



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20540

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SECOND 10-YEAR INTERVAL INSERVICE INSPECTION PLAN

RELIEF REQUESTS 2RG-004, 2RG-005, 2RG-006, 2RG-007

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

DOCKET NO. 50-400

1.0 INTRODUCTION

Inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code and applicable addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(6)(g)(i). 10 CFR 50.55a(a)(3) states in part that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (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 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. For the Shearon Harris Nuclear Power Plant (HNP), the applicable edition of Section XI of the ASME Code for the second 10-year ISI interval is the 1989 Edition.

2.0 EVALUATION

By letter dated January 27, 1998, Carolina Power & Light Company (CP&L, the licensee) submitted the HNP ISI Program Plan for the second 10-year inspection interval. The ISI Program Plan submittal included 21 relief requests (including 2RG-001 and 2RG-002, which had been previously approved by the NRC). By letter dated August 24, 1998, CP&L withdrew 8 of the original 21 relief requests and submitted an additional relief request. The staff approved relief requests 2R1-010 and 2RG-009 on November 4, 1998, and approved relief request 2RG-008 on June 18, 1999. Based on a September 23, 1999, conference call with the staff related to

Code Cases that had been approved in Regulatory Guide 1.147, Rev. 12, CP&L withdrew 7 more of the original 21 relief requests on October 12, 1999.

The Idaho National Engineering and Environmental Laboratory (INEEL) staff's evaluation of the remaining requests for relief, 2RG-004, 2RG-005, 2RG-006, and 2RG-007, is attached. Based on the results of the review, the staff adopts the contractor's conclusions presented in the attached technical letter report (TLR).

The information provided by the licensee in support of the requests for relief from Code requirements has been evaluated and the basis for disposition is documented below.

Request for Relief No. 2RG-004:

ASME Code, Section XI, Subarticles IWA-4800, -6200, and -7500 require the Owner to prepare preservice and ISI summary reports for Class 1 and Class 2 pressure-retaining components and their supports. Paragraph IWA-6230 also requires that these summary reports be submitted to the enforcement and regulatory authorities having jurisdiction at the plant site within 90 days of the completion of the ISIs conducted each refueling outage.

Pursuant to 10 CFR 50.55a(a)(3), the licensee proposed to use Code Case N-532 as alternative requirements to repair and replacement documentation requirements and inservice summary report preparation and submission as required by IWA-4000 and IWA-6000.

Code Case N-532 requires preparation of the Repair/Replacement Certification Record, Form NIS-2A with endorsement by an Authorized Nuclear Inservice Inspector (ANII) as defined in ASME Code, Section XI, IWA-2130 and requires the record to be maintained by the Owner. Furthermore, this Code Case requires Owner's Activity Report Form, OAR-1, preparation and certification by an ANII upon completion of each refueling outage. The OAR-1 form contains an abstract of applicable examinations and tests, a list of item(s) with flaws or relevant conditions that require evaluation to determine acceptability for continued service, and an abstract of repairs, replacements and corrective measures performed as a result of unacceptable flaws or relevant conditions. Code Case N-532 provides an equivalent level of quality and safety to that required by the licensee's Code of record. The licensee's proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the second 10-year inspection interval or until such time as the Code Case is published in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement Code Case N-532, the licensee must follow all conditions specified in the Regulatory Guide, if any.

Request for Relief No. 2RG-005:

ASME Code, Section XI, IWA-5000, IWC-5000, and IWD-5000, requires hydrostatic tests for Class 2 and 3 components. IWA-5211(e) allows a system pneumatic test to be conducted in lieu of a hydrostatic test for components within the scope of IWC and IWD.

Pursuant to 10 CFR 50.55a(a)(3), the licensee proposed to use Code Case N-534 as alternative requirements for pneumatic pressure testing.

Code Case N-534, *Alternative Requirements for Pneumatic Pressure Testing*. Code Case N-534 states that:

“...an alternative to the hydrostatic test pressure requirements of IWA-5211, IWA-5212 and IWC-5000 or IWD-5000, the test pressure for a pneumatic test in accordance with IWA-5211(e) [IWA-5211(c) in the 1993 Addenda] shall be normal operating pressure.”

