

February 11, 1988

Docket No. 50-336

Mr. Edward J. Mrocza
Senior Vice President
Nuclear Engineering and Operations
Northeast Nuclear Energy Company
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Dear Mr. Mrocza:

SUBJECT: CHANGE TO THE TECHNICAL SPECIFICATIONS AND EXEMPTION FROM
THE REQUIREMENTS OF APPENDIX J TO 10 CFR PART 50,
PARAGRAPH III.A.3 (TAC NO. 66864)

The Commission has issued the enclosed Amendment No. 124 to Facility Operating License No. DPR-65 for Millstone Nuclear Power Station, Unit No. 2, in response to your application dated December 28, 1987, as supplemented by your letter dated January 5, 1988.

The amendment provides changes to the Technical Specifications (TS) 4.6.1.2, "Containment Leakage" as follows: (1) the reference to ANSI Standard N45.4-1972 is deleted and (2) the error analysis requirements are modified to allow the use of alternative methods. The above changes to the TS allow for use of ANSI/ANS Standard 56.8-1981 for "mass point" determination of containment leakage rate and for addressing the inherent errors associated with such testing.

A copy of our Safety Evaluation and Notice of Issuance are also enclosed. The enclosed notice of issuance will be published in the Federal Register.

The Commission has also issued an exemption from certain requirements of Appendix J to 10 CFR Part 50 in response to your letter dated December 23, 1987. The exemption pertains to certain requirements of 10 CFR Part 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," for all Type A (Containment Integrated Leakage Rate) tests to be performed in accordance with the provisions of the American National Standard (ANSI) N45.4-1972, "Leakage Rate Testing of Containment Structures for Nuclear Reactors," dated March 16, 1972. This standard requires that containment leakage rate calculations be performed using either the point-to-point method or the total time method.

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P PDR

In your letter dated December 23, 1987, you requested an exemption to allow use of the mass point method (as provided in ANSI/ANS 56.8-1981). The Commission grants the enclosed exemption to use the mass point method for calculating containment leakage, with the explicit condition that such tests be conducted with a minimum test duration of 24 hours. The exemption is granted until Section III.A.3 of Appendix J is modified.

The Exemption is being forwarded to the Office of the Federal Register for publication.

Sincerely,

original signed by

David H. Jaffe, Project Manager
Project Directorate I-4
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 124 to DPR-65
- 2. Safety Evaluation
- 3. Notice of Issuance
- 4. Exemption

cc w/enclosures:
See next page

LA: PDI-4
SNOPPTS
01/22/88

PM: PDI-4
DJaffe.bd
01/22/88

D: PDI-4
JStolz
02/04/88

FSB
JCraig
02/04/88

OGC
SH Lewis
02/09/88

ADR
BBoger
02/11/88

DRP
SVarga
02/11/88

changes made on 2/11/88

Concurrence is subject to the modifications noted in the exemption, the cover letter, amendment & SE

REC for

2/18

Mr. Edward J. Mroccka
Northeast Nuclear Energy Company

Millstone Nuclear Power Station
Unit No. 2

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

NORTHEAST NUCLEAR ENERGY COMPANY
THE CONNECTICUT LIGHT AND POWER COMPANY
THE WESTERN MASSACHUSETTS ELECTRIC COMPANY
DOCKET NO. 50-336
MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 124
License No. DPR-65

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Northeast Nuclear Energy Company, et al. (the licensee), dated December 28, 1987, as supplemented by letter dated January 5, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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ATTACHMENT TO LICENSE AMENDMENT NO. 124

FACILITY OPERATING LICENSE NO. DPR-65

DOCKET NO. 50-336

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages are provided to maintain document completeness.

Remove

3/4 6-2
3/4 6-4

Insert

3/4 6-2
3/4 6-4

3/4.6 CONTAINMENT SYSTEMS

BASES

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 CONTAINMENT INTEGRITY

Primary CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the site boundary radiation doses to within the limits of 10 CFR 100 during accident conditions.

