

Docket Nos. 50-280
and 50-281

Mr. W. L. Stewart
Senior Vice President - Nuclear
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

Dear Mr. Stewart:

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SUBJECT: SURRY POWER STATION, UNITS 1 AND 2 - RELIEF REQUEST FROM REPAIR OF
THREADED CONNECTIONS (TAC NOS. M82528 AND M82529)

The purpose of this letter is to grant relief from repair requirements for threaded connections in Class 1 and Class 2 piping as specified in your Construction Code.

In a letter dated December 20, 1991, you identified certain threaded connections which did not have a seal weld as required by your Construction Code, and requested relief to defer repairing the seal welds until the scheduled Surry, Units 1 and 2 refueling outages of February 1992 and April 1993, respectively. You have since corrected the identified non-conforming conditions for Surry Unit 1 to meet the requirements of the original Construction Code during the February 1992 outage.

The NRC staff has reviewed your request for relief and determined that in accordance with 10 CFR 50.55a(a)(3)(ii), that full conformance with your Construction Code would result in a hardship or unusual difficulties without a compensating increase in the level of quality and safety.

The staff has concluded that relief from the repair requirements is appropriate, and relief is hereby granted. This completes our efforts on this issue and we are closing out TAC Nos. M82528 and M82529.

Sincerely,

(Original Signed By)

Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

cc: See next page

OFFICE	LA: PDII-2	PM: PDII-2	D: PDII-2	OGC	
NAME	D. Miller	B. Buckley	H. Berkow		
DATE	6/18/92	6/12/92	6/15/92	6/22/92	1/1

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

June 26, 1992

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and 50-281

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Senior Vice President - Nuclear
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

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Sincerely,

A handwritten signature in black ink, appearing to read "Herbert N. Berkow".

Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

cc: See next page

Mr. W. L. Stewart
Virginia Electric and Power Company

Surry Power Station

cc:
Michael W. Maupin, Esq.
Hunton and Williams
Post Office Box 1535
Richmond, Virginia 23212

Attorney General
Supreme Court Building
101 North 8th Street
Richmond, Virginia 23219

Mr. Michael R. Kansler, Manager
Surry Power Station
Post Office Box 315
Surry, Virginia 23883

Mr. E. Wayne Harrell
Vice President - Nuclear Services
Virginia Electric and Power Co.
5000 Dominion Blvd.
Glen Allen, Virginia 23060

Senior Resident Inspector
Surry Power Station
U.S. Nuclear Regulatory Commission
Post Office Box 166, Route 1
Surry, Virginia 23883

Mr. J. P. O'Hanlon
Vice President - Nuclear Operations
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

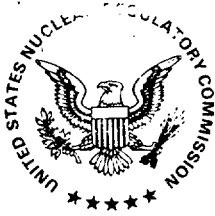
Mr. Sherlock Holmes, Chairman
Board of Supervisors of Surry County
Surry County Courthouse
Surry, Virginia 23683

Mr. Martin Bowling
Manager - Nuclear Licensing
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

Dr. W. T. Lough
Virginia State Corporation Commission
Division of Energy Regulation
Post Office Box 1197
Richmond, Virginia 23209

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

C.M.G. BATTERY, M.D., M.P.H.
State Health Commissioner
Office of the Commissioner
Virginia Department of Health
P.O. Box 2448
Richmond, Virginia 23218



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR RELIEF FROM CONSTRUCTION CODE ASA B31.1,

CODE CASE N-3 REQUIREMENTS FOR THREADED CONNECTIONS

IN NUCLEAR PIPE AT SURRY NUCLEAR POWER PLANT

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NOS. 50-280 & 50-281

1.0 INTRODUCTION

By letter dated December 20, 1991, Virginia Electric and Power Company (the licensee) requested relief from the repair of threaded connections as specified in their Construction Code. The Construction Code, Code ASA B31.1, 1955 Edition, "Code For Pressure Piping," and clarified by Code Case N-3, "Proposed Case on Screwed Connections," does not permit the use of threaded connections in nuclear piping systems where the threads are the only seal. The licensee has identified threaded connections that do not conform to its Construction Code.