In addition to the requirements specified in Code Case N-534, the licensee has committed to:

1. Conduct the system pneumatic pressure test at or near the end of the inspection interval or during the same inspection period as previously performed in the first 10-year inspection Interval.
2. Pressurize the boundaries such that the system test will extend to Class 2 or 3 components for those portions of systems required to operate or support the safety system function, up to and including the first normally closed valve, including a safety or relief valve, or valve capable of automatic closure when the safety function is required.
3. Perform the VT-2 visual inspection on systems after insulation removal. The systems will be pressurized to the nominal operating pressure for at least 10 minutes. The systems will be maintained at nominal operating pressure during application of the bubble solution and performance of the VT-2 visual examination.
4. The VT-2 visual examination will include components within the boundary identified.

These pneumatic test conditions are essentially identical to the hydrostatic test conditions set forth in Code Case N-498-1 for Class 2 and 3 systems except that the systems will be pressurized with air rather than fluid. Code Case N-498-1, *Alternative Rules for 10-Year System Hydrostatic Testing for Class 1, 2 and 3 Systems*, has been approved for general use in Regulatory Guide 1.147, Revision 12. The licensee will be performing the pneumatic pressure tests at normal operating pressure and applying a bubble solution over the test boundary. The licensee's proposed alternative provides an acceptable level of quality and safety and is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the second 10-year inspection interval at HNP or until such time as the Code Case is published in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement Code Case N-534, the licensee must follow all conditions specified in the Regulatory Guide, if any.

Request for Relief No. 2RG-006:

ASME Code, Section XI, Paragraph IWA-2432 requires that successive inspection intervals be comprised of 10 years following the previous interval except as modified by Paragraph IWA-2430(d), which allows an interval to be extended or reduced by as much as 1 year to coincide with an outage, thus changing the length of an interval.

Pursuant to 10 CFR 50.55a(a)(3), the licensee proposed to use Code Case N-535 as alternative requirements for scheduling the 10-year inspection interval.

Code Case N-535 consists of four parts which can be summarized as follows:

- a) Each inspection interval may be reduced or extended by 1 year. For extended intervals, neither the start or end dates nor the ISI program for the successive interval need be revised. Thus, a successive interval may start prior to the end of the previous interval that was extended.
- b) Examinations performed to satisfy the requirements of the extended interval may be performed in conjunction with examinations performed to satisfy the requirements for the successive interval. However, examinations cannot be credited to both intervals.
- c) Inspection periods may be extended or reduced to coincide with an outage. This adjustment shall not alter the requirements for scheduling inspection intervals.
- d) Examination records must identify which interval the examination was performed in.

Part (a) of Code Case N-535 is the only change from current Section XI philosophy. The 1-year extension is independent of the plant operating cycle and two intervals can be open concurrently during that year. Although slightly different from the current Code requirements, implementation of this Code Case does not change the number of examinations, acceptance criteria, or any other Code requirement, with the possible exception of an insignificant change in the distribution of examinations. Therefore, the staff concludes that Code Case N-535 provides an acceptable level of quality and safety and the use of Code Case N-535 is authorized pursuant to 10 CFR 50.55a(a)(3)(i). The use of this Code Case is authorized for the second 10-year inspection interval at HNP or until such time as the Code Case is published in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement Code Case N-535, the licensee must follow all conditions specified in the Regulatory Guide, if any.

Request for Relief No. 2RG-007:

ASME Code, Section XI, IWA-2300, requires that personnel performing VT-2 and VT-3 visual examinations be qualified in accordance with comparable levels of competency as defined in ANSI N45.2.6. Additionally, the examination personnel shall have natural or corrected near distance acuity, in at least one eye, equivalent to a Snellen fraction of 20/20. For far vision, personnel shall have natural or corrected far distance visual acuity of 20/30 or equivalent.

Pursuant to 10 CFR 50.55a(a)(3), the licensee proposed to use Code Case N-546 as an alternative to the ASME Section XI qualification requirements for VT-2 visual examiners.