3/4.6.1.2 CONTAINMENT LEAKAGE

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure of 54 psig, P_a . As an added conservatism, the measured overall integrated^a leakage rate is further limited to $\leq 0.75 L_a$ during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

The surveillance testing for measuring leakage rates are consistent with the requirements of Appendix "J" of 10 CFR 50, with the option of the use of the mass point method for performing leakage calculations.

3/4.6.1.3 CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the containment air locks are required to meet the restrictions on CONTAINMENT INTEGRITY and leak rate given in Specifications 3.6.1.1 and 3.6.1.2. The limitations on the air locks allow entry and exit into and out of the containment during operation and ensure through the surveillance testing that air lock leakage will not become excessive through continuous usage.

CONTAINMENT SYSTEMS

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

- a. An overall integrated leakage rate of $\leq L_a$, 0.50 percent by weight of the containment air per 24 hours at P_a , 54 psig.
- b. A combined leakage rate of $\leq 0.60 L_a$ for all penetrations and valves subject to Type B and C tests when pressurized to P_a .
- c. A combined leakage rate of $\leq 0.017 L_a$ for all penetrations identified in Table 3.6-1 as secondary containment bypass leakage paths when pressurized to P_a .

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With either (a) the measured overall integrated containment leakage rate exceeding $0.75 L_a$, or (b) with the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding $0.60 L_a$, or (c) with the combined bypass leakage rate exceeding $0.017 L_a$, restore the leakage rate(s) to within the limit(s) prior to increasing the Reactor Coolant System temperature above 200°F .

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR 50.

- a. Three Type A tests (Overall Integrated Containment Leakage Rate) shall be conducted at 40 ± 10 month intervals during shutdown at P_a (54 psig) during each 10-year service period. The third test of each set shall be conducted during the shutdown for the 10-year plant inservice inspection.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- g. All test leakage rates shall be calculated using observed data converted to absolute values. Error analyses shall be performed to select an acceptable integrated leakage measurement system.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 124 TO DPR-65

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

DOCKET NO. 50-336

INTRODUCTION

By application for license amendment dated December 28, 1987, as supplemented by letter dated January 5, 1988, Northeast Nuclear Energy Company (the licensee) requested changes to Millstone Unit 2 Technical Specification (TS) 4.6.1.2, "Containment Leakage" as follows: (1) the reference to ANSI Standard N45.4-1972 would be deleted and (2) the error analysis requirements would be modified to allow the use of alternate methods. The above changes to the TS have been proposed by the licensee to allow for use of ANSI/ANS Standard 56.8-1981 for "mass point" determination of containment leakage rate and for addressing the inherent errors associated with such testing.

DISCUSSION AND EVALUATION

The licensee has requested that the reference to ANSI N45.4-1972 in TS 4.6.1.2 be deleted in order to utilize the "mass point" method for integrated containment leak rate testing. Since the use of the ANSI N45.4-1972 methodology is also required by 10 CFR 50, Appendix J, Section III.A.3, an "exemption from rule" is also required for use of the "mass point" methodology.

It has been recognized by the professional community that the mass point method is an acceptable means for calculation of containment leakage in addition to the two other methods, point-to-point and total time, which are referenced in ANSI N45.4-1972 and endorsed by the present regulations. The mass point method calculates the air mass at each point in time, and plots it against time. A linear regression line is plotted through the mass-time points using a least square fit. The slope of this line is proportional to the leakage rate. The mass point method has some advantages when it is compared with the other methods. In the total time method, a series of leakage rates is calculated on the basis of air mass differences between an initial data point and each individual data point thereafter. If for any reason (such as instrument error, lack of temperature equilibrium, ingassing, or outgassing) the initial data point is not accurate, the results of the test will be affected. In the point-to-point method, the leak rates are based on the mass difference between each pair of consecutive points which are then averaged to yield a single leakage rate estimate. Mathematically, this can be shown to be the difference between the air mass at the beginning of the test and the air mass at the end of the test expressed as a percentage of the containment air mass.

It follows from the above that the point-to-point method does not make use of any mass readings taken during the test and thus the leakage rate is calculated on the basis of the difference in mass between two measurements taken at the beginning and at the end of the test, which are 24 hours apart.

