



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

July 21, 2009

Chris L. Burton, Vice President  
Shearon HNP Nuclear Power Plant  
Carolina Power & Light Company  
Post Office Box 165, Mail Zone 1  
New Hill, North Carolina 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 – REQUEST FOR ADDITIONAL INFORMATION REGARDING RELIEF REQUESTS 2R1-018, 2R1-019, 2R1-020, 2R1-021, 2R1-022, 2R2-009, 2R2-010, AND 2R2-011 FOR THE SECOND 10-YEAR INSERVICE INSPECTION PROGRAM (TAC NOS. ME0608, ME0609, ME0610, ME0611, ME0612, ME0613, ME0614, AND ME0615)

Dear Mr. Burton:

By letter dated February 5, 2009, Carolina Power & Light Company (the licensee), now doing business as Progress Energy Carolinas, Inc., submitted Relief Requests 2R1-018, 2R1-019, 2R1-020, 2R1-021, 2R1-022, 2R2-009, 2R2-010, and 2R2-011 for the second 10-year inservice inspection interval at the Shearon Harris Nuclear Power Plant, Unit 1, which was in effect from February 2, 1998, through and including May 1, 2008.

The licensee requests relief in accordance with Title 10 of the *Code of Regulations* Section 50.55a(g)(5)(iii) from applicable requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," related to inspection of welds with limited coverage in ASME Code examination Categories B-F, B-A, B-A, B-D, B-B, C-A, C-B, and C-A.

The U.S. Nuclear Regulatory Commission staff has determined that it needs additional information in order to complete its review. Please respond to the enclosed requests by September 18, 2009, in order to facilitate a timely completion of the staff review. Please contact me at 301-415-3178 if you have any questions on this issue, would like to participate in a conference call, or if you require additional time to submit your responses.

Sincerely,

A handwritten signature in black ink, appearing to read "Marlayna Vaaler".

Marlayna Vaaler, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosure: As stated

cc w/enclosure: Distribution via ListServ

REQUEST FOR ADDITIONAL INFORMATION

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

RELIEF REQUESTS 2R1-018, 2R1-019, 2R1-020, 2R1-021, 2R1-022, 2R2-009, 2R2-010, AND

2R2-011 ON FINAL DOCUMENTATION FOR THE SECOND 10-YEAR INSERVICE

INSPECTION PROGRAM FOR LIMITED COVERAGE OF WELDS IN EXAMINATION

CATEGORIES B-F, B-A, B-A, B-D, B-B, C-A, C-B, AND C-A, RESPECTIVELY

DOCKET NO. 50-400

1.0 BACKGROUND

By letter dated February 5, 2009 (Agencywide Documents Access & Management System Accession No. ML090540055), Carolina Power & Light Company (the licensee), now doing business as Progress Energy Carolinas, Inc., submitted Relief Requests (RRs) 2R1-018, 2R1-019, 2R1-020, 2R1-021, 2R1-022, 2R2-009, 2R2-010, and 2R2-011, for the Shearon Harris Nuclear Power Plant, Unit 1 (HNP). The proposed RRs are for the second 10-year inservice inspection (ISI) interval, in which the licensee adopted the 1989 Edition of the ASME Code, Section XI, No Addenda, as the Code of Record. The second 10-year ISI interval at HNP was in effect from February 2, 1998, through and including May 1, 2008.

The proposed RRs request relief in accordance with Title 10 of the *Code of Regulations* (10 CFR) Section 50.55a(g)(5)(iii) from applicable requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," related to inspection of welds with limited coverage in ASME Code examination Categories B-F, B-A, B-D, B-B, C-A, C-B, and C-A. The ASME Code requires that 100 percent of the examination volumes or surface areas described in ASME Code, Section XI, Tables IWB-2500 and IWC-2500, be inspected during each interval. The licensee stated that 100 percent of the ASME Code-required volumes or surface areas are impractical to obtain at HNP.

10 CFR 50.55a(g)(5)(iii) states that when licensees determine that conformance with ASME Code requirements is impractical at their facility, they shall submit information to support this determination. The U.S. Nuclear Regulatory Commission (NRC) will evaluate such requests based on impracticality, and may impose alternatives, giving due consideration to public safety and the burden imposed on the licensee.

Pacific Northwest National Laboratory and the NRC have reviewed the information submitted by the licensee, and based on this review determined the following information is required to complete the evaluation.