In addition to meeting the requirements contained in Code Case N-546, the licensee has committed to use procedural guidelines for consistent quality VT-2 visual examinations, verify and maintain records of the qualification of persons selected to perform VT-2 visual

examinations, and perform independent reviews and evaluations of leakage by a person(s) other than those that performed the VT-2 visual examination. Code Case N-546 and the additional commitments made by the licensee provides an acceptable level of quality and safety. The licensee's request to implement Code Case N-546 with the additional commitments is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the second 10-year inspection interval at HNP or until such time as the Code Case is published in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement Code Case N-546, the licensee must follow all conditions specified in the Regulatory Guide, if any.

3.0 CONCLUSION

The staff concludes that the licensee's proposed alternatives contained in Requests for Relief 2RG-004, 2RG-005, 2RG-006 and 2RG-007 provide an equivalent or acceptable level of quality and safety. The licensee's proposed alternatives are authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the second 10-year inspection interval or until such time as the Code Cases N-532, N-534, N-535, and N-546 are published in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement these code cases, the licensee should follow all conditions specified in the Regulatory Guide, if any.

Principal Contributor: T. McLellan

Date: **December 28, 1999**

Attachment: INEEL Technical Letter Report

TECHNICAL LETTER REPORT
ON THE SECOND 10-YEAR INTERVAL INSERVICE INSPECTION
REQUESTS FOR RELIEF
FOR
CAROLINA POWER AND LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NUMBER: 50-400

1. INTRODUCTION

By letter dated January 27, 1998, the licensee, Carolina Power and Light Company, submitted the Shearon Harris Nuclear Power Plant ISI Program Plan containing requests for relief from the requirements of the ASME Code, Section XI, for the second 10-year inservice inspection (ISI) interval. By letter dated August 24, 1998, the licensee withdrew relief requests 2R1-003, 2R1-004, 2R1-006, 2R1-008, 2R1-011, 2R2-001, 2R2-003 and 2R2-005. Additionally, in a "Response to Request For Additional Information" letter dated October 12, 1999, the licensee included the withdrawal of relief requests 2R1-009, 2R2-006, 2R2-007, 2R3-002, 2RG-001, 2RG-002, and 2RG-003. The Idaho National Engineering and Environmental Laboratory (INEEL) staff's evaluation of the subject requests for relief in the Shearon Harris Nuclear Power Plant ISI Program Plan are in the following section.

2. EVALUATION

The information provided by Carolina Power and Light Company in support of the requests for relief from Code requirements have been evaluated and the bases for disposition are documented below. The Code of record for the Shearon Harris Nuclear Power Plant, second 10-year ISI interval, which began February 2, 1998, is the 1989 Edition of Section XI of the ASME Boiler and Pressure Vessel Code.

- A. Request for Relief No. 2RG-004, Use of Code Case N-532, Alternative Requirements to Repair and Replacement Documentation Requirements and Inservice Summary Report Preparation and Submission as Required by IWA-4000 and IWA-6000

Code Requirement: Subarticles IWA-4800, -6200, and -7500 require the Owner to prepare preservice and inservice inspection summary reports for Class 1 and Class 2 pressure retaining components and their supports. Paragraph IWA-6230 also requires that these summary reports be submitted to the enforcement and regulatory authorities having jurisdiction at the plant site within 90 days of the completion of the inservice inspections conducted each refueling outage.

Licensee's Proposed Alternative: In accordance with 10 CFR 50.55a(a)(3), the licensee proposed to use Code Case N-532 as alternative requirements to repair and replacement documentation requirements and inservice summary report preparation and submission as required by IWA-4000, and IWA-6000. The licensee stated:

Attachment

“Code Case N-532 is to be applied as alternative rules for summary reports of ASME Class 1 and 2 Repair/Replacement and Inservice Inspection activities. The reports to be filed at the end of each Period rather than each refueling outage.”

Licensee's Basis for Proposed Alternative (as stated):

“Code Case N-532 has already been approved by the Section XI Code Committee, thus providing an alternative for routine reporting criteria. Filing of reports each outage has proven to be time-consuming, expensive, and of questionable value. Per 10CFR50 requirements, all documentation associated with either Repair/Replacement or Inservice Inspection are maintained as Quality Assurance documents for the duration of the life of the plant. Any information needed by either the regulatory body or by plant personnel are easily retrievable. The Code Case simplifies reporting criteria, particularly on Repair/Replacement activities, and reduces the frequency of reports to once per Period instead of once per outage. The reduced reporting requirements aid both the writers and reviewers of the reports, thus reducing the costs of compliance with the ASME Code while still providing quality controls on these safety-related activities.”

