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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE FIRST TEN-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

1.0 INTRODUCTION

Technical Specification 4.0.5 for the Shearon Harris Nuclear Power Plant, Unit 1, states that the surveillance requirements for Inservice Inspection and Testing of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Class 1, 2 and 3 components shall be applicable as follows: Inservice Inspection of ASME Code Class 1, 2 and 3 components shall be performed in accordance with Section XI of the ASME 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(g)(6)(i).

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 preservice 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 systems pressure tests conducted during the first ten-year interval shall 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) on the date twelve months prior to the date of issuance of the operating license, subject to the limitations and modifications listed therein. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein.

Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for its facility, information shall be submitted to the Commission in support of that determination and a request made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and may impose alternative requirements as it determines are authorized by law and will not endanger life or property or the common defense and security, and are otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

On January 28, 1988, Carolina Power & Light Company (the licensee) submitted the First Ten-Year Interval Inservice Inspection (ISI) Program Plan for the Shearon Harris Nuclear Power Plant, Unit 1, to meet the requirements of the 1983 Edition, Summer 1983 Addenda, Section XI, of the ASME Boiler and Pressure Vessel Code, except that the extent of examination of Class 2 piping welds was determined by the 1974 Edition, Summer 1975 Addenda. The staff, with technical assistance from its Contractor, Idaho National Engineering Laboratory (INEL), has evaluated the First Ten-Year Interval Inservice Inspection Program Plan, additional information related to the plan, and the requests for relief from certain ASME Code requirements determined to be impractical to perform at Shearon Harris, Unit 1, during the first inspection interval.

2.0 EVALUATION

The ISI Program Plan has been evaluated for (a) application of the correct Section XI Code edition and addenda, (b) compliance with examination and test requirements of Section XI, (c) acceptability of the examination sample, (d) compliance with commitments made by the licensee prior to plant operation, (e) correctness of the application of system or component examination exclusion criteria, and (f) adequacy of information in support of requests for relief from impractical Section XI Code requirements. The staff has determined that the licensee's ISI Program Plan reflects compliance with the requirements listed above. The information provided by the licensee in support of requests for relief from impractical requirements has been evaluated and the bases for granting relief from those requirements are documented in the attached INEL Technical Evaluation Report (TER). Table 1 of this safety evaluation provides the NRC staff's summary of reliefs requested and results of the staff's review. We concur with the findings and recommendations contained in the TER with the exception of pressurizer welds II-PZR-01CSW-03 and II-PZR-01LSW-06 listed in Relief Request No. R1-004. These welds are not scheduled to be examined during this inspection interval and, therefore, should not be a part of the examination program. This is reflected in the staff's safety evaluation by omission of these welds from Table 1.

3.0 CONCLUSION

Pursuant to 10 CFR 50.55a(g)(6)(i), the staff has evaluated the licensee's supporting information and determined that the Section XI Code requirements cited by the licensee are impractical to perform at Shearon Harris, Unit 1. Imposition of the requirements could result in the redesign, replacement, or addition of a significant number of components and systems at the facility. The staff has granted relief from those requirements that are impractical to perform and has imposed alternative requirements for Relief Request RI-005(A) and RI-005(B). The granting of the reliefs and imposition of the alternative requirements are authorized by law and will not endanger life or property or the common defense and security and is in the public interest giving due consideration to the burden on the licensee that could result if the requirements were imposed at Shearon

Harris, Unit 1. The staff, therefore, concludes that the Shearon Harris, Unit 1 First Ten-Year ISI Program Plan with the additional information provided and the specific written reliefs granted constitutes an acceptable basis for compliance with 10 CFR 50.55a(g) and Technical Specification 4.0.5.