ANSI/ANS 56.8-1981, which was intended to replace ANSI N45.4-1972, specifies the use of the mass point method, to the exclusion of the two older methods. However, the staff has determined that these three methods (mass point, total time and point-to-point) are acceptable methods which may be used to calculate containment leakage rates. The NRC staff anticipates publishing, for comment, a proposed revision to Appendix J that would permit the use of the mass point method.

In addition to the method of calculation, consideration of the length of the test should also be included in the overall program. In accordance with Section 7.6 of ANSI N45.4-1972, a test duration less than 24 hours is only allowed if approved by the NRC, and the only currently approved methodology for such a test is contained in Bechtel Topical Report BN-TOP-1, Revision 1, "Testing Criteria for Integrated Leakage Rate Testing of Primary Containment Structures for Nuclear Power Plants," dated November 1, 1972. This approach only allows use of the total time method. Therefore, the staff will require a minimum test duration of 24 hours when the mass point method is used. This requirement is addressed in the associated "exemption from rule."

Based upon the above, we conclude that the use of the "mass point" methodology, during a 24-hour containment leak rate test is acceptable as is the proposed change to TS 4.6.1.2.

The licensee has also proposed a change to TS 4.6.1.2.g to delete certain wording that requires consideration of "...maximum measurement accuracy and instrument repeatability" and that, "the measured leakage rates shall be adjusted to include the measurement error." The licensee has proposed alternate wording for TS 4.6.1.2.g as follows: "Error analyses shall be performed to select an acceptable integrated leakage measurement system."

The proposed TS 4.6.1.2.g conforms, substantially, to the guidance provided by the NRC Staff in the Combustion Engineering Standard Technical Specifications (NUREG-0212, Rev. 2, Fall 1980). Accordingly, the proposed change to the TS is acceptable.

ENVIRONMENTAL CONSIDERATION

The NRC staff has considered the environmental impact of the proposed changes to the TS. An "Environmental Assessment and Finding of No Significant Impact" was published in the Federal Register on February 9, 1988 (53 FR 3801).

CONCLUSION

We have concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: February 11, 1988

Principal Contributor:

D. Jaffe

UNITED STATES NUCLEAR REGULATORY COMMISSIONNORTHEAST NUCLEAR ENERGY COMPANY, ET AL.DOCKET NO. 50-336NOTICE OF ISSUANCE OF AMENDMENT TO
FACILITY OPERATING LICENSE

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 124 to Facility Operating License No. DPR-65, to Northeast Nuclear Energy Company, The Connecticut Light and Power Company, and Western Massachusetts Electric Company, which revised the Technical Specifications for operation of the Millstone Nuclear Power Station, Unit No. 2, located in the Town of Waterford, Connecticut. The amendment was effective as of the date of its issuance.

The amendment provides changes to the Technical Specification (TS) 4.6.1.2, "Containment Leakage" as follows: (1) the reference to ANSI Standard N45.4-1972 is deleted and (2) the error analysis requirements are modified to allow the use of alternate methods. In conjunction with an exemption to the requirements of 10 CFR Part 50, Appendix J, Section III.A.3, the above changes to the TS allow for use of ANSI/ANS Standard 56.8-1981 for "mass point" determination of containment leakage rate and for addressing the inherent errors associated with such testing.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment.

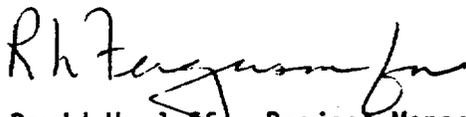
Notice of Consideration of Issuance of Amendment and Opportunity for Prior Hearing in connection with this action was published in the FEDERAL REGISTER on January 12, 1988 (53 FR 766). No request for a hearing or petition for leave to intervene was filed following this notice.

The Commission has prepared an Environmental Assessment and Finding of No Significant Impact related to the action and has concluded that an environmental impact statement is not warranted because there will be no environmental impact attributed to the action beyond that which has been predicted and described in the Commission's Final Environmental Statement for the facility dated June 1973.

For further details with respect to this action, see (1) the application for amendment dated December 28, 1987, as supplemented by letter dated January 5, 1988, (2) Amendment No. 124 to Facility Operating License No. DRP-65, and (3) the Environmental Assessment and Finding of No Significant Impact (53 FR 3801). All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C., and at the Waterford Public Library, 49 Rope Ferry Road, Waterford, Connecticut. A copy of items (2) and (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Reactor Projects I/II.