Justification

“The proposed alternative provides an acceptable level of quality and safety since the summary reports are still filed with the enforcement and regulatory authorities having jurisdiction at the plant site while reducing the costs associated with ASME Code Compliance.”

Evaluation: The INEEL staff reviewed the proposed alternative documentation requirements of Code Case N-532 and determined that although the required forms have changed, the information required by the Code will be provided by the alternative forms. Code Case N-532 requires preparation of the Repair/Replacement Certification Record, Form NIS-2A with endorsement by an Authorized Nuclear Inservice Inspector (ANII) as defined in ASME Code, Section XI, IWA-2130 and shall be maintained by the Owner. Furthermore, this Code Case requires Owner's Activity Report Form, OAR-1 preparation and certification by an ANII upon completion of each refueling outage. The OAR-1 form contains an abstract of applicable examinations and tests, a list of item(s) with flaws or relevant conditions that require evaluation to determine acceptability for continued service, and an abstract of repairs, replacements and corrective measures performed as a result of unacceptable flaws or relevant conditions. Hence, the information provided in the documentation pertaining to the use of Code Case N-532, can be used in the same manner to assess the safety implications of Code activities performed during an outage.

A review using the information as prescribed by the Code Case will, therefore, provide the same or improved level of quality and safety as reviews that may be conducted using the present Code reporting requirements. In addition, more detailed information may be requested by the staff if it is deemed necessary. Therefore, the use of this alternative should be authorized pursuant to 10 CFR 50.55a(a)(3)(i). The use of this Code Case should be authorized for the current

interval or until such time as the Code Case is published in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement Code Case N-532, the licensee should follow all conditions specified in the Regulatory Guide, if present.

B. Request for Relief No. 2RG-005, Use of Code Case N-534, Alternative Requirements for Pneumatic Pressure Testing

Code Requirement: IWA-5000, IWC-5000, and IWD-5000, requires hydrostatic tests for Class 2 and 3 components. IWA-5211(e) allows a system pneumatic test to be conducted in lieu of a hydrostatic test for components within the scope of IWC and IWD.

Licensee's Proposed Alternative: In accordance with 10 CFR 50.55a(a)(3), the licensee proposed to use Code Case N-534 as alternative requirements for pneumatic pressure testing. The licensee stated:

"As an alternative to the pneumatic testing at hydrostatic pressure levels, the following is to be used, as applicable:

- 1) "A system pneumatic pressure test will be conducted at or near the end of the inspection interval or during the same inspection period as previously performed in the First 10-Year Interval.
- 2) "The boundary subject to pressurization during the system test will extend to Class 2 or 3 components for those portions of systems required to operate or support the safety system function, up to and including the first normally-closed valve, including a safety or relief valve, or valve capable of automatic closure when the safety function is required.
- 3) "Before performing the VT-2 visual inspection, the system will be uninsulated and pressurized to nominal operating pressure for at least 10 minutes. The system will be maintained at nominal operating pressure during application of the bubble solution and performance of the VT-2 visual examination.
- 4) "The VT-2 visual examination will include components within the boundary identified above."

Licensee's Basis for Proposed Alternative (as stated):

"The most common causes of system pressure-boundary failures are flow-accelerated corrosion (FAC), microbiologically induced corrosion (MIC), and general corrosion. Harris Plant has in place programs to monitor both FAC and MIC. Leakage from general corrosion is readily apparent to inspectors when performing a VT-2 inspection during system pressure tests.

"The burdens imposed by Class 2 and 3 pneumatic tests at hydrostatic pressure levels are as follows:

- 1) "High-pressure tests are historically difficult to perform.
- 2) Testing at higher-than-nominal-operating pressure requires unique lineups, special equipment installation, and the removal or gagging of pressure relief devices.
- 3) The time required to complete the testing, as compared to system pressure tests, results in a significant increase in work scope and required resources, and a potentially extended outage.
- 4) The increase in time, scope, and resources results in additional operational doses, contrary to ALARA principles.

