



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

JUL 24 1985

Docket No.: 50-423

Mr. John F. Opeka
Senior Vice President
Nuclear Engineering and Operations
Northeast Nuclear Energy Company
P. O. Box 270
Hartford, Connecticut 06141-0270

Dear Mr. Opeka:

Subject: Issuance of Amendment to Construction Permit for Millstone
Nuclear Power Station, Unit 3 Incorporating Partial Exemption
from General Design Criterion 4 of 10 CFR 50, Appendix A

The Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 12 to Construction Permit CPPR-113 for the Millstone Nuclear Power Station, Unit 3, located in the town of Waterford, New London County, Connecticut. The amendment is in response to your letters dated September 12, 1984, October 18, 1984 and March 1, 1985 concerning the partial exemption from General Design Criterion (GDC) 4 of 10 CFR 50, Appendix A.

The amendment modifies the construction permit to reflect issuance, by the NRC, of an Exemption dated June 5, 1985. The exemption permits you to eliminate the installation of protective devices and the consideration of the dynamic effects and the loading conditions associated with postulated pipe breaks in the four primary loops in the Millstone 3 primary coolant system for a period ending at the completion of the second refueling outage. The amendment is effective as of its date of issuance.

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Mr. John F. Opeka

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A copy of the safety evaluation supporting Amendment No. 12 is enclosed. Also enclosed is a copy of a related notice which has been forwarded to the Office of the Federal Register for publication.

Sincerely,

ORIGINAL SIGNED BY:

B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing

Enclosures:

1. Amendment No. 12 to CPPR-113
2. Safety Evaluation
3. Federal Register Notice

cc w/enclosures:
See next page

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Mr. J. F. Opeka
Northeast Nuclear Energy Company

Millstone Nuclear Power Station
Unit No. 3

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MILLSTONE - OTHER

JUL 24 1985

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

NORTHEAST NUCLEAR ENERGY COMPANY, ET. AL.*

DOCKET NO. 50-423

MILLSTONE NUCLEAR POWER STATION, UNIT 3

AMENDMENT TO CONSTRUCTION PERMIT

Amendment No. 12
Construction Permit
No.: CPPR-113

1. The Nuclear Regulatory Commission (the Commission) having found that:
 - A. The application for amendment filed by Northeast Nuclear Energy Company on behalf of itself and sixteen owners dated September 12, 1984, October 18, 1984, March 1, 1985 and May 7, 1985, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. 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
 - C. 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.

*The following are the holders of Construction Permit No. CPPR-113: Central Maine Power Company, Central Vermont Public Service Corporation, Chicopee Municipal Lighting Plant, City of Burlington, Vermont, Connecticut Municipal Electric Energy Cooperative, The Connecticut Light and Power Company, Fitchburg Gas and Electric Light Company, Massachusetts Municipal Wholesale Electric Company, Montaup Electric Company, New England Power Company, Northeast Nuclear Energy Company, Public Service Company of New Hampshire, The United Illuminating Company, Vermont Electric Cooperative, Inc., The Village of Lyndonville Electric Department, Western Massachusetts Electric Company, and Vermont Electric Generation and Transmission Cooperative, Inc.

JUL 24 1985

2. Accordingly, Construction Permit No. CPPR-113 is amended as follows:

A. Change paragraph 3 to read:

3. This permit shall be deemed to contain and be subject to the conditions specified in Sections 50.54 and 50.55, of said regulations; is subject to all applicable provisions of the Act, and rules, regulations, and orders of the Commission now or hereafter in effect, as modified by duly authorized exemptions; and is subject to the conditions specified or incorporated below:

B. Change paragraph 3.C to read:

C. This construction permit authorizes the applicant to construct the facility described in the application (as modified by duly authorized exemptions) and in the hearing record, in accordance with the principal architectural and engineering criteria and environmental protection commitments set forth therein.