Dated at Rockville, Maryland, this 11th day of February, 1988.

FOR THE NUCLEAR REGULATORY COMMISSION



David H. Jaffe, Project Manager
Project Directorate I-4
Division of Reactor Projects I/II

containment leakage calculations for Containment Integrated Leakage Rate Tests (CILRTs) be performed using either the point-to-point method or total time method.

A more recent standard, ANSI/ANS 56.8-1981, "Containment System Leakage Testing Requirements," which was intended to replace ANSI N45.4-1972, specifies the use of the mass point method to the exclusion of the two older methods. The NRC staff anticipates publishing, for comment, a proposed revision to Appendix J that would permit the use of the mass point method. Pending such revision to Appendix J, licensees who wish to use the mass point technique must submit an application for partial exemption from the requirement that Appendix J test calculations for CILRTs will conform with ANSI N45.4-1972.

III.

By letter dated December 23, 1987, the licensee requested a partial exemption from 10 CFR Part 50, Appendix J, Paragraph III.A.3, which requires that all CILRTs be performed in accordance with ANSI N45.4-1972, "Leakage Rate Testing of Containment Structures for Nuclear Reactors." ANSI N45.4-1972 requires that leakage calculations be performed using either the total time method or the point-to-point method. The licensee has stated in support of the application for exemption from Appendix J that the mass point method is a more accurate method of calculating containment leakage rate.

It has been recognized by the professional community that the mass point method is superior to the two other methods, point-to-point and total time, which are referenced in ANSI N45.4-1972 and endorsed by the present regulations. The mass point method calculates the air mass at each point in time, and plots it against time. A linear regression line is plotted through the mass-time points using a least square fit. The slope of this line is proportional to the leakage rate.

In addition to the method of calculation, consideration of the length of the test should also be included in the overall program. In accordance with Section 7.6 of ANSI N45.4-1972, a test duration less than 24 hours is only allowed if approved by the NRC, and the only currently approved methodology for such a test is contained in Bechtel Topical Report BN-TOP-1, Revision 1, "Testing Criteria for Integrated Leakage Rate Testing of Primary Containment Structures for Nuclear Power Plants," dated November 1, 1972. This approach only allows use of the total time method. Therefore, the staff will condition the exemption to require a minimum test duration of 24 hours when the mass point method is used.

The licensee's letter also submitted information to identify the special circumstances for granting this exemption for Millstone Unit No. 2 pursuant to 10 CFR 50.12. The purpose of Appendix J to 10 CFR Part 50 is to assure that containment leak-tight integrity can be verified periodically throughout the service lifetime so as to maintain containment leakage rate within the limit specified in the plant technical specifications. The underlying purpose of

the rule specifying particular methods for calculating leakage rates is to assure that accurate and conservative methods are used to assess the results of containment leakage rate tests. As set forth above, the mass point method has been a widely used method providing accurate results and the staff has determined that this method of calculating leakage rate satisfies the purpose of the rule.

Based on the above discussion, the licensee's proposed partial exemption from paragraph III.A.3 of Appendix J, to allow use of the mass point method as requested in the submittal dated December 23, 1987, is acceptable with the condition of 24 hours minimum test duration. The exemption applies only to the method of calculating leakage rate (by use of the mass point method) and not to any other aspects of the tests.

IV.

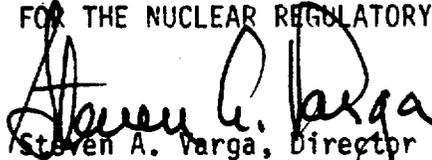
Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, this exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. The Commission has further determined that special circumstances, as set forth in 10 CFR 50.12(a)(2)(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 Paragraph III.A.3 of Appendix J to the extent that the mass point method may be used for containment leakage rate calculations, provided it is used with a minimum test

duration of 24 hours. The exemption applies only to the method of calculating leakage rate (by use of the mass point method) and not any other aspects of the tests.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the environment (53 FR 3801).

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 11th day of February 1988