NORTHEAST UTILITIES

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

General Offices • Selden Street, Berlin, Connecticut

P.O. BOX 270
HARTFORD, CONNECTICUT 06141-0270
(203) 666-6911

February 1, 1984

Docket No. 50-423
B11023

Director of Nuclear Reactor Regulation
Mr. B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing
U.S. Nuciear Regulatory Commission
Washington, D.C. 20555

Reference: (1) B. J. Youngblood letter to W. G. Counsil, Request for Additional Information for Millstone Nuclear Power Station, Unit No. 3, dated December 5, 1983.

Dear Mr. Youngblood:

Millstone Nuclear Power Station, Unit No. 3
Responses to Requests for Additional Information

Attached are the responses to those questions contained in Reference (1) which we were requested to submit on or before February 1, 1984.

The responses and associated revised FSAR pages contained herein are being provided as they will appear in Amendment 7 to the FSAR. Amendment 7 is scheduled for submittal approximately late February, 1984.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL

By NORTHEAST NUCLEAR ENERGY COMPANY,
Their Agent

W. G. Counsil
Senior Vice President

By R. W. Bishop
Corporate Secretary

A001
1/1

STATE OF CONNECTICUT)
) ss. Berlin
COUNTY OF HARTFORD)

Then personally appeared before me R. W. Bishop, who being duly sworn, did state that he is Corporate Secretary of Northeast Nuclear Energy Company, applicant herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the applicants herein and that the statements contained in said information are true and correct to the best of his knowledge and belief.

Lorraine J. D'Amico
Notary

My Commission Expires March 31, 1988

NRC Letter: December 5, 1983 1.8

Question No. Q210.2 (Section 5.2) 1.11

The loop bypass valves identified in FSAR Section 5.2.1.1 and Table 5.2-1 are not in conformance with the Codes and Standards Rule, Section 50.55a of 10CFR Part 50. These valves are constructed to Section III, Class 1 of the ASME Boiler and Pressure Vessel Code, 1971 Edition, through Summer 1972 Addenda, whereas the regulation requires these valves to be constructed to the same code and edition through the Winter 1972 Addenda to the code. In order to determine the acceptability of these loop bypass valves, provide an evaluation between the Summer 1972 and Winter 1972 Addenda to the code and identify any differences between these Addenda and assess the impact of the differences on the loop bypass valves. 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19

Response: 1.20

The Manufacturers' Data Report (NPV-1), dated April 12, 1976, states that the reactor coolant system loop bypass valves were manufactured to comply with ASME Section III, Class 1, 1971 Edition through Winter 1972 Addenda. 1.21 1.22

FSAR Section 5.2.1.1 has been revised accordingly. 1.23

NRC Letter: December 5, 1983 1.8

Question No. Q210.3 (Section 3.2.2) 1.11

Verify that all components within the reactor coolant pressure boundary as defined in 10CFR Part 50.2 (V) are classified Quality Group A constructed to Section III, Class 1, of the ASME Boiler and Pressure Vessel code in compliance with the Codes and Standards Rule, Section 50.55a of 10CFR Part 50, or as a minimum, are classified Quality Group B and constructed to Section III, Class 2, of the code if the components meet the exclusion requirements of the rule. 1.12 1.13 1.14 1.15 1.16

Response: 1.17

BOP Scope 1.18

All components within the reactor coolant pressure boundary are constructed to ASME Section III, Class 1 in compliance with the Codes and Standards Rule, Section 50.55a of 10CFR50. 1.19 1.21

FSAR Table 3.2-1 lists components within the safety-related fluid systems and the code class to which they are constructed. 1.22 1.24

NSSS Scope 1.26

All components within the boundary of the reactor coolant system are designed and built to ASME Section III, Class 1 specifications and also to Westinghouse Quality Assurance requirements equivalent to Group A. 1.27 1.29

ASME Section III Class 2 components that are within the reactor coolant pressure boundary must be sized to 3/8 inch diameter or less to ensure that charging flow is adequate to compensate for a loss of a 3/8 inch line. 1.31 1.32

