

October 16, 1991

Docket No. 50-324

Mr. Lynn W. Eury
Executive Vice President
Power Supply
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602

Dear Mr. Eury:

SUBJECT: EXEMPTION FROM APPENDIX J TO 10 CFR PART 50 TO ALLOW
REVERSE-DIRECTION LOCAL LEAK RATE TESTING OF TWO CONTAINMENT
ISOLATION VALVES - BRUNSWICK, UNIT 2 (TAC NO. 81183)

The NRC staff has completed its review and evaluation of your letter dated July 29, 1991, requesting a one-time exemption from Appendix J to 10 CFR Part 50 to allow Type C (local leak rate) testing of two containment isolation valves in the reverse-direction.

Based on our evaluation, we are granting the one-time Exemption (Enclosure 1) from the Type C (local leak rate) testing requirements of 10 CFR Part 50, Appendix J, Paragraph III.C.1. Our Safety Evaluation (Enclosure 2) is also enclosed.

A copy of the Exemption is being filed with the Office of the Federal Register for publication.

Sincerely,

/s/
Elinor G. Adensam, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

9111120037 911016
PDR ADDCK 05000324
P PDR

CG01A1

- Enclosures:
1. Exemption
2. Safety Evaluation

cc w/enclosures:
See next page

NRC FILE CENTER COPY

*See Previous Concurrence

OFC	:LA:PD21:DRPE	:PM:PD21:DRPE	:D:PD21:DRPE	:*OGC	:AD/RII
NAME	:PAnderson*	:NLe:sl	:EAdensam	:BMB	:GLainas
DATE	: / /91	:10/11/91	:10/11/91	:9-26-91	:10/12/91

OFC	:D:DRPI-I/II	:	:	:	:
NAME	:SVarga	:	:	:	:
DATE	:10/10/91	:	:	:	:

OFFICIAL RECORD COPY
Document Name: BRUNSWICK TAC 81183

DFO 1/1

Mr. L. W. Eury
Carolina Power & Light Company

Brunswick Steam Electric Plant
Units 1 and 2

cc:

Mr. Russell B. Starkey, Jr.
Vice President
Brunswick Nuclear Project
P. O. Box 10429
Southport, North Carolina 28461

Mr. H. A. Cole
Special Deputy Attorney General
State of North Carolina
P. O. Box 629
Raleigh, North Carolina 27602

Mr. H. Ray Starling
Manager - Legal Department
Carolina Power & Light Company
P. O. Box 1551
Raleigh, North Carolina 27602

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

Mr. Kelly Holden, Chairman
Board of Commissioners
P. O. Box 249
Bolivia, North Carolina 28422

Resident Inspector
U. S. Nuclear Regulatory Commission
Star Route 1
P. O. Box 208
Southport, North Carolina 28461

Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
101 Marietta Street, Suite 2900
Atlanta, Georgia 30323

Mr. Dayne H. Brown, Director
Division of Radiation Protection
N. C. Department of Environmental,
Commerce and Natural Resources
P. O. Box 27687
Raleigh, North Carolina 27611-7687

Mr. J. W. Spencer
Plant General Manager
Brunswick Steam Electric Plant
P. O. Box 10429
Southport, North Carolina 28461

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of
CAROLINA POWER & LIGHT COMPANY
(Brunswick Steam Electric Plant
Unit 2)

)
)
)
)

Docket No. 50-324

EXEMPTION

I.

Carolina Power & Light Company (CP&L, the licensee) is the holder of Operating License No. DPR-62, which authorizes operation of Brunswick Steam Electric Plant (BSEP), Unit 2. The operating license provides, among other things, that the BSEP, Unit 2 is subject to all rules, regulations, and orders of the Commission now or hereafter in effect.

The facility consists of a pressurized water reactor at the licensee's site in Brunswick County, North Carolina.

II.

One of the conditions of all operating licenses for water-cooled power reactors, as specified in 10 CFR 50.54(o), is that the primary containment shall meet the leakage test requirements set forth in 10 CFR Part 50, Appendix J, Paragraph III.C.1. Type C tests require:

9111120048 911016
PDR ADOCK 05000324
P PDR

Type C tests shall be performed by local pressurization. The pressure shall be applied in the same direction as that when the valve [sic] would be required to perform its safety function....

