NORTHEAST UTILITIES

THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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October 2, 1990

Docket No. 50-245
B13646

Re: 10CFR50.55a(g)

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Gentlemen:

Millstone Nuclear Power Station, Unit No. 1
Inservice Inspection Program
Additional Relief Requests from ASME Code Section XI Requirements

Pursuant to 10CFR50.55a(g)(6)(i), Northeast Nuclear Energy Company (NNECO) hereby requests additional relief from the ASME Code requirements as they pertain to the 1980 Edition, including the Winter 1980 Addenda of ASME Section XI, Code Categories B-P and C-H, "Class 1 and 2 10-year Required Hydrostatic Pressure Tests." Attachment A provides NNECO's proposed alternative test basis as justification for requesting relief.

The purpose of the present ASME Boiler and Pressure Vessel Code, Section XI pressure test rules and requirements is currently being addressed by Subcommittee XI. This Subcommittee has developed a Code Case that provides alternatives to the 1977 Edition and the latest published Editions and Addenda of the Code on 10-year required Hydrostatic Pressure Tests. This Code Case will be voted on at the Subcommittee meeting in December 1990. Subtier groups reporting to Subcommittee XI have strongly endorsed this Case.

This Code Case forms the basis for NNECO's relief request. The alternative testing provided in Attachment A uses the provisions of the proposed Code Case, but increases the frequency of testing Class 2 systems to each operating cycle, rather than once every 40 months as proposed by ASME. NNECO believes that the alternative testing proposed in Attachment A provides greater assurance that the leak tightness of systems is maintained than the proposed Code Case or the current rules and requirements of Section XI of the Code.

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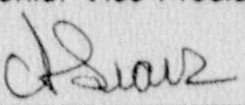
Because the 1991 refueling outage will represent the end of the second 10-year inspection interval, NNECO would be required to perform all remaining Hydrostatic Pressure Tests during this refueling outage. To avoid unnecessary Hydrostatic Pressure Testing and associated increased radiation exposure, critical path outage time and manpower resources, NNECO respectfully requests that the relief requests be acted upon prior to the 1991 refueling outage, currently scheduled to begin in March.

Should the Staff require any additional information or determine that it would be advantageous to discuss any aspect of the attached relief requests, please feel free to contact us.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: E. J. Mroczka
Senior Vice President

BY: 

C. F. Sears
Vice President

Attachment
cc: T. T. Martin, Region I Administrator
M. L. Boyle, NRC Project Manager, Millstone Unit No. 1
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3

Docket No. 50-245
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Attachment A

Millstone Nuclear Power Station, Unit No. 1
Inservice Inspection Program
Additional Relief Requests From ASME Code Section XI Requirements

October 1990

CLASS 1 - CATEGORY B-P
ALL PRESSURE RETAINING COMPONENTS

Code Requirement

Section XI of the ASME Code, 1980 Edition including the Winter 1980 Addenda, Table IWB-2500-1 Examination Category B-P requires a System Hydrostatic Pressure Test (IWB-5222) be performed on all Class 1 pressure retaining components (i.e. reactor vessel, piping, pumps and valves) once every 10-year interval. Class 1 System Hydrostatic Pressure Tests are conducted at reduced test pressures (Table IWB-5220-1) to meet the requirements of fracture prevention criteria applicable to ferritic materials of system components. For Millstone Unit No. 1, the test pressure is 1080 psig at a temperature greater than 204° F. The hydrostatic test pressure is held for 4-hours prior to, and during, the VT-2 visual examination.

Category B-P also requires a System Leakage Test (IWB-5221) be performed on the same components each refueling outage. System Leakage Tests are conducted at test pressures not less than the nominal operating pressure associated with 100% rated reactor power. For Millstone Unit No. 1, the nominal test pressure is 1035 psig at a test temperature greater than 200° F. No holding time is required prior to performing the VT-2 visual examination.

Code Relief Requested

Relief is requested from performing a Category B-P System Hydrostatic Pressure Test (IWB-5222), on Class 1 pressure retaining components once every 10-year interval.

Basis for Relief

As an alternative to performing a Hydrostatic Pressure Test once every 10-year interval, NNECO is proposing to perform a System Leakage Test every refueling outage at nominal operating pressure with an additional test requirement to hold the test pressure for 4-hours prior to, and during, the VT-2 visual examination.

Hydrostatic Pressure Tests, as defined in ASME Section XI, are "leakage tests" and are not intended to test structural integrity. NNECO believes that performing a Hydrostatic Pressure Test once during a 10-year interval provides a very small potential for increasing plant safety margins, while increasing expenditures, radiation exposure, critical path outage time and manpower resources. Special valve line-ups, relief valve gagging, and bypass jumpers are needed in order to perform a higher than normal operating pressure leak

test. No additional benefit is gained by leak testing the system at a test pressure of 45 psig higher than nominal operating pressure. NNECO also believes that a System Leakage Test with a 4-hour hold time allows sufficient time for leakage to permeate through insulated components. The proposed alternative test requirement to perform a VT-2 visual examination during a 4-hour System Leakage Test every refueling outage provides greater assurance that the leak tightness of Class 1 system components is maintained.