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Dated: September 30, 1988

TABLE 1

SUMMARY OF RELIEF REQUESTS

Item No.	Exam. Category	System or Component	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
B1.11	B-A	Reactor Pressure Vessel	Circumferential Shell Weld II-RV-001CWS-RV-02	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted
B1.12	B-A	Reactor Pressure Vessel	Longitudinal Shell Welds: II-RV-001LSW-RV-05 II-RV-001LSW-RV-06	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted
B1.21	B-A	Reactor Pressure Vessel	Circumferential Head Welds: II-RV-001CHW-RV-17 II-RV-00STHW-RV-04	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted
B1.22	B-A	Reactor Pressure Vessel	Meridional Head Welds: II-RV-001MHW-RV-11 II-RV-001MHW-RV-12 II-RV-001MHW-RV-13 II-RV-001MHW-RV-14 II-RV-001MHW-RV-15 II-RV-001MHW-RV-16	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted
B1.40	B-A	Reactor Pressure Vessel	Head-To-Flange Weld	Volumetric and Surface	Surface and Volumetric (UT) Examination to Extent Practical	Granted
B3.90	B-D	Reactor Pressure Vessel	Nozzle-To-Vessel Welds: II-RV-001RVNOZAI-N-01 II-RV-001RVNOZAO-N-06 II-RV-001RVNOZBO-N-02 II-RV-001RVNOZCO-N-04	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted
B2.11	B-B	Pressurizer	Shell-TO-Head Welds: II-PZR-01STHW-01 II-PZR-01STHW-04	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted

TABLE 1 (cont'd)

SUMMARY OF RELIEF REQUESTS

Item No.	Exam. Category	System or Component	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
B3.110	B-D	Pressurizer	Nozzle-To-Vessel Welds: II-PZR-01NTHW-08 II-PZR-01NTHW-09 II-PZR-01NTHW-10 II-PZR-01NTHW-11 II-PZR-01NTHW-12 II-PZR-01NTHW-13	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted
B5.40	B-F	Pressurizer	Nozzle-to Safe End Welds: II-PZR-01NSEW-15 II-PZR-01NSEW-16 II-PZR-01NSEW-17 II-PZR-01NSEW-18 II-PZR-01NSEW-19 II-PZR-01NSWE-20	Volumetric and Surface	100% Surface Examination and Volumetric (UT) to Extent Practical	Granted
B8.20	B-H	Pressurizer	Integrally Welded Attachments: II-PZR-01SBW-A1A II-PZR-01SBW-A1B II-PZR-01SBW-A2A II-PZR-01SBW-A2B II-PZR-01SBW-A3A II-PZR-01SBW-A3B II-PZR-01SBW-A4A II-PZR-01SBW-A4B	Surface or Volumetric	Surface to extent Practical and Visual of ½" Base Metal	Granted
B2.40	B-B	Steam Generator	Tubesheet-To-Head Welds: II-SG-001SGA-TSTHW-06 II-SG-001SGB-TSTHW-06 II-SG-001SGC-TSTHW-06	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted

TABLE 1 (cont'd)

SUMMARY OF RELIEF REQUESTS

Item No.	Exam. Category	System or Component	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
B3.130	B-D	Steam Generator	Nozzle-To-Vessel Welds: II-SG-001SGA-CLNTVW-12 II-SG-001SGA-HLNTVW-07 II-SG-001SGB-CLNTVW-12 II-SG-001SGB-CLNTVW-07 II-SG-001SGC-CLNTVW-12 II-SG-001SGC-CLNTVW-07	Volumetric	Volumetric (UT) to Extent Practical	Granted
B9.31	B-J	Piping	Welds: II-FMR-01RC-10-17-SW-L2 II-FMR-02RC-10-18-SW-K8 II-FMR-03RC-10-19-SW-N2 II-FMR-03RC-10-19-SW-N3	Surface and Volumetric	100% Surface Examination and Volumetric to Extent Practical	Granted
B9.11	B-J	Piping	Welds: II-FMR-01RC-10-17-FW-2 II-FMR-02RC-10-18-FW-3 II-FMR-02RC-10-18-FW-8 II-FMR-03RC-10-19-FW-2 II-RC-009RC-FW-1 II-RC-023RC-FW-327 II-RC-023RC-SW-B4 II-RC-023RC-SW-B5 II-RC-023RC-SW-C13 II-RC-023RC-SW-C9 II-RC-024RC-FW-318 II-RC-025RC-FW-331 II-RC-025RC-SW-A3 II-RC-027RC-SW-A11 II-RH-009RC-FW-292 II-RH-009RC-SW-A4 II-RH-009RC-SW-A5 II-RH-009RC-SW-A6	Surface and Volumetric	100% Surface and Volumetric (UT) to Extent Practical	Granted

