 75% through the base metal wall. Intentional overlay fabrication flaws shall

Enclosure 8
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
metal and into the overlay material; in this case, intentional overlay fabrication flaws shall not interfere with ultrasonic detection or characterization of the cracking. Specimens containing IGSCC shall be used when available.	not interfere with ultrasonic detection or characterization of the base metal flaws. Specimens containing IGSCC shall be used when available. At least 70 percent of the flaws in the detection and sizing tests shall be cracks and the remainder shall be alternative flaws. Alternative flaw mechanisms, if used, shall provide crack-like reflective characteristics and shall be limited by the following: (a) **The use of Alternative flaws shall be limited to when the implantation of cracks produces spurious reflectors that are uncharacteristic of actual flaws.** (b) Flaws shall be semielliptical with a tip width of less than or equal to 0.002 inches.
(2) Overlay fabrication flaws. At least 40% of the flaws shall be non-crack fabrication flaws (e.g., sidewall lack of fusion or laminar lack of bond) in the overlay or the pipe-to-overlay interface. At least 20% of the flaws shall be cracks. The balance of the flaws shall be of either type.	No Change
(e) Detection Specimens	
(1) At least 20% but less than 40% of the flaws shall be oriented within ±20 deg. of the pipe axial direction. The remainder shall be oriented circumferentially. Flaws shall not be open to any surface to which the candidate has physical or visual access. The rules of IWA-3300 shall be used to determine whether closely spaced flaws should be treated as single or multiple flaws.	(1) At least 20% but less than 40% of the base metal flaws shall be oriented within ±20 deg. of the pipe axial direction. The remainder shall be oriented circumferentially. Flaws shall not be open to any surface to which the candidate has physical or visual access.
(2) Specimens shall be divided into base and over-lay grading units. Each specimen shall contain one or both types of grading units.	(2) Specimens shall be divided into base metal and overlay fabrication grading units. Each specimen shall contain one or both types of grading units. Flaws shall not interfere with ultrasonic detection or characterization of other flaws.
(a)(1) A base grading unit shall include at least 3 in. of the length of the overlaid weld. The base grading unit includes the outer 25% of the overlaid weld and base metal on both sides. The base grading unit shall	*(a)(1)*A base metal grading unit **includes the overlay material and the outer 25% of the original overlaid weld. The base metal grading unit shall extend circumferentially for at least 1 in. and shall start**

Enclosure 8
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
not include the inner 75% of the overlaid weld and base metal overlay material, or base metal-to-overlay interface.	**at the weld centerline and be wide enough in the axial direction to encompass one half of the original weld crown and a minimum of 0.50" of the adjacent base material.**
(a)(2) When base metal cracking penetrates into the overlay material, the base grading unit shall include the overlay metal within 1 in. of the crack location. This portion of the overlay material shall not be used as part of any overlay grading unit.	(a)(2) When base metal flaws penetrate into the overlay material, the base metal grading unit shall not be used as part of any overlay fabrication grading unit.
(a)(3) When a base grading unit is designed to be unflawed, at least 1 in. of unflawed overlaid weld and base metal shall exist on either side of the base grading unit. The segment of weld length used in one base grading unit shall not be used in another base grading unit. Base grading units need not be uniformly spaced around the specimen.	(a)(3) Sufficient unflawed overlaid weld and base metal shall exist on all sides of the grading unit to preclude interfering reflections from adjacent flaws.
(b)(l) An overlay grading unit shall include the overlay material and the base metal-to-overlay interface of at least 6 sq. in. The overlay grading unit shall be rectangular, with minimum dimensions of 2 in.	*(b)*(l) An overlay fabrication grading unit shall include the overlay material and the base metal-to-overlay interface for a length of at least 1 in.
(b)(2) An overlay grading unit designed to be unflawed shall be surrounded by unflawed overlay material and unflawed base metal-to-overlay interface for at least 1 in. around its entire perimeter. The specific area used in one overlay grading unit shall not be used in another overlay grading unit. Overlay grading units need not be spaced uniformly about the specimen.	(b)(2) Overlay fabrication grading units designed to be unflawed shall be separated by unflawed overlay material and unflawed base metal-to-overlay interface for at least 1 in. at both ends. Sufficient unflawed overlaid weld and base metal shall exist on both sides of the overlay fabrication grading unit to preclude interfering reflections from adjacent flaws. The specific area used in one overlay fabrication grading unit shall not be used in another overlay fabrication grading unit. Overlay fabrication grading units need not be spaced uniformly about the specimen.
(b)(3) Detection sets shall be selected from Table VIII-S2-1. The minimum detection sample set is five flawed base grading units, ten unflawed base grading units, five flawed overlay grading units, and ten unflawed overlay grading units. For each type of grading unit, the set shall contain at least twice as many unflawed as flawed grading units.	(b)(3) Detection sets shall be selected from Table VIII-S2-1. The minimum detection sample set is five flawed base metal grading units, ten unflawed base metal grading units, five flawed overlay fabrication grading units, and ten unflawed overlay fabrication grading units. For each type of grading unit, the set shall contain at least twice as many unflawed as flawed grading units. For initial procedure qualification, detection sets shall include the equivalent of three personnel