Proposed Alternative Testing

It is requested that the following test be performed as an alternative to the Class 1 10-year Hydrostatic Pressure Test (IWB-5222 as specified in Table IWB-2500-1 Category B-P):

(1) The System Leakage Test will be performed during each refueling outage, prior to reactor startup without use of nuclear heat.

(2) The boundary subject to test pressurization during a System Leakage Test will extend to the pressure retaining components within the system boundary containing pressurized reactor coolant under the plant mode of normal reactor startup.

(3) The system will be held at nominal operating pressure for a minimum of 4-hours prior to the start of the leakage test and during performance of the VT-2 visual examination.

(4) The VT-2 visual examination will extend to all components within the safety class boundary as identified in (2) above.

CLASS 2 - CATEGORY C-H
ALL PRESSURE RETAINING COMPONENTS

Code Requirement

Section XI of the ASME Code, 1980 Edition including the Winter 1980 Addenda, Table IWC-2500-1 Examination Category C-H requires a System Hydrostatic Pressure Test (IWC-5222) be performed on all Class 2 pressure retaining components (i.e. pressure vessels, piping, pumps and valves) once every 10-year interval. The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with design temperatures of 200° F or less, and at least 1.25 times the system pressure P_{sv} for systems with design temperatures above 200° F. The system pressure P_{sv} shall be the lowest pressure setting among the number of safety or relief valves provided for overpressure protection within the boundary of the systems tested. For systems not provided with safety or relief valves, the system design pressure P_d shall be substituted for P_{sv}. A 4-hour holding time is required after attaining the test pressure and temperature conditions for insulated systems, and 10-minutes for non-insulated systems or components.

Category C-H also requires a System Leakage Test once each inspection period conducted during a "System Functional Test" of those systems or portions of systems not required to operate during normal reactor operation. A 10-minute holding time is required after attaining the system operating pressure. Category C-H does not require a leakage test on Class 2 systems that are normally in service during reactor power operation.

Code Relief Requested

Relief is requested from performing a Category C-H System Hydrostatic Pressure Test (IWC-5222) on Class 2 pressure retaining components once every 10-year interval.

Basis for Relief

As an alternative to performing a Hydrostatic Pressure Test once every 10-year interval, NNECO is proposing to perform a System Leakage Test every operating cycle at nominal operating pressures on all Class 2 systems. The systems will be held at nominal operating pressure for 4-hours for insulated systems, and for 10-minutes for noninsulated systems prior to the start of the leakage test. The system will be maintained at nominal operating pressure during performance of the VT-2 visual examination.

Hydrostatic Pressure Tests, as defined in ASME Section XI, are "leakage tests" and are not intended to test structural integrity. NNECO believes that performing a Hydrostatic Pressure Test once each 10-year interval provides a very small potential for increasing plant safety margins, while increasing expenditures, radiation exposure, critical path outage time and manpower resources. Performing a Hydrostatic Test once each 10-year interval on systems that are normally in service continuously does not provide any added safety benefit. Hydrostatic Pressure Tests cause pump and valve packing leaks and necessitate pump seal maintenance by subjecting systems to pressures above their normal operating parameters. Hydrostatic Tests impact other work activities and are a critical path activity. Relief valves must be removed, blank flanged or gagged. Staging must be built then removed for relief valve work. Radiation exposure is increased due to the amount of valve line-ups, relief valve gagging/removal and staging erection. Radwaste expenditures are increased when draining systems for relief valve removal before the test, and draining again for the valve replacement after the test. NNECO believes that a more effective and efficient pressure test program would be the performance of a System Leakage Test on all Class 2 systems every operating cycle, rather than the present combination of 10-year Hydrostatic and 10-minute "Functional" Pressure Tests every inspection period.

Proposed Alternative Testing

It is requested that the following test be performed as an alternative to the Class 2 10-year Hydrostatic Pressure Test (IWC-5222 as specified in Table IWC-2500-1 Category C-H):

(1) The System Leakage Test will be performed during every operating cycle on all Class 2 systems.

(2) The boundary subject to test pressurization will extend to those pressure retaining components under nominal operating pressures during normal system service.

(3) The system will be at nominal operating pressure for a minimum of 4-hours for insulated systems, and for at least 10-minutes for noninsulated systems prior to the start of the leakage test.

(4) The VT-2 visual examination will extend to all components within the safety class boundary.