NRC Letter: December 5, 1983 1.8

Question No. Q210.4 (Section 5.2) 1.11

In addition to Code Cases 1528, N-242 and N-242-1 identifed in Section 5.2.1.2 of the FSAR, identify all other ASME Code Cases (including those that are listed as acceptable in Regulatory Guides 1.84 and 1.85) that were used in the construction of each Quality Group A components within the reactor coolant pressure boundary. These code cases should be identified by code case number, revision, and title for each component to which the code case has been applied. 1.12 1.13 1.14 1.15 1.16

Response: 1.17

BOP Scope 1.18

1. Code Case 1761-1 (N-133), Rev. 0, dated January 1, 1980, for electro-hydraulic and air-operated control valves - Class 1. 1.20 1.21

2. Code Case 1567, Rev. 0, dated March 3, 1973, for electro-hydraulic and air-operated control valves - Class 1. 1.22

3. Code Case 1580-1, Rev. 0, dated November 5, 1973, for forged stainless steel valves ≥2 1/2 inches. 1.23

4. Code Class 1672, Rev. 0, dated November 4, 1974, for forged stainless steel valves ≤2 inches and cast stainless steel valves ≥2 1/2 inches. 1.24 1.26

NSSS Scope 1.29

Code cases used by the NSSS vendor will be supplied at a later date. 1.30

NRC Letter: December 5, 1983 1.8

Question No. Q210.5 (Sections 3.2 and 5.2) 1.11

In FSAR Table 5.2-1, identify the code edition and addenda of ASME Section III, Class 1 interconnecting piping to the reactor coolant system and a part of the reactor coolant pressure boundary as defined in 10CFR Part 50.2 (V) of the Commission's regulations. 1.12 1.13 1.14

Response: 1.15

Refer to revised FSAR Table 5.2-1 for the response to this question. 1.16

NRC Letter: December 5, 1983 1.8

Question No. Q210.6 (Sections 3.2 and 5.2) 1.11

In FSAR Table 5.2-1, identify the code edition and addenda of ASME Section III, Class 1 valves in interconnecting lines to the reactor coolant system and a part of the reactor coolant pressure boundary as noted in previous question. 1.12 1.13 1.14

Response: 1.15

Refer to revised FSAR Table 5.2-1 for the response to this question. 1.16

NRC Letter: December 5, 1983 1.8

Question No. Q210.7 (Section 3.2) 1.11

FSAR Table 3.2-1 incorrectly identifies ACI/318-71 as the code used 1.12
in the construction of the containment steel liner. The applicable 1.14
codes used for materials, design, fabrication, testing, and
inspection of the steel linear are identified in FSAR 1.16
Section 3.8.1.2.3. Revise FSAR Table 3.2-1 accordingly. 1.17

Response: 1.18

Refer to revised FSAR Table 3.2-1 for the response to this question. 1.19

TABLE 3.2-1 1.20

LIST OF QA CATEGORY I AND SEISMIC CATEGORY I STRUCTURES, SYSTEMS, AND COMPONENTS 1.22

(Symbols and references are defined at the end of this Table) 1.24

	ANS Safety Class	Code (1)	Code Class	Location	Tornado Criterion	Notes	
							1.27 1.28 1.29
STRUCTURES							1.31
Containment Structure							1.33
Reinforced Concrete Substructure	2	ACI 318-71	N/A	CS	P		1.35
Reinforced Concrete Superstructure	2	ACI 318-71	N/A	CS	D		1.37
Containment Enclosure Building	N/A	AISC Steel Construc-tion Manual, 7th Edition	N/A	CEB	N/A		1.39 1.40 1.41 1.42
Reinforced Concrete Interior Shields and Walls	2	ACI 318-71	N/A	CS	P		1.45 1.46
Containment Structure Liner	2	ASME III	MC	CS	P	(Note 2)	1.49
Piping and Duct Penetrations	2	ASME III	2	CS	P	(Note 2)	1.52
Electrical Penetrations	2	IEEE-317	N/A	CS	P		1.54
Personnel Access Lock	2	ASME III	MC	CS	P	(Note 2)	1.57
Equipment Hatch	2	ASME III	MC	CS	P	(Note 2)	1.59
Containment Dome Closure	2	ASME III	MC	CS	D	(Note 2)	2.1
Containment Sump Screens	2	No Code	N/A	CS	P		2.3
Circulating Water Discharge Tunnel	N/A	ACI 318-71	N/A	OY	D		2.5
Demineralizer Water Storage Tank Enclosure	N/A	ACI 318-71	N/A	OY	D		2.7 2.8
Cable Tunnel from Auxiliary Building to Control Building	N/A	ACI 318-71	N/A	SB	D		2.10 2.11
Main Steam Valve Building	N/A	ACI 318-71	N/A	MSV	D		2.14
Engineered Safety Features Building	N/A	ACI 318-71	N/A	ESB	D		2.17