Enclosure 8
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
	qualification sets. To qualify new values of essential variables, at least one personnel qualification set is required.
(f) Sizing Specimen	
(1) The minimum number of flaws shall be ten. At least 30% of the flaws shall be overlay fabrication flaws. At least 40% of the flaws shall be cracks open to the inside surface.	(1) The minimum number of flaws shall be ten. At least 30% of the flaws shall be overlay fabrication flaws. At least 40% of the flaws shall be open to the inside surface. **Sizing sets shall contain a distribution of flaw dimensions to assess sizing capabilities.** For initial procedure qualification, sizing sets shall include the equivalent of three personnel qualification sets. To qualify new values of essential variables, at least one personnel qualification set is required.
(2) At least 20% but less than 40% of the flaws shall be oriented axially. The remainder shall be oriented circumferentially. Flaws shall not be open to any surface to which the candidate has physical or visual access.	No Change
(3) Base metal cracking used for length sizing demonstrations shall be oriented circumferentially.	(3) Base metal flaws used for length sizing demonstrations shall be oriented circumferentially.
(4) Depth sizing specimen sets shall include at least two distinct locations where cracking in the base metal extends into the overlay material by at least 0.1 in. in the through-wall direction.	(4) Depth sizing specimen sets shall include at least two distinct locations where **a base metal flaw extends** into the overlay material by at least 0.1 in. in the through-wall direction.

Enclosure 8
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
2.0 CONDUCT OF PERFORMANCE DEMONSTRATION	
The specimen inside surface and identification shall be concealed from the candidate. All examinations shall be completed prior to grading the results and presenting the results to the candidate. Divulgence of particular specimen results or candidate viewing of unmasked specimens after the performance demonstration is prohibited.	The specimen inside surface and identification shall be concealed from the candidate. All examinations shall be completed prior to grading the results and presenting the results to the candidate. Divulgence of particular specimen results or candidate viewing of unmasked specimens after the performance demonstration is prohibited. The overlay fabrication flaw test and the base metal flaw test may be performed separately.
2.1 Detection Test.	
Flawed and unflawed grading units shall be randomly mixed. Although the boundaries of specific grading units shall not be revealed to the candidate, the candidate shall be made aware of the type or types of grading units (base or overlay) that are present for each specimen.	Flawed and unflawed grading units shall be randomly mixed. Although the boundaries of specific grading units shall not be revealed to the candidate, the candidate shall be made aware of the type or types of grading units (base metal or overlay fabrication) that are present for each specimen.
2.2 Length Sizing Test	
(a) The length sizing test may be conducted separately or in conjunction with the detection test.	No Change
(b) When the length sizing test is conducted in conjunction with the detection test and the detected flaws do not satisfy the requirements of 1.1(f), additional specimens shall be provided to the candidate. The regions containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the length of the flaw in each region.	No Change
(c) For a separate length sizing test, the regions of each specimen containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the length of the flaw in each region.	No Change
(d) For flaws in base grading units, the candidate shall estimate the length of that part of the flaw that is in the outer 25% of the base wall thickness.	*(d)* For flaws in base metal grading units, the candidate shall estimate the length of that part of the flaw that is in the outer 25% of the base metal wall thickness.