By letter dated July 29, 1991, the licensee requested a one-time exemption from Appendix J to 10 CFR Part 50 to allow Type C (local leak rate) testing of two containment isolation valves in the reverse-direction for one-time only. As stated above, Paragraph III.C.1 of Appendix J requires that for Type C testing the test pressure must generally be applied to the valve from the same side or applied from the inside-containment side. However, the regulation allows an exception if it can be determined that testing with the pressure applied in the reverse-direction provides equivalent or more conservative results. For BSEP, Unit 2, the NRC staff stated in a Safety Evaluation dated January 28, 1991, that 16 of 51 containment isolation valves reviewed did not satisfy the equivalent-or-more-conservative requirement that allows reverse-direction testing. The licensee is taking steps to enable future Type C tests for 14 of these valves to be conducted by pressurization in the forward-direction as required by Appendix J. The testing of the remaining two valves will also be corrected, but not until after the next required test for the valves. Therefore, the licensee has requested that these two valves be exempted from the forward-testing requirement for their next Type C test (reload 9 outage, September through November 1991). The licensee will test them in the forward-direction for the following Type C test (reload 10 outage, scheduled to begin in March 1993).

III.

The two subject valves are B32-V22, Recirculation Pump A Seal Injection Valve, and B32-V30, Recirculation Pump B Seal Injection Valve. The licensee has initiated modifications to install test connections that will allow forward-direction testing of these valves. However, due to insufficient time available to perform the engineering necessary to complete the installation of these modifications prior to the reload 9 outage (September through November 1991) installation of these test connections will be completed during the reload 10 outage scheduled to begin in March 1993. Since Appendix J requires Type C testing at every refueling outage (although in no case at intervals greater than two years), the requested exemption will allow only one additional reverse-direction test of the valves, during the upcoming reload 9 refueling outage. The NRC staff has performed an evaluation of the exemption request, and has determined that CP&L has provided adequate justification for the requested exemption.

IV.

Pursuant to 10 CFR 50.12(a)(2)(v), the Commission will not consider granting the exemption unless the licensee has made good faith efforts to comply with the regulation. The NRC staff believes that CP&L has taken prudent steps to improve the containment integrity and if it would not have required extending the refueling outage would have complied with Appendix J.

Based on our evaluation, the NRC staff has concluded that CP&L has made a good faith effort to comply with the requirements of Appendix J and that special circumstances as described in 10 CFR 50.12(a)(2)(v) exist.

Therefore, the Commission has determined that the requested one-time exemption from the Appendix J forward-direction testing requirements for valves B32-V22 and B33-V30 should be granted.

V.

Accordingly, the Commission has determined that pursuant to 10 CFR 50.12(a), that (1) this Exemption is authorized by law, will not endanger life or property or the common defense and security, and (2) is otherwise in the public interest. Therefore, the Commission hereby approves the following exemption request.

A one-time exemption is granted from the requirements of Paragraph III.C.1 that requires a local leak rate test for containment isolation valves B32-V22 and B33-V30 be conducted in the forward direction. For good cause shown, this Exemption will allow one additional reverse-direction test for these valves, during the reload 9 refueling outage, scheduled to begin in September 1991.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this Exemption will have no significant impact on the quality of the human environment, (56 FR 54910).

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Steven A. Varga

Steven A. Varga, Director
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this 30th day of October 1991

OFC	:LA:PDZ1A:DRPE	:PM:PD21:DRPE	:D:PD21:DRPE	:OGC	:AD:RII	:D:DRPI-1/II
NAME	:PAnderson	:NLe:sl	:EAdensam	:BMB	:GKainas	:SVarga
DATE	:10/9/91	:10/9/91	:10/11/91	:9/26/91	:10/15/91	:10/16/91



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

Enclosure 2

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO ONE-TIME EXEMPTION FROM APPENDIX J TO ALLOW

REVERSE-DIRECTION LOCAL LEAK RATE TESTING OF

TWO CONTAINMENT ISOLATION VALVES

CAROLINA POWER & LIGHT COMPANY

BRUNSWICK STEAM ELECTRIC PLANT , UNIT 2

DOCKET NO. 50-324

1.0 INTRODUCTION

By letter dated July 29, 1991, the licensee requested a one-time exemption from Appendix J to 10 CFR Part 50 to allow Type C (local leak rate) testing of two containment isolation valves in the reverse-direction for one-time only. Section III.C.1 of Appendix J requires that for Type C testing the test pressure must generally be applied to the valve from the same side or same direction as would exist during an accident; i.e., usually test pressure is applied from the inside-containment side. However, the regulation allows an exception if it can be determined that testing with the pressure applied in the opposite or reverse direction provides equivalent or more conservative results. For Brunswick Steam Electric Plant (BSEP), Unit 2, the staff found in a Safety Evaluation dated January 28, 1991, that 16 of 51 containment isolation valves reviewed did not satisfy the equivalent-or-more-conservative requirement that allows reverse-direction testing. The licensee is taking steps to enable future Type C tests for 14 of these valves to be conducted by pressurization in the forward-direction as required by Appendix J. The testing of the remaining two valves will also be corrected, but not until after the next required test for the valves. Therefore, the licensee has requested that these two valves be exempted from the forward testing requirement for their next Type C test (reload 9 outage, September through November 1991). The licensee will test them in the forward-direction for the following Type C test (reload 10 outage, scheduled to begin March 1993).