The licensee detected the nonconformance when a leak was found in a resistance temperature detector (RTD) bypass line in the reactor coolant system (RCS). The leak occurred at a threaded connection that was not seal welded. This configuration was in nonconformance with the original Construction Code. The licensee performed a walkdown inspection of all accessible portions of safety systems inside containment for Unit 2 and outside containment for Units 1 and 2. As a result of the inspection, the licensee identified additional nonconforming threaded connections in instrument piping lines.

The licensee replaced the leaking threaded connection and another connection in the "C" loop RTD bypass line in Unit 2 with structural welds. The licensee repaired the threaded pipe plugs found in the "B" loop RTD bypass line in Unit 2. These repairs corrected the identified nonconformances in Class 1 piping systems in Unit 2. The licensee determined that repair of other nonconforming threaded connections did not conform with their outage planning.

The licensee proposed to bring the known and suspected nonconforming threaded connections into compliance with the original Construction Code at the next refueling outages, which started February 29, 1992 for Unit 1 and is scheduled for April 1993 for Unit 2.

2.0 DISCUSSION

The known and suspected nonconforming threaded connections were found on Class 1 and Class 2, small diameter (1/2" and 3/4") instrument piping systems. These instrument piping systems were connected to the RCS, chemical and volume control system high head safety injection system, low head safety injection system and outside recirculation spray system. In the event of a postulated failure of a threaded connection, the affected system would have adequate makeup water to provide for the orderly shutdown and cooldown of the reactor.

The original Construction Code with the Code Case N-3 was conservative since it required threaded connections be seal welded to minimize the likelihood of leakage. Paragraph IWB-7313 of Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition, Winter 1980 Addendum (VEPCO's commitment code for inservice inspection) requires that Class 1 threaded connections be seal welded. However, paragraph IWC-7300 references paragraph NC-3671 of Section III for replacing Class 2 piping which allows, within specified limitations, threaded connections to provide the seal. The Class 2 instrument piping, as installed, satisfies the specified limitations. The use of later editions of the Construction Code or Section III, either in its entirety or portions thereof, is authorized by paragraph IWA-4120.

2.1 Unit 1

The licensee was unable to identify the use of threaded connections as seals in Class 1 instrument piping systems because the unit was at power. The licensee committed to and has conducted a complete walkdown inspection during the February 1992 refueling outage. There was reasonable assurance that the structural integrity would be maintained in the RCS until the suspected nonconformance was verified. At worst, the threaded connection would have leaked while maintaining the structural integrity. However, if a break had occurred at a threaded connection in the suspected instrument piping systems, the leakage would have been within the makeup capacity of the unit's RCS. If the connection failed, the temperature and radiation monitors in containment would have detected the failure. The licensee has since corrected the identified nonconforming conditions to meet the requirements of the original Construction Code during the February 1992 scheduled refueling outage.

The less restrictive paragraph NC-3671 of Section III of ASME 1971 and later Editions allow threaded connections in Class 2 piping without seal welds. Paragraph NC-3671 has been endorsed by the NRC in 10 CFR 50.55a.

2.2 Unit 2

Threaded connections in Class 1 piping have been repaired to meet the requirements of the original Construction Code.

Threaded connections in Class 2 piping that are using the threads as seals follow the same discussion presented for Unit 1. To require further inspections and weld repair of Class II piping would have resulted in additional radiation exposure to licensee personnel without a compensatory increase in safety when considering that even if there were only threaded connections they would still comply with paragraph NC-3671 of the ASME and later editions. In Attachment 1 of the December 20, 1991 submittal, the licensee committed to correct the identified nonconforming condition to meet the requirements of the original Construction Code during the next refueling outage scheduled for April 1993 regardless of present day requirements.

3.0 CONCLUSION

The staff has concluded that using threaded connections as installed in Class 1 piping will provide reasonable assurance of structural integrity until the next refueling outage scheduled for Surry Unit 2. In accordance with 10 CFR 50.55a(a)(3)(ii), full conformance with the original requirements would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. Therefore, relief as requested is granted for Surry, Units 1 and 2. The licensee shall correct the nonconforming conditions to comply with the original Construction Code during the next scheduled refueling outage for Unit 2.

Principal Contributor: D. Naujock

Date: June 26, 1992