March 9, 2001

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

SUBJECT: H. B. ROBINSON ELECTRIC PLANT, UNIT NO. 2 RE: REQUEST FOR RELIEF (RELIEF REQUEST NO. 31) FROM ASME CODE, SECTION XI, APPENDIX VIII, SUPPLEMENTS 4 AND 6, REGARDING EXAMINATION OF REACTOR PRESSURE VESSEL HEAD MERIDIONAL WELDS (TAC NO. MB1140)

Dear Mr. Moyer:

By letter dated February 7, 2001, Carolina Power & Light Company, the licensee for H. B. Robinson Steam Electric Plant, Unit 2 (HBRSEP2), submitted a request for relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, 1995 Edition, with 1996 Addenda, Section XI, Appendix VIII, Supplements 4 and 6, as applied to Article IWB-2000, Table IWB-2500-1, Examination Category B-A, Item No. B1.22, regarding volumetric examinations of the accessible length of reactor pressure vessel (RPV) head meridional welds.

Based on the information provided in the licensee's request, the staff authorizes relief from the Code requirements as implemented by Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(g)(6)(ii)(C). Instead of satisfying the updated Code requirements, the staff authorizes the licensee to perform the volumetric examination of the accessible RPV head meridional welds using its prior Code requirement, i.e., ASME Code, Section XI, 1986 Edition with no Addenda, Table IWB-2500-1, Examination Category B-A, Item No. B1.22, and in accordance with Regulatory Guide 1.150, Revision 1, "Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice examinations." The staff has concluded that it is impractical pursuant to 10 CFR 50.55a(g)(6)(i), for the licensee to meet the above requirement because there are no qualified procedures available for it to perform the required examination and that the alternative procedure will provide reasonable assurance of structural integrity.

This relief is authorized for the third 10-year inservice inspection interval for HBRSEP2, which began on February 19, 1992. Further details regarding the staff's conclusion are contained in the enclosed Safety Evaluation.

Sincerely,

/RA by R. Hernan Acting for/

Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure: Safety Evaluation

cc w/encl: See next page

This relief is authorized for the third 10-year inservice inspection interval for HBRSEP2, which began on February 19, 1992. Further details regarding the staff's conclusion are contained in the enclosed Safety Evaluation.

Sincerely,

/RA by R. Hernan Acting for/
Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure: Safety Evaluation

cc w/encl: See next page

DISTRIBUTION:

PUBLIC	DNaujock, EMCB, NRR	ESullivan, EMCB, NRR
HBerkow	BBonser, Region II	SRosenberg
RSubbaratnam	RCorreia	EDunnington
PDII Reading	GHill	ACRS OGC

DOCUMENT NAME: C:\MB1140.rlf.wpd

OFFICE	PDIIS2/PM	PDIIS2:LA	NDEM:EMCB:DE	PDIIS2	OGC
NAME	Ram Subbaratnam	EDunnington	BJE for ESullivan	RHernan for RCorreia	SUttal "NLO"
DATE	02/23/01	02/23/01	02/27/01	03/09/01	03/09/01

OFFICIAL RECORD COPY

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM

RELIEF REQUEST No. 31 FOR FROM ASME CODE, SECTION XI REQUIREMENTS

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NUMBER 50-261

1.0 INTRODUCTION

The inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code (Code) Class 1, Class 2, and Class 3 components is to be performed in accordance with Section XI of the ASME Code and applicable edition and addenda as required by Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(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 the licensee demonstrates that: (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection (ISI) of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The Code of record for the third 10-year ISI interval at H. B. Robinson Steam Electric Plant, Unit 2 (HBRSEP2) is the 1986 Edition of Section XI of the ASME Code.

The Materials and Chemical Engineering Branch has reviewed the information submitted by Carolina Power & Light Company, the licensee, in a letter dated February 7, 2001, requesting relief from an ASME Code requirement regarding volumetric examination of the accessible length of reactor pressure vessel (RPV) head meridional welds during the third 10-year ISI interval for HBRSEP2. The licensee has stated that it is impractical for it to satisfy updated Code requirements that have been recently implemented by 10 CFR 50.55a(g)(6)(ii)(C). Instead of satisfying the updated Code requirements, the licensee has proposed to perform the volumetric examination of the accessible RPV head meridional welds using its prior Code requirement.

2.0 DISCUSSION

The system/component for which relief is requested is from the requirements of the ASME BP&V Code, 1995 Edition, 1996 Addenda, Section XI, Appendix VIII, Supplements 4 and 6, as applied to Article IWB-2000, Table IWB-2500-1, Examination Category B-A, Item No. B1.22, regarding volumetric examinations of the accessible length of RPV head meridional welds. The unique identification number associated with this RPV head meridional weld is CPL 101/08. The relief is for the third 10-year ISI interval through November 22, 2002.

2.1 Code Requirement for which Relief is Requested

The ASME B&PV Code, Section XI, Article IWB-2000, Table IWB-2500-1, Examination Category B-A, "Pressure Retaining Welds in Reactor Vessel," Item No. B1.22, "Meridional," requires a volumetric examination of the accessible length of RPV head meridional welds. 10 CFR 50.55a, as amended on September 22, 1999, requires implementation of the ASME Code, 1995 Edition, 1996 Addenda, Section XI, Appendix VIII, "Performance Demonstration for Ultrasonic Examination Systems." Specifically, 10 CFR 50.55a(g)(6)(ii)(C) required implementation of Section XI, Appendix VIII, Supplements 4 and 6, on November 22, 2000. These supplements prescribe qualification requirements for procedures, personnel, and equipment used to detect and size flaws during RPV examinations.