TABLE 3.2-1 (Cont)

LEGEND

General Symbols

N/A	- Not applicable
SC	- Safety class
NNS	- Nonnuclear safety
QA Category	- Quality assurance category
RCPB	- Reactor coolant pressure boundary
*	- SWEC Scope of Supply
**	- WNES Scope of Supply
***	- Scope of Supply shared between WNES and SWEC

Tornado Criteria Symbols

P	- Protected from tornado effects by a structure or because below grade
D	- Designed to withstand tornado effects

Location Symbols

AB	- Auxiliary building
BR	- Battery room (in control building)
CB	- Control building
CR	- Control room (in control building)
CS	- Containment structure
CEB	- Containment enclosure building
CSP	- Circulating and service water pumphouse
EGE	- Emergency generator enclosure
ESB	- Engineered safety features building
ESR	- Emergency switchgear room (in control building)
FB	- Fuel building
HRB	- Hydrogen recombiner building
IRR	- Instrument rack room (in control building)
MRC	- MCC and rod control area (in auxiliary building)
MSV	- Main steam valve building
OY	- Outside, yard
SB	- Service building
TB	- Turbine building
WDB	- Waste disposal building

NOTES:

1. The mechanical system components satisfy the codes and addenda (ASME Section III, Division 1) in effect at the time of component order.

2. There was no applicable code for the design of concrete containment structure liners at the construction of the Millstone 3 liner. However, ASME Sections III and VIII, 1971 Edition, were used as guides. See Section 3.8.1.2.3. | 210.7

3. This FSAR table identifies safety-related pumps for a given system. Unless otherwise indicated, motors for these safety-related pumps are also safety-related and included under the same safety class. | 7-4

5.2 INTEGRITY OF REACTOR COOLANT PRESSURE BOUNDARY

Per Regulatory Guide 1.70, Revision 3, this section discusses the measures employed to provide and maintain the integrity of the reactor coolant pressure boundary (RCPB) for the plant design lifetime. The RCPB, as defined in 10CFR50.2, extends to the outermost containment isolation valve in system piping which penetrates the containment and is connected to the reactor coolant system (RCS), (Section 5.1). Since other sections of this FSAR already describe the components of these auxiliary fluid systems in detail, the discussions in this section will be limited to the components of the RCS as defined in Section 5.1, unless otherwise noted.

Additional information in the RCS and the components which are part of the RCPB (as defined in 10CFR50) is given in the following sections:

- Section 6.3 - The RCPB components which are part of emergency core cooling system
- Section 9.3.4 - The RCPB components which are part of the chemical and volume control system
- Section 3.9N.1 - The design loadings, stress limits, and analyses applied to the RCS and American Society of Mechanical Engineers (ASME) Code Class 1 components
- Section 3.9N.3 - The design loadings, stress limits, and analyses applied to ASME Code Class 2 and 3 components

The phrase, RCS, as used in this section is as defined in Section 5.1. When the term RCPB is used in this section, its definition is that of Section 50.2 of 10CFR50.

5.2.1 Compliance with Codes and Code Cases

5.2.1.1 Compliance with 10CFR50.55a

RCS components are designed and fabricated in accordance with 10CFR50.55a. The actual addenda of the ASME Code applied in the design of each component are listed in Table 5.2-1.