2.0 EVALUATION

The two subject valves are B32-V22, Recirculation Pump A Seal Injection Valve, and B32-V30, Recirculation Pump B Seal Injection Valve. The licensee has initiated modifications to install test connections which will allow forward-direction testing of these valves. However, due to insufficient time available to perform the engineering necessary to complete the installation of these modifications prior to the reload 9 outage (September through November 1991), installation of these test connections will be completed during the reload 10

9111120052 911016
PDR ADOCK 05000324
P PDR

outage. Since Appendix J requires Type C testing at every refueling outage (although in no case at intervals greater than two years), the requested exemption will allow only one additional reverse-direction test of these valves, which will be during the upcoming reload 9 refueling outage.

Performing Type C tests in the reverse-direction for valves B32-V22 and B32-V30 provides either equivalent or more conservative results with regard to the seating surfaces. Valve B32-V22 is a gate valve which has a wedge-shaped disk that seats on both seating surfaces simultaneously. The valve actuator exerts a closing thrust of approximately 1246 pounds, which is much greater than the containment test pressure of 49 psig. Due to this, the seating surfaces are not significantly affected by the direction in which the test pressure is applied.

Valve B32-V30 is a globe valve. Testing of this valve in the reverse-direction is more conservative because the test pressure tends to lift the disk from its seat rather than compress it into the seat. Therefore, leakage measured during reverse testing is likely to be of greater magnitude than that which would be measured in the forward-direction.

Performing Type C tests in the reverse-direction for valves B32-V22 and B32-V30 does not test the leak integrity of the packing. As stated above, valves B32-V22 and B32-V30 are recirculation pump seal injection valves. They are located on 3/4-inch lines which connect to the reactor recirculation pump seals and are pressurized in excess of 100 psig when the units are at power. The stems of valves B32-V22 and B32-V30 measure 3/8-inches and 5/8-inches, respectively. Thus, even a severe packing leak would create only a small leakage path. The licensee states that it has been demonstrated that a complete break of a 3/4-inch reactor vessel sampling and instrumentation line with 1/4-inch flow restrictor will not create environmental concerns in excess of other analyzed breaks. A packing leak through the stem area of either valve B32-V22 or valve B32-V30 would result in a leak which is no larger than that resulting from a break in a sampling and instrumentation line. The staff finds that potential packing leaks from these valves would not be likely to add significantly to the consequences of a design-basis loss-of-coolant accident, nor to public risk during the interim until forward-direction testing will begin.

As discussed above (1) performing Type C tests of valves B32-V22 and B32-V30 in the reverse-direction provides either equivalent or more conservative results with regard to the seating surfaces, and (2) although packing integrity is not demonstrated, even a severe packing leak would create only a small leakage path. Therefore, granting the requested one-time exemption from the Appendix J forward-direction testing requirements for valves B32-V22 and B32-V30 is acceptable.

3.0 CONCLUSION

Based on the above evaluation, the staff finds that the BSEP, Unit 2, containment isolation valves B32-V22 and B32-V30 may be exempted from the forward-direction testing requirement of Appendix J for Type C tests and

instead will be reverse-direction tested until the reload 10 refueling outage at which time forward-direction testing will resume. The staff has determined that granting relief, pursuant to 10 CFR 50.55a(a)(3)(i) and 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. In making this determination the staff has considered the alternate testing being implemented, resulting hardships without a compensating increase in safety, or the impracticality of performing the required testing considering the burden if the requirements were imposed.

Principal Contributor: J. Pulsipher

Date:

DISTRIBUTION

Docket File

NRC PDR

Local PDR

T. Murley/F. Miraglia 12-G-18

J. Partlow 12-G-18

C. Rossi 11-E-4

S. Varga 14-E-4

G. Lainas 14-H-3

E. Adensam 14-B-20

P. Anderson 14-B-20

N. Le 14-B-20

D. Verrelli, Region II

J. Pulsipher

OGC 15-B-18

GPA/PA 17-F-2

OC/LFMB AR-2015

E. Jordan MNBB-3302

J. Wechselberger Region II

G. Hill (4) P1-137

ACRS (10) P-315

L. Reyes RII

PD21 Reading File - Brunswick

cc: Plant Service List