NORTHEAST UTILITIES
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March 18, 1980

Docket Nos. 50-213
50-245
50-336

Darrell G. Eisenhut, Acting Director
Division of Operating Reactors
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

References: (1) D. G. Eisenhut letter to All Light Water Reactor Licensees dated February 23, 1980.
(2) W. G. Counsil letter to D. L. Ziemann dated April 27, 1979.
(3) W. G. Counsil letter to D. L. Ziemann dated September 13, 1979.
(4) W. G. Counsil letter to R. Reid dated June 25, 1979.
(5) W. G. Counsil letter to D. L. Ziemann dated June 29, 1979.

Gentlemen:

Haddam Neck Plant
Millstone Nuclear Power Station, Unit Nos. 1 and 2
Light Water Reactor Primary Coolant System
Pressure Isolation Valves

In Reference (1), the NRC Staff related several concerns with respect to intersystem loss-of-coolant accidents and discussed various methods of in-service inspections and testing of pressure isolation valves to assure component integrity as a pressure isolation barrier.

Connecticut Yankee Atomic Power Company (CYAPCO) and Northeast Nuclear Energy Company (NNECO) have been responding to pressure isolation valve concerns of the NRC Staff in correspondence relating to the inservice testing programs as discussed in Reference (2) for the Haddam Neck Plant, and in References (3) and (4) for Millstone Unit Nos. 1 and 2, respectively. The philosophy inherent in the following discussion is consistent with that employed in References (2), (3), and (4).

Reference (1) requested CYAPCO and NNECO to provide the following information pursuant to 10CFR50.54(f):

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(1) Describe the valve configuration at your plant and indicate if an Event V isolation valve configuration exists within the Class I boundary of the high pressure piping connecting RCS piping to low pressure system piping; e.g., (1) two check valves in series, or (2) two check valves in series with a MOV;

(2) If either of the above Event V configurations exist at your facility, indicate whether continuous surveillance or periodic tests are being accomplished on such valves to ensure integrity. Also indicate whether valves have been known, or found, to lack integrity; and

(3) If either of the above Event V configurations exist at your facility, indicate whether plant procedures should be revised or if plant modifications should be made to increase reliability.

In response to Item (1), the following information is provided:

Haddam Neck Plant

CYAPCO has reviewed all piping systems, including the low pressure safety injection system, which communicate with the reactor coolant system (RCS), penetrate containment, and derate to a lower pressure system, and has determined that no Event V valve configurations, as described in Reference (1), exist at the Haddam Neck Plant.

The following systems have been evaluated pursuant to Reference (1):

- Low Pressure Safety Injection System (LPSI)
- Residual Heat Removal System (RHR)
- Core Deluge
- High Pressure Safety Injection System (HPSI)
- RCS Sampling System
- Letdown System
- RCS Loop Drain Header
- Charging System (Auxiliary Spray Included)

The piping and valving arrangements for these systems are illustrated in Drawing Nos. 16103-26045, Shetts 5, 6, 6A, and 10, included in the Attachment to Reference (5), and are described below:

(1) The low pressure piping in the LPSI and RHR systems, connected to the RCS, is isolated by two (2) normally closed, motor-operated valves (MOV) in series.

(2) The Core Deluge low pressure piping is isolated from the RCS by a normally closed MOV upstream in series with a check valve.

(3) The HPSI system is isolated from the RCS loop cold legs by a normally closed MOV upstream in series with a check valve.

(4) The Sampling System, Letdown System, and RCS Loop Drain Header utilize no check valves in their piping systems.

(5) The Charging System is rated as a high pressure system, up to and including the charging pumps, and as such, is not vulnerable to Event V accidents. In addition, the valve configuration described in Reference (1) does not exist in the Charging System at the Haddam Neck Plant.

Millstone Unit No. 1

NNECO has reviewed all the piping systems, including the Low Pressure Coolant Injection (LPCI) System, which communicate with the Reactor Coolant System (RCS), penetrate containment, and derate to low pressure piping, and has determined that no Event V valve configurations, as described in Reference (1), exist at Millstone Unit No. 1.

The following systems have been reviewed and identified as high pressure systems, and therefore, have been excluded from the evaluation required by Reference (1):

- Isolation Condenser
- Feedwater System
- Reactor Water Clean-up Return
- Control Rod Drive System
- Head Cooling Spray
- Main Steam

The following systems have been evaluated pursuant to Reference (1):

- Reactor Water Clean-up System Supply
- Core Spray
- Low Pressure Coolant Injection System (LPCI)
- Shutdown Cooling System
- Sampling System
- Standby Liquid Control System

The piping and valving arrangements which separate the low pressure piping from the high pressure piping are described below:

(1) The low pressure piping in the Reactor Water Clean-up System is isolated from the RCS by two (2) motor-operated valves (MOV) in series. These valves are normally open and fail closed.