5.2.1.2 Applicable Code Cases

Regulatory Guides 1.84 and 1.85 are discussed in Section 1.8. The following discussion addresses only unapproved or conditionally approved code cases (per Regulatory Guides 1.84 and 1.85) used on Class 1 primary components.

Code Case 1528 (SA 508 Class 2a) material has been used in the manufacture of the Millstone 3 steam generators and pressurizers.

Purchase orders for this equipment were placed prior to the original issue of Regulatory Guide 1.85 (June 1974). Regulatory Guide 1.85 presently reflects conditional NRC Approval of Code Case 1528. The Westinghouse test program demonstrates the adequacy of Code Case 1528 material. Its results are documented in Eicheldinger's letter (10/4/76). This letter and a request for approval of the use of Code Case 1528 have been submitted to the NRC (Eicheldinger 1978).

Code Cases N-242 (Paragraphs 5.4, 5.5 and 5.6) and N-242-1 (Paragraphs 5.3, 5.4, 5.5 and 5.6) material has been used in the manufacture of the Millstone 3 mechanical shock arrestors. Regulatory Guide 1.85, Rev. 18, allows the use of these code cases.

5.2.2 Overpressure Protection

RCS overpressure protection is provided by the pressurizer and steam generator safety valves along with the reactor protection system and associated equipment. Combirations of these systems assure compliance with the overpressure requirements of the ASME Code, Section III, paragraphs NB-7300 and NC-7300, for pressurized water reactor systems.

The only portion of an auxiliary system used for overpressure protection of the RCS is the liquid relief valves of the heat removal (RHR) system. These valves protect the RCS at low temperatures when the RHR system is on operation. They are located inside containment and discharge to the pressurizer relief tank.

5.2.2.1 Design Bases

Overpressure protection is provided for the RCS by the pressurizer safety valves. This protection is afforded for the following events which envelop those credible events which could lead to overpressure of the RCS if adequate overpressure protection were not provided:

1. Loss of electrical load and/or turbine trip

2. Uncontrolled rod withdrawal at power

3. Loss of reactor coolant flow

TABLE 5.2-1

APPLICABLE CODE ADDENDA FOR
CLASS 1 REACTOR COOLANT SYSTEM COMPONENTS

Reactor vessel	ASME III, 1971 Edition through Summer 73	1.15
CRDM head adapter	ASME III, 1971 Edition through Summer 73	1.17
Steam generator	ASME III, 1971 Edition through Summer 73	1.19
Pressurizer	ASME III, 1971 Edition through Summer 73	1.21
CRDM housing		1.23
Full length	ASME III, 1974 Edition through Summer 74	1.24
Reactor coolant pump	ASME III, 1974 Edition through Summer 74	1.26
Reactor coolant pipe	ASME III, 1971 Edition through Summer 73	1.28
Surge line	ASME III, 1971 Edition through Summer 73	1.30
NSSS valves		1.32
Pressurizer safety	ASME III, 1971 Edition through Winter 72	1.33
Power-operated relief	ASME III, 1977 Edition through Summer 79	1.34
Pressurizer spray	ASME III, 1971 Edition through Summer 73	1.35
Control	ASME III, 1974 Edition through Summer 75	1.36
Motor-operated		1.38
Loop isolation	ASME III, 1971 Edition through Winter 73	1.39
Loop bypass	ASME III, 1971 Edition through winter 72	1.40
Head vent isolation	ASME III, 1977 Edition through Summer 79	1.41
BOP valves in interconnecting lines		1.43 1.44
Dresser forged stainless steel ≤2 inches	ASME III, 1974 Edition	1.46 1.47
Velan forged stainless steel ≤2 inches	ASME III, 1977 Edition through Summer 79	1.49 1.50
Cast stainless steel ≥2 1/2 inches	ASME III, 1971 Edition through Summer 73	1.52 1.53
Forged stainless steel ≥2 1/2 inches.	ASME III, 1971 Edition through Summer 73	1.55 1.56
Control valves	ASME III, 1971 Edition through Summer 73	1.58
Interconnecting piping	ASME III, 1971 Edition through Summer 73	1.60

210.6 210.6 210.2 210.6 210.5