Enclosure

## 2.0 REQUEST FOR ADDITIONAL INFORMATION

### 1. General – Information Required on All Requests for Relief

In all cases, the licensee has provided only general information regarding the impracticality of obtaining ASME Code-required volumetric or surface examinations, as applicable. Statements such as “physical obstructions and geometric surface conditions,” “design configurations,” or “inner diameter counterbore and root configuration,” are inadequate to explain the bases for not obtaining the ASME Code-required examination volumes. No sketches with dimensional information showing the causes of limited accessibility have been included.

Please submit detailed and specific information to support the bases for limited examination in all requests for relief in order to demonstrate impracticality. Specifically:

- a) Include descriptions (written and/or sketches, as necessary) of the interferences present for applied nondestructive examination (NDE) techniques.
- b) As applicable, describe NDE equipment (ultrasonic scanning apparatus), details of the listed obstructions (size, shape, proximity to the weld, etc.) to demonstrate accessibility limitations, and discuss whether alternative methods or advanced technologies could be employed to maximize ASME Code coverage.
- c) Fully clarify the wave modality and insonification angles used for all ultrasonic examinations.
- d) Provide cross-sectional coverage plots to describe the ASME Code volumes examined.
- e) If not included, state whether any indications were discovered as a result of these examinations, and how these indications have been dispositioned.

### 2. Request for Relief 2R2-010, ASME Code, Section XI, Examination Category C-B, Item C2.21, Nozzle-to-Shell Weld

The licensee has requested relief from the requirement to examine 100 percent of the ASME Code-required inspection volume for two Boron Injection Tank nozzle-to-vessel welds: II-BIT-01NTHW-03 and II-BIT-01NTHW-04.

- a) Please state whether the inspection techniques used to examine these welds included refracted longitudinal waves.
- b) Please state the material used (austenitic or ferritic steel) and the wall thickness for each of these components.

3. Request for Relief 2R1-018, ASME Code, Section XI, Examination Category B-F, Item B5.130, NPS 4 or Larger Dissimilar Metal Butt Welds

- a) The licensee has requested relief from the requirement to examine 100 percent of the ASME Code-required inspection volume for the following dissimilar metal welds on the primary coolant system:

RVNOZCI-N-05SE	Inlet Nozzle DM weld at 95 degrees
RVNOZBI-N-03SE	Inlet Nozzle DM weld at 215 degrees
RVNOZAI-N-01SE	Inlet Nozzle DM weld at 335 degrees

It is unclear from the licensee's submittal why inlet nozzle welds RVNOZCI-N-05SE and RVNOZBI-N-03SE were not included in the previous 10-year ISI request for relief. Please submit information explaining why these welds were not included previously.

- b) Please provide more detailed information on the ultrasonic testing (UT) inspections performed (i.e., probe type, incident angle, geometrical interference, scanned coverage, etc).
- c) Please explain how the "Combined UT [Ultrasonic] Coverage Total Percentage" in Sections 6.1, 6.2, and 6.3 of 2R1-018 is obtained.
- d) Please provide information regarding when the ultrasonic testing inspection for each weld was performed (e.g., what ASME Code criteria were required - Appendix VIII or Section V)?
- e) Please provide more detailed information on the eddy current inspection methods performed, the inner diameter surface conditions of the affected welds, and an assessment of the ability to perform the eddy current testing exam effectively on these types of surface conditions.

4. Request for Relief 2R1-022, ASME Code, Section XI, Examination Category B-B, Item B2.40, Pressure Retaining Welds in Vessels Other than Reactor Vessels

The licensee has requested relief from the requirement to examine 100 percent of the ASME Code-required inspection volume for steam generator tubesheet-to-head weld II-SG-001SGA-TSTHW-06-1.

HNP is a 3-loop pressurized water reactor plant; there are three steam generators, each containing a tubesheet-to-head weld. The ASME Code states that "the examination may be limited to one vessel among the group of vessels performing similar functions."

Please clarify whether all three steam generator tubesheet-to-head welds were examined. Because the licensee was unable to meet the ASME Code-required inspection volume on tubesheet-to-head weld II-SG-001SGA-TSTHW-06-1, if the other tubesheet-to-head welds were examined, please describe whether the same coverage area limitations apply to these similar welds on the remaining two steam generators.

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*/RA/*

Marlayna Vaaler, Project Manager  
Plant Licensing Branch II-2  
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