"Carolina Power & Light Company considers this request to use ASME Code Case N-534 to be a regulatory burden reduction item for the Harris Plant."

Justification

"The proposed alternative provides an acceptable level of quality and safety since any leaks would still be detected. Code Case N-534 requires that the systems still receive a pressure test and visual (VT-2) examination."

Evaluation: The Code requires the performance of a system hydrostatic or pneumatic (in lieu of hydrostatic for air filled systems) test once per interval in accordance with the requirements of IWA-5000 for Class 1, 2, and 3 pressure-retaining systems. In lieu of the Code-required hydrostatic/pneumatic testing requirements, the licensee has requested authorization to use Code Case N-534, *Alternative Requirements for Pneumatic Pressure Testing*. Code Case N-534 states that

"...an alternative to the hydrostatic test pressure requirements of IWA-5211, IWA-5212 and IWC-5000 or IWD-5000, the test pressure for a pneumatic test in accordance with IWA-5211(e) [IWA-5211(c) in the 1993 Addenda] shall be normal operating pressure."

The system hydrostatic/pneumatic test, as stipulated in Section XI, is not a test of the structural integrity of the system but rather an enhanced leakage test.¹ Hydrostatic/pneumatic pressure testing per IWA-5211(e) only subjects the piping components to a small increase in pressure over the design pressure; therefore, piping dead weight, thermal expansion, and seismic loads present far greater challenges to the structural integrity of a system. In addition, the industry experience indicates that leaks are not being discovered as a result of test

1. S. H. Bush and R. R. Maccary, *Development of In-Service Inspection Safety Philosophy for U.S.A. Nuclear Power Plants*, ASME, 1971. Consequently, the Section XI hydrostatic/pneumatic pressure test is primarily regarded as a means to enhance leak detection during the examination of components under pressure, rather than as a method to determine the structural integrity of the components.

pressures causing a preexisting flaw to propagate through the wall. In most cases leaks are being found when the system is at normal operating pressure.

In addition to the requirements specified in Code Case N-534 the licensee has committed to;

1. Conduct the system pneumatic pressure test at or near the end of the inspection interval or during the same inspection period as previously performed in the First 10-Year Interval.
2. Pressurize the boundaries such that the system test will extend to Class 2 or 3 components for those portions of systems required to operate or support the safety system function, up to and including the first normally-closed valve, including a safety or relief valve, or valve capable of automatic closure when the safety function is required.
3. Perform the VT-2 visual inspection on systems after insulation removal. The systems will be pressurized to the nominal operating pressure for at least 10 minutes. The systems will be maintained at nominal operating pressure during application of the bubble solution and performance of the VT-2 visual examination.
4. The VT-2 visual examination will include components within the boundary identified.

These pneumatic test conditions are essentially identical to the hydrostatic test conditions set forth in Code Case N-498-1 for Class 2 and 3 systems except that the systems will be pressurized with air rather than fluid. Code Case N-498-1, *Alternative Rules for 10-Year System Hydrostatic Testing for Class 1, 2 and 3 Systems*, has been approved for general use in Regulatory Guide 1.147, Revision 12. Therefore, considering the minimal amount of increased assurance provided by the increased pressure associated with a pneumatic test, that the licensee will be performing the pneumatic pressure tests at normal operating pressure (as allowed by Code Case N-498-1 for systems tested hydrostatically), and will be applying a bubble solution over the test boundary, it is concluded that the licensee's proposed alternative provides an acceptable level of quality and safety. Therefore, it is recommended that the use of Code Case N-534 be authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the second interval at Shearon Harris. The use of this Code Case should be authorized for the current interval or until such time as the Code Case is published in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement Code Case N-534, the licensee should follow all conditions specified in the Regulatory Guide, if present.

C. Request for Relief No. 2RG-006, Use of Code Case N-535, *Alternative Requirements for Inservice Inspection Intervals*

Code Requirement: Paragraph IWA-2432 requires that successive inspection intervals be comprised of 10 years following the previous interval except as

modified by Paragraph IWA-2430(d), which allows an interval to be extended or reduced by as much as one year to coincide with an outage, thus changing the length of an interval.