TABLE 1 (cont'd)

SUMMARY OF RELIEF REQUESTS

Item No.	Exam. Category	System or Component	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
B9.11	B-J	Piping	Welds: II-SI-017RC-FW-297 II-SI-021RC-FW-300 II-SI-022RC-FW-301 II-SI-023RC-FW-299 II-SI-024RC-FW-293 II-SI-024SI-FW-588 II-SI-025SI-FW-536 II-SI-027RC-FW-298 II-SI-027SI-FW-542 II-SI-028RC-FW-296	Surface and Volumetric	100% Surface and Volumetric (UT) to Extent Practical	Granted
B12.10	B-L-1	Reactor Coolant Pumps	Casing Welds	Volumetric	None	Granted Provided Examination is Performed if Pump is Disassembled or Surface Examination Performed on Casing Weld
B12.20	B-L-2	Reactor Coolant Pumps	Internal Surfaces	Visual (VT-3)	None	Granted Provided Examination is Performed if Pump is Disassembled
B12.50	B-M-2	Valve Body	Internal Surface	Visual (VT-3)	None	Granted Provided Examination is Performed if Valve is Disassembled
C1.20	C-A	Boron Injection Tank	Circumferential Head Welds: II-BIT-01STHW-01 II-BIT-01STHW-02	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted

TABLE 1 (cont'd)

SUMMARY OF RELIEF REQUESTS

Item No.	Exam. Category	System or Component	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
C1.20	C-A	Excess Letdown Heat Exchanger	Circumferential Head Weld: II-EL-001STHW-02	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted
C1.20	C-A	Steam Generator	Circumferential Head Weld: II-SG-001SGB-STHW-02	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted
C1.20	C-A	Regenerative Heat Exchanger	Circumferential Head Welds: II-RHX-01CHTSW-01 II-RHX-01CHTSW-02 II-RHX-01CHTSW-03 II-RHX-01CHTSW-04 II-RHX-01CHTSW-05 II-RHX-01CHTSW-06	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted
C1.10	C-A	Residual Heat Removal Heat Exchanger	Circumferential Head Weld: II-RHR-01RHRA-STHW-01	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted
C1.10	C-A	Steam Generators	Circumferential Head Welds: II-SG-001SGA-CSW-03 II-SG-001SGC-CSW-10	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted
C1.10	C-A	Residual Heat Removal Heat Exchanger	Circumferential Shell Weld: II-RHR-01RHRA-CSW-02	Volumetric	Volumetric (UT) Examination to Extent Practical	Granted

TABLE 1 (cont'd)

SUMMARY OF RELIEF REQUESTS

Item No.	Exam. Category	System or Component	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
C2.21	C-B	Boron Injection Tank	Nozzle-To-Shell Welds: II-B17-01NTHW-03 II-B17-01NTHW-04	Surface and Volumetric	Volumetric and Surface to Extent Practical	Granted
C2.21	C-B	Steam Generators	Nozzle-To-Shell-Welds: II-SG-001SGA-AFWNTSW-11 II-SG-001SGB-FWNTSW-05 II-SG-001SGC-MSNTHW-01	Surface and Volumetric	Volumetric and Surface to Extent Practical	Granted
C1.30	C-A	Steam Generator	Tubesheet-To-Shell Weld: II-SG-001SGC-TSTSW-09	Volumetric	Volumetric to Extent Practical	Granted
C1.30	C-A	Regenerative Heat Exchangers	Tubesheet-To-Shell Welds: II-RHX-01TSTSW-07 II-RHX-01TSTSW-08 II-RHX-01TSTSW-09 II-RHX-01TSTSW-10 II-RHX-01TSTSW-11 II-RHX-01TSTSW-12	Volumetric	Volumetric to Extent Practical	Granted
C2.22	C-B	Steam Generators	Nozzle Inside Volumetric Radiused Sections: II-SG-001-SGA-MSNIR-15 II-SG-001-SGB-MSNIR-15 II-SG-001-SGC-MSNIR-05 II-SG-001-SGC-MSNIR-15	Volumetric	Volumetric to Extent Practical	Granted
C3.10	C-C	Regenerative Heat Exchanger	Integrally Welded Attachment: II-RHX-01HSTSW-A1	Surface	Surface Examination to Extent Practical	Granted
C5.21	C-F	Piping	Circumferential Welds: II-AF-005AF-FW-249 II-AF-005AF-FW-251	Surface and Volumetric	Surface and Volumetric to Extent Practical	Granted