(2) The Core Spray System is isolated from the RCS by a check valve in series with a normally closed MOV.

(3) The LPCI System is isolated from the RCS by a check valve in series with a normally closed MOV.

(4) The piping in the Shutdown Cooling System is isolated from the RCS by two (2) normally closed MOV's in series.

(5) The Sampling System is isolated from the RCS by two (2) air-operated valves (AOV) in series which are normally closed. These valves fail closed.

(6) The Standby Liquid Control System is isolated from the RCS by a check valve in series with a gate valve which is locked open. Upstream squib valves allow zero seat leakage. In addition, the Standby Liquid Control System is designed to RCS pressure conditions.

Millstone Unit No. 2

NNECO has reviewed all piping systems, including the Low Pressure Safety Injection (LPSI) system, which communicate with the Reactor Coolant System (RCS), penetrate containment, and derate to a lower pressure system, and has determined that no Event V valve configurations, as described in Reference (1), exist at Millstone Unit No. 2.

The following systems have been evaluated pursuant to Reference (1):

- Sampling System
- Shutdown Cooling System
- Letdown System
- Charging System
- Auxiliary Spray System
- Safety Injection (High and Low Pressure)

The piping and valving arrangements separating the high pressure piping from the low pressure piping are described below.

(1) The low pressure piping in the Sampling System is isolated from the RCS by two (2), normally closed, air-operated valves (AOV). These valves fail closed and automatically close upon receiving a Containment Isolation Actuation Signal (CIAS).

(2) The Shutdown Cooling System is isolated from the RCS by two (2), normally closed, motor-operated valves (MOV). These valves are interlocked to prevent opening when the RCS pressure is 300 psi.

(3) The Letdown System piping utilizes three (3) AOV's in series to isolate the high pressure piping from the low pressure piping. These valves are normally open and will fail closed. A CIAS will close two (2) valves and a Safety Injection Signal (SIAS) will close one (1) valve. High temperature in the letdown flow will also cause two (2) valves to close.

(4) The Charging System is classified as a high pressure system up to and including the charging pumps and, as such, is not vulnerable to Event V accidents. The Charging System contains an MOV, one (1) AOV, and two (2) check valves in series between the charging pumps and the RCS. A fifth barrier to leakage from the high pressure piping to the low pressure piping is afforded by the charging pump piston. The valve configuration in the Charging System at Millstone Unit No. 2 does not lend itself to the Event V accident as described in Reference (1).

(5) The valve configuration separating the low pressure piping from the high pressure piping in the Auxiliary Spray System consists of two (2) check valves, one (1) normally closed AOV, and one (1) normally open MOV. The AOV will fail closed.

(6) The low pressure piping in the Safety Injection System is isolated from the RCS piping by three (3) check valves and one (1) MOV. A pressure indicator is located between the inboard and second check valve. Excessive leakage through the inboard check valve will be rapidly detected by this pressure indicator. In addition to the four (4) pressure isolation valves listed above, the LPSI system is equipped with a relief valve located on the main LPSI header. In the event leakage through the four (4) pressure isolation valves should occur, the relief valve will discharge to floor drains.

NNECO and CYAPCO have evaluated the isolation valve configurations providing isolation for low pressure piping systems from the RCS at both the Haddam Neck Plant and Millstone Unit Nos. 1 and 2. Based on these evaluations and the descriptions provided above, NNECO and CYAPCO have determined that no Event V isolation valve configurations, as described in Reference (1), exist at the Haddam Neck Plant, Millstone Unit No. 1 or Millstone Unit No. 2; and, therefore, Items (2) and (3) of Reference (1) are not applicable.

It is noted that the majority of the above information was previously available to the Staff in the form of docketed correspondence. In light of this fact and the fact that Event V accidents of the type described in Reference (1) were identified in WASH-1400 many years ago, the use of 10CFR50.54(f) to expedite disposition of the Reference (1) concerns is judged to be inappropriate.

We trust this information satisfactorily dispositions the Reference (1) concerns.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

W. G. Counsil
Vice President

By: W. F. Fee
W. F. Fee
Vice President

STATE OF CONNECTICUT )
) ss. Berlin March 18, 1980
COUNTY OF HARTFORD )

Then personally appeared before me W. F. Fee, who being duly sworn, did state that he is Vice President of Northeast Nuclear Energy Company, a Licensee herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Licensees herein and that the statements contained in said information are true and correct to the best of his knowledge and belief.

Sheila M. Oster
Notary Public

My Commission Expires March 31, 1981