Licensee's Proposed Alternative: In accordance with 10 CFR 50.55a(a)(3), the licensee proposed to use Code Case N-535 as alternative requirements for scheduling the 10-year inspection interval. The licensee stated: "Code Case N-535 is to be applied as an alternative for Interval extensions and modifications."

Licensee's Basis for Proposed Alternative (as stated):

"ASME Section XI allows Interval extensions. Code Case N-535 simply provides additional guidance and clarification for a variety of situations that could arise at an operating plant."

Justification

"The proposed alternative provides an acceptable level of quality and safety since Code Case N-535 simply provides additional guidance in order to clarify situations that are not explicitly described in the ASME Code Section XI."

Evaluation: Inspection Program B of the Code requires inspection intervals of 10 years in length, except as modified by IWA-2430(d), which allows an interval to be extended or reduced by as much as one year to coincide with an outage. The licensee proposes to apply the requirements of Code Case N-535 for the scheduling of intervals and examinations of Code Class 1, 2, and 3 piping and components.

Code Case N-535 consists of four parts which can be summarized as follows:

- a) Each inspection interval may be reduced or extended by one-year. For extended intervals, neither the start or end dates nor the inservice inspection program for the successive interval need be revised. Thus, a successive interval may start prior to the end of the previous interval that was extended.
- b) Examinations performed to satisfy the requirements of the extended interval may be performed in conjunction with examinations performed to satisfy the requirements for the successive interval. However, examinations cannot be credited to both intervals.
- c) Inspection periods may be extended or reduced to coincide with an outage. This adjustment shall not alter the requirements for scheduling inspection intervals.
- d) Examination records must identify which interval the examination was performed in.

Part (a) of Code Case N-535 is the only change from current Section XI philosophy. The one-year extension is independent of the plant operating cycle and two intervals can be open concurrently during that year. Although slightly different from the current Code requirements, implementation of this Code Case does not change the number of examinations, acceptance criteria, or any other Code requirement, with the possible exception of an insignificant change in the distribution of examinations. Therefore, the INEEL staff concludes that Code Case N-535 provides an acceptable level of quality and safety and recommends that the use of Code Case N-535 be authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the second interval at Shearon Harris. The use of this Code Case should be authorized for the current interval or until such time as the Code Case is published in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement Code Case N-535, the licensee should follow all conditions specified in the Regulatory Guide, if present.

D. Request for Relief No. 2RG-007, Use of Code Case N-546, Alternative Requirements for Qualification of VT-2 Examination Personnel

Code Requirement: Section XI, IWA-2300, requires that personnel performing VT-2 and VT-3 visual examinations be qualified in accordance with comparable levels of competency as defined in ANSI N45.2.6. Additionally, the examination personnel shall have natural or corrected near distance acuity, in at least one eye, equivalent to a Snellen fraction of 20/20. For far vision, personnel shall have natural or corrected far distance visual acuity of 20/30 or equivalent.

Licensee's Proposed Alternative: In accordance with 10 CFR 50.55a(a)(3), the licensee proposed to use Code Case N-546 as an alternative to the ASME Section XI qualification requirements for VT-2 visual examiners. The licensee stated: "Code Case N-546 is to be applied as an alternative for qualification of VT-2 personnel."

Licensee's Basis for Proposed Alternative (as stated):

"Code Case N-546 has already been approved by the ASME Section XI Code Committee, thus providing an alternative to the qualification requirements contained in Section XI. In the Code Case, the Committee stated that the following alternative requirements apply:

- (a) At least 40 hours plant walkdown experience, such as that gained by licensed and nonlicensed operators, local leak rate personnel, system engineers, and inspection and nondestructive examination personnel."
- (b) At least 4 hours of training on Section XI requirements and plant specific procedures for VT-2 visual examination.
- (c) Vision test requirements of IWA-2321, 1995 Edition of ASME Section XI.

"Implementation of the alternative qualification requirements provides an organized approach to ensure that VT-2 examinations are performed by personnel with an adequate knowledge base to consistently locate system leakage."