TABLE 1 (cont'd)

SUMMARY OF RELIEF REQUESTS

Item No.	Exam. Category	System or Component	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
C5.21	C-F	Piping	Circumferential Welds: I-AF-006AF-FW-246 II-AF-007AF-FW-239 II-AF-007AF-FW-241 II-CS-007SI-FW-25 II-CS-022CS-FW-561 II-CS-022CS-FW-562 II-CS-092CS-FW-3029 II-CT-001CT-FW-8 II-CT-001CT-FW-9 II-CT-002CT-FW-19 II-CT-002CT-FW-20 II-CT-014CT-FW-175 II-CT-016CT-FW-145 II-FW-001FW-SW-D4 II-FW-001FW-32-4-SW-1 II-FW-001FW-32-5-SW-5 II-FW-002AF-FW-259 II-FW-003AF-FW-266 II-FW-004AF-FW-273 II-FW-004AF-FW-276 II-MS-001MS-SW-A11 II-MS-001MS-SW-B11 II-MS-001MS-SW-C11 II-MS-002MS-FW-566 II-MS-002MS-FW-567 II-MS-002MS-FW-568	Surface and Volumetric	Surface and Volumetric to Extent Practical	Granted
C5.21	C-F	Piping	Circumferential Welds: II-MS-002MS-FW-690 II-MS-002MS-FW-691 II-MS-002MS-FW-692 II-MS-007MS-FW-678 II-RH-001RH-FW-8 II-RH-002RH-FW-21 II-RH-002SI-FW-21	Surface and Volumetric	Surface and Volumetric to Extent Practical	Granted

TABLE 1 (cont'd)

SUMMARY OF RELIEF REQUESTS

Item No.	Exam. Category	System or Component	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
C5.21	C-F	Piping	Circumferential Welds: II-RH-009RH-FW-14 II-RH-009RH-FW-15 II-RH-010RH-FW-193 II-RH-010RH-FW-2 II-SI-008SI-FW-450 II-SI-016SI-FW-36 II-SI-019SI-FW-277 II-SI-021SI-FW-557 II-SI-024SI-213-FW-573 II-SI-025SI-FW-578 II-SI-025SI-FW-580 II-SI-025SI-FW-583 II-SI-026SI-FW-582 II-SI-026SI-FW-592 II-SI-028SI-FW-610 II-SI-029SI-SW-C14	Surface and Volumetric	Surface and Volumetric to Extent Practical	Granted
C3.20	C-C	Piping	Integrally Welded Attachments: II-CS-021CS-H-0011I(4) II-FMR-01FW-H-0212I(8)	Surface	Surface Examination to Extent Practical	Granted
C3-30	C-C	Pumps	Integrally Welded Attachments: II-CSIP-ICSIP-A-WA1 II-CSIP-ICSIP-A-WA2 II-CSIP-ICSIP-A-WA3 II-CSIP-ICSIP-A-WA4	Surface	Surface and Volumetric to Extent Practical	Granted
C5.21	C-F	Piping	Circumferential Welds: II-FW-002AF-FW-257 II-FW-002AF-FW-258 II-FW-003AF-FW-269 II-FW-004AF-FW-277 II-AF-006AF-FW-245	Surface and Volumetric	Surface and Volumetric Examination to Extent Practical	Granted