January 15, 1991

Docket No. 50-336

Mr. Edward J. Mroczka
Senior Vice President
Nuclear Engineering and Operations
Connecticut Yankee Atomic Power Company
Northeast Nuclear Energy Company
P. O. Box 270
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Dear Mr. Mroczka:

SUBJECT: ISSUANCE OF EXEMPTION TO 10 CFR PART 50, APPENDIX J, SECTIONS III.A AND III.C FOR THE MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2 (TAC NO. 75970)

By letter dated June 8, 1990, you requested an exemption from the requirements of Sections III.A and III.C of 10 CFR 50, Appendix J Type C (local leakage rate) testing for 12 valves in the Reactor Building Closed Cooling Water (RBCCW) System of Unit No. 2 of the Millstone Nuclear Power Station. We have reviewed your request and having found the requested exemption acceptable and have granted the enclosed exemption from the requirements of 10 CFR 50, Appendix J Type C testing of the 12 containment isolation valves in the RBCCW System. Our bases for granting this exemption are contained in the enclosed Safety Evaluation.

Sincerely,

/S/

John F. Stolz, Director
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Exemption
2. Safety Evaluation

cc w/enclosures:
See next page

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* O&C Concurrence subject to noted changes discussed with and agreed to by PM

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
NORTHEAST NUCLEAR ENERGY COMPANY, ET AL	)	Docket No. 50-336
	)	
Millstone Nuclear Power Station, Unit No. 2	)	

EXEMPTION

I.

The Northeast Nuclear Energy Company, et. al. (the licensee), is the holder of Facility Operating License No. DPR-65 which authorizes operation of the Millstone Nuclear Power Station, Unit No. 2, at a steady state power level not in excess of 2700 megawatts thermal. The facility is a pressurized water reactor located at the licensee's site in the town of Waterford, Connecticut. The license provides, among other things, that it is subject to all rules, regulations and orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

II.

One of the conditions of all operating licenses for water-cooled power reactors as specified in 10 CFR 50.54(o) is that primary reactor containments shall meet the containment leakage test requirements set forth in 10 CFR 50, Appendix J. Section III of Appendix J contains three subsections, lettered A through C, each of which specifies requirements for a particular aspect of containment leak testing. Sections III.A and III.C are the subjects of this

exemption request. Specifically, Section III.A identifies certain components subject to requirements of Section III.C and Section III.C of Appendix J identifies leakage testing requirements (Type C Tests) for containment isolation valves that can provide a direct connection between the inside and outside atmospheres of the primary reactor containment under normal operating conditions.

III.

By letter dated June 8, 1990, the licensee requested an exemption from the requirements of Section III.A and Section III.C of Appendix J to the extent that it requires Type C (local leak rate) testing of containment isolation valves in the reactor building closed cooling water (RBCCW) system. The acceptability of the exemption request is addressed below. Details are contained in the NRC staff's related Safety Evaluation.

The licensee has provided several reasons to support the contention that the exemption would not present an undue risk to the public health and safety. First, the 12 RBCCW system valves are designed to be open in the event of an accident because the RBCCW system is intended to cool the Containment Air Recirculation (CAR) system. This safety related function requires the circulation of water in the RBCCW system (at a minimum pressure of 60 psig) in the event of an accident and consequently requires the valves to be open. As a result, the valves do not receive a containment isolation signal in the event of an accident--the remote manual actuation switches for some valves are locked in the open position in the control room; other valves will open on a Safety Injection Actuation System signal. Moreover, on a failure of DC power or

instrument air, the valves would fail in the open position. Clearly, if the valves are open as designed during an accident, their leak-tight integrity is irrelevant.

Second, the maximum calculated pressure in the containment in the event of a design bases accident is 54 psig. Because the minimum design pressure in the RBCCW system is 60 psig, the only leakage through the valves would be into the containment from the RBCCW system. It may be that a single active failure (e.g., of a pump), or failure of a component that may not be safety-grade or may only satisfy some but not all of the current staff standards for safety-grade equipment, might result in RBCCW pressure be less than 54 psig, but it is likely that system pressure will be as designed. Also, the valves would be required to close only if an RBCCW system line or CAR system cooler ruptured inside the containment. However, the possibility of a rupture in connection with a design basis accident is small. Specifically, the RBCCW system is a Seismic Category 1 system; it is designated Safety Class 3 inside the containment; and it is protected from missiles projected through failures of components that are not Seismic Category 1 by virtue of its location and configuration. Although current standards for a closed system inside containment call for it to be Safety Class 2, the licensee states that fabrication of the RBCCW system to Safety Class 3 requirements was in accordance with the acceptance criteria for those systems in effect when it was designed; thus, consistent with the licensing basis of the plant, the probability of rupture should be assumed to be extremely small. The staff finds, for this low energy system, the differences in Safety Classes 2 and 3 in terms of fabrication and surveillance requirements is sufficiently small that there is good likelihood that the system will remain intact during an accident.