Enclosure 8
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
2.3 Depth Sizing Test.	
For the depth sizing test, 80% of the flaws shall be sized at a specific location on the surface of the specimen identified to the candidate. For the remaining flaws, the regions of each specimen containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the maximum depth of the flaw in each region.	**(a) The depth sizing test may be conducted separately or in conjunction with the detection test.**
	(b) When the depth sizing test is conducted in conjunction with the detection test and the detected flaws do not satisfy the requirements of 1.1(f), additional specimens shall be provided to the candidate. The regions containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the maximum depth of the flaw in each region.
	(c) For a separate depth sizing test, the regions of each specimen containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the maximum depth of the flaw in each region.

Enclosure 8
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-ALT-6, VERSION 1.0
PROPOSED ALTERNATIVE IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i)

SUPPLEMENT 11 OF THE 2001 EDITION OF SECTION XI	PDI PROGRAM
3.0 ACCEPTANCE CRITERIA	
3.1 Detection Acceptance Criteria.	
Examination procedures, equipment, and personnel are qualified for detection when the results of the performance demonstration satisfy the acceptance criteria of Table VIII-S2-1 for both detection and false calls. The criteria shall be satisfied separately by the demonstration results for base grading units and for overlay grading units.	**a) Examination procedures are qualified for detection when;** **1) All flaws within the scope of the procedure are detected and the results of the performance demonstration satisfy the acceptance criteria of Table VIII-S2-1 for false calls.** **(a) At least one successful personnel demonstration has been performed meeting the acceptance criteria defined in (b).** **(b)Examination equipment and personnel are qualified for detection when the** **results of the performance demonstration satisfy the acceptance criteria of Table VIII-S2-1 for both detection and false calls.** **(c) The criteria in (a), (b) shall be satisfied separately by the demonstration results for base metal grading units and for overlay fabrication grading units.**
3.2 Sizing Acceptance Criteria.	
Examination procedures, equipment, and personnel are qualified for sizing when the results of the performance demonstration satisfy the following criteria.	No Change
(a) The RMS error of the flaw length measurements, as compared to the true flaw lengths, is less than or equal to 0.75 inch. The length of base metal cracking is measured at the 75% through-base-metal position.	*(a)* The RMS error of the flaw length measurements, as compared to the true flaw lengths, is less than or equal to 0.75 inch. The length of base metal flaws is measured at the 75% through-base-metal position.
(b) All extensions of base metal cracking into the overlay material by at least 0.1 in. are reported as being intrusions into the overlay material.	This requirement is omitted.
(c) The RMS error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125 in.	*(b)* The RMS error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125 in.

Enclosure 9
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-EX-01, VERSION 1.0
10 CFR 50.55a EXEMPTION REQUEST

Plant Site-Unit:	Edwin I. Hatch Nuclear Plant-Units 1 and 2
Interval-Interval Dates:	4th ISI Interval extending from January 1, 2006 through December 31, 2015.
Requested Date for Approval:	Approval is requested by November 1, 2005 to support examinations performed during 1R22 (scheduled for February 2006)
ASME Code Components Affected:	Accessible surface areas of the Containment Vessel pressure retaining boundary Vent System, requiring visual examination per ASME Section XI, Table IWE-2500-1, Category E-A, Item Number E1.20.
Applicable Code Edition and Addenda:	ASME Section XI, 2001 Edition through the 2003 Addenda.
Applicable Requirements:	10 CFR 50.55a(b)(2)(ix)(G) requires a VT-3 examination of components in IWE Table 2500-1, Category E-A, Item E1.20 in lieu of the ASME Section XI required General Visual Examination (CFR dated October 4, 2004).
Reason for Request:	During the 3rd inservice inspection interval, the 1992 Code with 1992 Addenda required a VT-3 examination of the accessible surface areas of the vent system. SNC requested approval in Relief Request RR-MC-9 to use a General Visual examination in lieu of the VT-3 examination. This request was approved by the NRC. For the 4th interval, the 2001 Edition through the 2003 Addenda does not require the VT-3 examination; however in 10 CFR 50.55a(b)(2)(ix)(G), the NRC added a requirement to perform the VT-3 examinations. SNC believes that the examination provisions established in previous Relief Request RR-MC-9 have proven to be sufficient to maintain the structural integrity and leak-tightness of the containment surfaces; therefore, SNC is requesting to continue the use of similar provisions during the 4th interval. See References for dates and TAC numbers associated with RR-MC-9.