At present, generically approved examination methods for satisfying the requirements concerning manual examinations of RPV head welds are provided in Supplements 4 and 6 for thicknesses up to 7.64 inches. The thickness of the HBRSEP2 RPV head, however, is 7.75 inches, which is beyond the scope of the currently approved procedure, and there is no other practical procedure that they can use for the upcoming refueling outage in April 2001.

2.2 Licensee's Proposed Alternative to Code

The licensee has proposed to perform volumetric examinations of the accessible length of RPV head meridional welds using the prescriptions the 1986 Edition of the ASME B&PV Code, Section XI, Table IWB-2500-1, Examination Category B-A, Item No. B1.22. These weld examinations would also be performed in accordance with Regulatory Guide 1.150, Revision 1, "Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examinations."

The 1986 Edition of Section XI of the ASME Code is the Code of record for the third 10-year ISI interval at HBRSEP2.

3.0 EVALUATION

The U.S. nuclear utilities created the Performance Demonstration Initiative (PDI) to implement performance demonstration requirements contained in Appendix VIII of Section XI of the Code. To this end, PDI has developed a performance demonstration program for qualifying ultrasonic testing (UT) equipment, procedures, and personnel.

The PDI was formed by U.S. nuclear utilities in 1991 to address the requirements of Appendix VIII in "an efficient, cost-effective, and technically sound manner." Technical and programmatic leadership for this initiative is being provided by the Electric Power Research Institute (EPRI) Non-destructivie Examination (NDE) Center. Qualification demonstrations for the PDI were

initiated in 1994. The approved, generic PDI procedure developed by EPRI for meeting the requirements of Appendlix VIII, Supplements 4 and 6, is currently qualified to a thickness through 7.64 inches when performing manual examinations of RPV head welds. The HBRSEP2 RPV head thickness is 7.75 inches, which exceeds the scope of the currently approved procedure.

During the summer of 2000, HBRSEP2 had discussions with EPRI concerning generic PDI procedure limitations on the maximum thickness for manual examination of RPV head welds. During the summer and fall of 2000, EPRI attempted to qualify the generic PDI procedure to a thickness greater than 7.64 inches, but was unsuccessful. In early January 2001, HBRSEP2 was informed by EPRI that another attempt would be made to qualify the generic PDI procedure to a thickness beyond 7.64 inches. Information received from EPRI during the week ending February 2, 2001, indicates that the generic PDI procedure cannot be qualified to encompass the thickness of the HBRSEP2 RPV head welds for RO-20, which is scheduled to begin in April 2001. HBRSEP2 was depending upon PDI to extend the qualification of the generic procedure for mechanical examination to include wall thickness of 7.64 inches. The time remaining before the scheduled outage is insufficient for PDI to evaluate other transducer, test specimen, or procedure change or for the licensee to develop a site-specific procedure and qualify the procedure and personnel to Appendix VIII, Supplements 4 and 6. Based on the above finding pursuant to 50.55a(g)(5)(iii), the licensee stated that qualified Appendix VIII procedures and personnel are not available for the RPV head weld examination that is required to be performed during RFO-20.

Pursuant to 10 CFR 50.55a(g)(6)(ii)(C), The staff has determined that it is impractical for the licensee to meet the requirements of the ASME B&PV Code, 1995 Edition, with 1996 Addenda, Section XI, Appendix VIII, Supplements 4 and 6, as applied to Article IWB-2000, Table IWB-2500-1, Examination Category B-A, Item No. B1.22, regarding volumetric examinations of the accessible length of RPV head meridional welds. In lieu of this requirement, the licensee proposed to perform these RPV head weld examinations using prior Code requirements according to the ASME B&PV Code, Section XI, 1986 Edition (with no Addenda), Table IWB-2500-1, Examination Category B-A, Item No. B1.22, using qualified procedures and personnel until November 22, 2002. This proposal will provide reasonable assurance of structural integrity. The staff concludes that the grant of relief until November 22, 2002, will not endanger life or property or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. The additional time provided by this relief will allow PDI to develop a program to qualify the generic PDI procedure to a thickness beyond 7.64 inches, which HBRSEP2 can use for future examinations.

4.0 CONCLUSION

Based on the above discussion, the staff has concluded that granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. Therefore, the staff grants relief for the subject welds from Code requirements as implemented by 10 CFR 50.55a(g)(6)(ii)(C). Instead of satisfying the updated Code requirements, the staff authorizes the licensee to perform the volumetric examination of the accessible RPV head meridional welds using its prior Code requirement. The staff authorizes the proposed relief for the third 10-year inservice inspection interval for HBRSEP2, which began on February 19, 1992.

Principal Contributors: Ram Subbaratnam and D. Naujock
Date: March 9, 2001

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

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

cc:

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

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

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

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

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

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

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

Mr. Mel Fry, Director
N.C. Department of Environment
and Natural Resources
Division of Radiation Protection
3825 Barrett Dr.
Raleigh, North Carolina 27609-7721

Mr. Robert P. Gruber
Executive Director
Public Staff - NCUC
Post Office Box 29520
Raleigh, North Carolina 27626-0520

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

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

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

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