3. This amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed by
Hugh L. Thompson, Jr.

Hugh L. Thompson, Jr., Director
Division of Licensing
Office of Nuclear Reactor Regulation

Date of Issuance: JUL 24 1985

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

SAFETY EVALUATION

MILLSTONE NUCLEAR POWER STATION, UNIT 3

RELATED TO AMENDMENT NO. 12

TO CONSTRUCTION PERMIT CPPR-113

INTRODUCTION

By letter dated March 1, 1985, the Northeast Nuclear Company (the applicant) on behalf of itself and sixteen owners* requested an amendment to Construction Permit CPPR-113 to incorporate the partial Exemption requested by the applicant by letters dated September 12, 1984, October 18, 1984 and May 7, 1985 pertaining to General Design Criterion (GDC) 4 of 10 CFR 50, Appendix A. The limited scheduler exemption granted by the Commission permits the applicants to eliminate the installation of protective devices and the consideration of the dynamic effects and loading conditions associated with postulated pipe breaks in the three primary loops in the Millstone 3 primary coolant system for a period ending at the completion of the second refueling outage, pending the outcome of rulemaking on this subject. The September 12, 1984 letter also included an analysis of the occupational radiation dose reduction which constituted a value-impact analysis associated with the exemption request. The value-impact analysis together with the technical information contained in Westinghouse Report WCAP-10587, provide a comprehensive justification in support of requesting a partial exemption from the requirements of GDC 4.

EVALUATION

The staff's detailed evaluation and basis for granting the partial exemption to the requirements of GDC 4 are delineated in the Exemption enclosed with the staff's June 5, 1985 letter. A summary of the staff's evaluation, findings and conclusions are immediately below.

*The following are the holders of Construction Permit No. CPPR-113: Central Maine Power Company, Central Vermont Public Service Corporation, Chicopee Municipal Lighting Plant, City of Burlington, Vermont, Connecticut Municipal Electric Energy Cooperative, The Connecticut Light and Power Company, Fitchburg Gas and Electric Light Company, Massachusetts Municipal Wholesale Electric Company, Montaup Electric Company, New England Power Company, Northeast Nuclear Energy Company, Public Service Company of New Hampshire, The United Illuminating Company, Vermont Electric Cooperative, Inc., The Village of Lyndonville Electric Department, Western Massachusetts Electric Company, and Vermont Electric Generation and Transmission Cooperative, Inc.

SUMMARY OF EVALUATION FINDINGS

From its evaluation of the analysis contained in Westinghouse Report WCAP-10587 for Millstone, Unit 3, the staff found that the applicant presented an acceptable technical justification which adequately addressed the staff's evaluation criteria, to eliminate the dynamic loading effects associated with the postulated full flow area circumferential and longitudinal pipe ruptures in the main loop primary coolant system of Millstone 3. These dynamic loading effects include pipe whip, jet impingement, asymmetric pressurization transients and break associated dynamic transients in unbroken portions of the main loop and connected branch lines (branch line LOCA loads will be retained in the design basis).

This finding does not in any way affect the design bases for the containment, and compartments, the emergency core cooling system, equipment qualification, engineered safety features systems response, or the design of the Reactor Coolant System (RCS) heavy component supports. This finding is predicated on the fact that each of the parameters evaluated for Millstone, Unit 3 is enveloped by the generic analysis performed by Westinghouse, contained in Westinghouse Report WCAP-9558, Revision 2, and accepted by the staff in Enclosure (1) to NRC Generic Letter 84-04 (February 1, 1984). Specifically, the NRC determined that:

- (1) The loads associated with the highest stressed location in the main loop primary system piping are 2032 kips (axial), 28,789 in-kips (bending moment) and result in maximum stresses of about 78% of the bounding stresses used by Westinghouse in Reference 3.
- (2) For Westinghouse plants, there is no history of cracking failure in reactor primary coolant system loop piping. The Westinghouse reactor coolant system primary loop has an operating history which demonstrates its inherent stability. This includes a low susceptibility to cracking failure from the effects of corrosion (e.g., intergranular stress corrosion cracking), water hammer, or fatigue (low and high cycle). This operating history totals over 400 reactor-years, including five (5) plants each having 15 years of operation and 15 other plants with over 10 years of operation.
- (3) The leak rate calculations performed for Millstone 3, using an initial through-wall crack of 7.5 inches are identical to those of Enclosure 1 to Reference 2. The Millstone plant has an RCS pressure boundary leak detection system which is consistent with the guidelines of Regulatory Guide 1.45, and it can detect leakage of one (1) gpm in one hour. The calculated leak rate through the postulated flaw results in a factor of at least 10 relative to the sensitivity of the Millstone 3 detection systems.