Enclosure 9
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-EX-01, VERSION 1.0
10 CFR 50.55a EXEMPTION REQUEST

Proposed Alternative and Basis for Use:

In lieu of conducting the 10CFR50.55a(b)(2)(ix)(G) required visual examination (VT-3), SNC proposes to perform a general visual type examination on all non-submerged, accessible pressure boundary surfaces of the vent system. This general visual type examination will be performed in accordance with the Plant Hatch "Qualified (N) Coatings" program. The details of this program were provided in the October 19, 1998 response to NRC Generic Letter 98-04, "Potential for Degradation of the Emergency Core Cooling System and the Containment Spray System After a Loss-of-Coolant Accident Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment." The procedures and personnel qualifications applicable for the coatings program implementation are in compliance with Regulatory Guide 1.54, 1973, and the implementation is based on the following documents: (1) ANSI N101.2-1972, "Protective Coatings (Plants) for Light Water Nuclear Reactor Containment Facilities;" (2) ANSI N101.4-1972, "Quality Assurance for Protective Coatings Applied to Nuclear Facilities;" and (3) EPRI Report TR-109937, "Guideline on Nuclear Safety-Related Coatings." This program was approved by the NRC in a letter dated November 19, 1999.

The "Qualified (N) Coatings" program examination frequency is equivalent to that of the ASME XI Code and the program requires that when evidence of degradation is detected, a detailed examination and evaluation be performed. The detailed visual examination would be performed in accordance with the provisions of ASME XI paragraph IWE-2310(c).

The exterior surfaces of the Vent System that connects the BWR Drywell to the Suppression Pool are located in the Reactor Building. The Reactor Building environment does not pose adverse conditions that would promote rapid degradation of the outside pressure boundary surfaces of the Vent System. The interior surfaces of the Vent System that connects the Drywell to the suppression pool and the portions of the vent system located inside the Suppression Pool are maintained in a nitrogen inerted environment during normal power operation in accordance with Technical Specification requirements. History and previous examinations have indicated that this environment does not promote rapid degradation of the surfaces.

The requirements specified for a VT-3 were developed for detecting flaws in metal components and are more stringent than those required for detection of degradation such as corrosion. Since corrosion of base metal is the primary issue of concern for containment pressure boundary surface areas, a general visual type examination, in accordance with the site "Qualified (N) Coatings" program, is sufficient to inspect the subject surface areas of the containment and will provide an acceptable level of quality and safety.

Enclosure 9
SOUTHERN NUCLEAR OPERATING COMPANY
ISI-EX-01, VERSION 1.0
10 CFR 50.55a EXEMPTION REQUEST

The use of the CFR prescribed visual examination (VT-3) techniques will not increase the level of quality and safety; therefore, this request for exemption from the provisions of 10CFR50.55a(b)(2)(ix)(G) should be granted.

Duration of Proposed Alternative: The proposed exemption is applicable for the 4th Inservice Inspection Interval.

Precedents: A similar request was approved for the 3rd Inservice Inspection Interval as RR-MC-9.

References: SNC letter HL-5957, dated July 19, 2000 submitting RR-MC-9.

Approval for RR-MC-9 was granted for the 3rd Interval by NRC letter dated October 04, 2000 - TAC numbers MA9569 and MA9570.

Status: Awaiting NRC approval.