Justification

"The proposed alternative provides an acceptable level of quality and safety since any system or component leakage would still be detected by trained, experienced, and qualified VT-2 personnel.

In the licensee's response to request for additional information, the licensee stated:

- "1) CP&L's Non-Destructive Examination (NDE) program is governed by the CP&L Corporate Nuclear NDE Manual. The Manual addresses the aspects of performance of NDE at HNP, including qualification, certification, training, examination procedures, etc.. Any person performing NDE at HNP must abide by the requirements of the Manual. This includes the requirements for performing VT-2 visual examinations. Plant Program procedures and Engineering Surveillance Test procedures delineate the ASME Section XI pressure test requirements of HNP.
- "2) Records for persons qualified to perform VT-2 visual examinations at HNP are document and maintained in accordance with the CP&L NDE program discussed in answer 1) above.
- "3) Plant Program procedures and Engineering Surveillance Test procedures address the corrective action process for any detected leakage at HNP. In accordance with these procedures, leakage detected during VT-2 examination is reviewed by the ISI pressure test coordinator and approved by the Authorized Nuclear Inservice Inspector."

Per telephone conversation on November 15, 1999, the licensee clarified/confirmed that an independent review and evaluation of detected leakage by persons other than those that performed the VT-2 visual examinations will be performed.

Evaluation: The Code requires that VT-2 visual examination personnel be qualified and certified in accordance with SNT-TC-1A. The Code also requires that the examination personnel be qualified for near and far distance vision acuity. In lieu of the Code requirements, the licensee proposed to implement Code Case N-546 for personnel performing VT-2 visual examinations, this Code Case includes the following requirements:

1. At least 40 hours plant walkdown experience, such as that gained by licensed and nonlicensed operators, local leak rate personnel, system engineers, and inspection and nondestructive examination personnel.
2. At least four hours of training on Section XI requirements and plant specific procedures for VT-2 visual examination.

3. Vision test requirements of IWA-2321, 1995 Edition.

The qualification requirements in Code Case N-546 are not significantly different from those for VT-2 visual examiner certification. Licensed and nonlicensed operators, local leak rate personnel, system engineers, and inspection and nondestructive examination personnel typically have a sound working knowledge of plant components and piping layouts. This knowledge makes them acceptable candidates for performing VT-2 visual examinations.

The NRC staff has determined that in order to find this Code Case acceptable for use, licensees must meet the following conditions:

- 1) Develop procedural guidelines for obtaining consistent, quality VT-2 visual examinations,
- 2) Document and maintain records to verify the qualification of persons selected to perform VT-2 visual examinations, and
- 3) Implement independent review and evaluation of detected leakage by persons other than those that performed the VT-2 visual examinations.

In addition to meeting the requirements contained in Code Case N-546, the licensee has committed to use procedural guidelines for consistent, quality VT-2 visual examinations, verify and maintain records of the qualification of persons selected to perform VT-2 visual examinations, and perform independent reviews and evaluations of leakage by a person(s) other than those that performed the VT-2 visual examination. Based on a review of Code Case N-546 and the additional commitments made by the licensee, the INEEL staff believes that the proposed alternative to the Code requirements will provide an acceptable level of quality and safety. Therefore, it is recommended that the licensee's request to implement Code Case N-546 with the additional commitments be authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the second interval at Shearon Harris. The use of this Code Case should be authorized for the current interval or until such time as the Code Case is published in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement Code Case N-546, the licensee should follow all conditions specified in the Regulatory Guide, if present.

3. CONCLUSION

The INEEL staff evaluated the licensee's submittal and concludes that for Requests for Relief 2RG-004, 2RG-005, 2RG-006 and 2RG-007 the licensee's proposed alternatives, to implement Code Cases N-532, N-534, N-535 and N-546, will provide an acceptable level of quality and safety. Therefore, it is recommended that these proposed alternatives be authorized for the second interval pursuant to 10 CFR 50.55a(a)(3)(i). The use of these Code Case should be authorized for the current interval or until such time as they are published in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement the subject Code Cases, the licensee should follow all conditions specified in the Regulatory Guide, if present.

Mr. James Scarola
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Shearon Harris Nuclear Power Plant
Unit 1

cc:

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