- (4) The margin in terms of load of the Millstone unit based on fracture mechanics analyses for the leakage-size crack under normal plus SSE loads is within the bounds calculated by the staff in Section 4.2.3 of Enclosure 1 to Reference 2. Based on a limit-load analysis, the load margin is about 2.8 and based on the J limit discussed in (6) below, the margin is at least 1.5.
- (5) The margin between the leakage-size crack and the critical-size crack was calculated by a limit load analysis. Again, the results demonstrated that a margin of at least 3 exists and is within the bounds of Section 4.2.3 of Enclosure 1 to Reference 2.
- (6) As an integral part of its review, the staff's evaluation of the material properties data of Reference 7 is enclosed as Appendix I to this Safety Evaluation Report. In Reference 7, data for ten (10) plants, including the Millstone unit, are presented, and lower bound or "worst case" materials properties were identified and used in the analysis performed in the Reference 1 report by Westinghouse. The applied J for Millstone 3 in Reference 1 was less than 3000 in-lb/in² and hence the staff's upper bound on the applied J (refer to Appendix I, page 6) was not exceeded.

ENVIRONMENTAL ASSESSMENT

In advance of issuing the Exemption, the Commission published in the Federal Register on May 29, 1985 (50 FR 21954) an "environmental assessment and finding of no significant impact." It was stated in that assessment that the planned Exemption action would not have a significant effect on the quality of the human environment. The Exemption granted involves design features located entirely within the plant restricted area as defined in 10 CFR Part 20; does not affect plant radioactive and non-radioactive effluents; has no other environmental impact; and does not involve the use of resources not previously considered in the Final Environmental Statement (construction permit) for Millstone, Unit 3.

The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has determined that the amendment involves no significant hazards considerations. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

CONCLUSION

In granting the limited schedular Exemption, the staff found that the advanced fracture mechanics techniques used by the applicants provided an assurance that flaws in primary system piping will be detected before they reach a size that could lead to unstable crack growth. For this reason, further protection provided by protective devices against the dynamic effects resulting from the discharge from postulated breaks in the primary piping is unnecessary. Additionally, consideration of such dynamic effects associated with previously postulated pipe breaks is unnecessary. With full protection against dynamic effects provided by advanced analysis techniques, and based on the considerations discussed above, we conclude that: (1) the proposed amendment to Construction Permit CPPR-113 permitting the use of the Exemption in construction of Millstone, Unit 3 does not involve a significant increase in the probability or consequences of accidents previously considered, does not create the possibility of an accident of a type different from any evaluated previously, does not involve a significant decrease in a safety margin, and thus does not involve a significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; and (3) such activities will be 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.

Date of Issuance: JUL 24 1985

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-423NORTHEAST NUCLEAR ENERGY COMPANY, ET. AL.*NOTICE OF ISSUANCE OF AMENDMENT TO CONSTRUCTION PERMIT

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 12 to Construction Permit No. CPPR-113 for Millstone Nuclear Power Station, Unit 3. The amendment modifies the construction permit to reflect issuance, by the Commission, of an Exemption dated June 5, 1985. The amendment is effective as of the date of issuance.

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 regulations. The Commission has made appropriate findings as required by the Act and the Commission's regulations in 10 CFR Chapter I, which is set forth in the amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

*The following are the holders of Construction Permit No. CPPR-113: Central Maine Power Company, Central Vermont Public Service Corporation, Chicopee Municipal Lighting Plant, City of Burlington, Vermont, Connecticut Municipal Electric Energy Cooperative, The Connecticut Light and Power Company, Fitchburg Gas and Electric Light Company, Massachusetts Municipal Wholesale Electric Company, Montaup Electric Company, New England Power Company, Northeast Nuclear Energy Company, Public Service Company of New Hampshire, The United Illuminating Company, Vermont Electric Cooperative, Inc., The Village of Lyndonville Electric Department, Western Massachusetts Electric Company, and Vermont Electric Generation and Transmission Cooperative, Inc.

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For further details with respect to the action, see (1) the application for amendment dated March 1, 1985, (2) Amendment No. 12 to Construction Permit CPPR-113, (3) the Commission's related Safety Evaluation, (4) the Exemption dated June 5, 1985, and (5) the Notice of Environmental Assessment and Finding of No Significant Impact dated May 29, 1985. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington , D.C. 20555, and at the Local Public Document Room at the Waterford Public Library, Rope Ferry Road, Route 156, Waterford, Connecticut. In addition a copy of items (2), (3), (4), and (5) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing, Office of Nuclear Reactor Regulation.

Dated at Bethesda, Maryland, this 24thday of July 1985.

FOR THE NUCLEAR REGULATORY COMMISSION

ORIGINAL SIGNED BY:

B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing

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ISSUANCE OF AMENDMENT 12 FOR MILLSTONE UNIT 3

DATED JUL 24 1985

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