Third, the licensee states that in the event of an accident with no RBCCW system operational, the surge tank that feeds the RBCCW system and through which it is vented would, as a result of its elevation, maintain a minimum pressure therein of 42 psig. Therefore, the only leakage through the valves into the RBCCW system would be that forced by containment pressure in excess of 42 psig. Although the maximum calculated pressure in the containment in the event of a design basis accident is 54 psig, it is unlikely to remain above 42 psig after the initiation of containment spray. Moreover, even if the containment atmosphere in an accident leaks into the RBCCW system and into its surge tank, that atmosphere would escape only into the enclosure building, where it would be collected and processed by the Enclosure Building Filtration System; a spill from the surge tank would be retained in the enclosure building. Consequently, the impact of valve leakage is reduced.

Based on the above, the staff concluded that the request to exempt the 12 RBCCW system valves from Type C testing to be justified and acceptable.

IV.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, this exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. The Commission has further determined that special circumstances, as set forth in 10 CFR 50.12(a)(ii), are present justifying the exemption, namely that the application of the regulation in the particular circumstances

is not necessary to achieve the underlying purpose of the rule. Accordingly, the Commission hereby grants an exemption as described in Section III above from the requirements of Sections III.A and III.C of Appendix J to 10 CFR Part 50.

Pursuant to 10 CFR 51.32 the Commission has determined that the granting of this Exemption will not result in any significant impact on the environment.

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Dated at Rockville, Maryland
this 15 day of January , 1991.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

EXEMPTION FROM APPENDIX J TYPE C TESTING OF THE REACTOR

BUILDING CLOSED COOLING WATER SYSTEM

NORTHEAST NUCLEAR ENERGY COMPANY

MILLSTONE NUCLEAR POWER STATION, UNIT 2

DOCKET NO. 50-336

1.0 INTRODUCTION

By letter dated June 8, 1990, Northeast Nuclear Energy Company (the licensee) requested an exemption from Appendix J to 10 CFR Part 50 to relieve the containment isolation valves in the reactor building closed cooling water (RBCCW) system from Type C (local leakage rate) testing requirements. This exemption request is the culmination of many rounds of correspondence between the staff and the licensee that began with a letter from the licensee dated July 14, 1987. The correspondence is detailed in the licensee's letter of June 8, 1990; in summary, the basic disagreement was whether or not the 12 containment isolation valves in the RBCCW system were required to be Type C tested by Appendix J. The licensee has now requested an exemption from the requirement to Type C test these valves. The staff's review of the licensee's request is given below.

2.0 EVALUATION

The licensee has provided several reasons to support the contention that the exemption will not present an undue risk to the public health and safety. First, the 12 RBCCW system valves are designed to be open in the event of an accident because the RBCCW system is intended to cool the Containment Air Recirculation (CAR) system (sometimes called fan coolers). This safety-related function requires the circulation of water in the RBCCW system (at a minimum pressure of 60 psig) in the event of an accident and consequently requires the valves to be open. As a result, the valves do not receive a containment isolation signal in the event of an accident--the remote manual actuation switches for some valves are locked in the open position in the control room; other valves will open on a Safety Injection Actuation System signal. Moreover, on a failure of DC power or instrument air, the valves would fail in the open position. Clearly, if the valves are open as designed during an accident, their leak-tight integrity is irrelevant.

Second, the maximum calculated pressure in the containment in the event of a design bases accident is 54 psig. Because the minimum design pressure in the RBCCW system is 60 psig, the only leakage through the valves would be into the containment from the RBCCW system. It may be that a single active failure

(e.g., of a pump), or failure of a component that may not be safety-grade or may only satisfy some but not all of the current staff standards for safety-grade equipment, might result in RBCCW pressure being less than 54 psig, but it is likely that system pressure will be as designed. Also, the valves would be required to close only if an RBCCW system line or CAR system cooler ruptured inside the containment. However, the possibility of a rupture in connection with a design basis accident is small. Specifically, the RBCCW system is a Seismic Category 1 system; it is designated Safety Class 3 inside containment; and it is protected from missiles projected through failures of components that are not Seismic Category 1 by virtue of its location and configuration. Although current standards for a closed system inside containment call for it to be Safety Class 2, the licensee states that fabrication of the RBCCW system to Safety Class 3 requirements was in accordance with the acceptance criteria for those systems in effect when it was designed; thus, consistent with the licensing basis of the plant, the probability of rupture should be assumed to be extremely small. The staff finds that, for this low energy system, the difference in Safety Classes 2 and 3 in terms of fabrication and surveillance requirements is sufficiently small that there is good likelihood that the system will remain intact during an accident.

Third, the licensee states that in the event of an accident with no RBCCW system operation, the surge tank that feeds the RBCCW system and through which it is vented would, as a result of its elevation, maintain a minimum pressure therein of 42 psig. Therefore, the only leakage through the valves into the RBCCW system would be that forced by containment pressure in excess of 42 psig. Although the maximum calculated pressure in the containment in the event of a design basis accident is 54 psig, it is unlikely to remain above 42 psig after the initiation of containment spray. Moreover, even if the containment atmosphere in an accident leaks into the RBCCW system and into its surge tank, that atmosphere would escape only into the enclosure building, where it would be collected and processed by the Enclosure Building Filtration System; a spill from the surge tank would be retained in the enclosure building. Consequently, the impact of valve leakage is reduced.

3.0 CONCLUSION

On the basis of the above considerations, the staff concludes that the request to exempt the 12 RBCCW system valves from Type C testing is justified and acceptable.

Principal Contributor:

J. Pulsipher

Dated: January 15, 1991