Northeast
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May 11, 1995

Docket No. 50-423
B15216

Re: 10CFR50.90

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

Millstone Nuclear Power Station, Unit No. 3
Proposed Revision to Technical Specifications
Supplementary Leak Collection and Release
System - Supplemental Information

The purpose of this submittal is to supplement the original request made by Northeast Nuclear Energy Company (NNECO) on December 14, 1994,[1] regarding the surveillance requirement for the supplementary leak collection and release system (SLCRS) and the overall containment integrated leakage rate. During a conference call, the NRC Staff raised questions regarding the safety assessment provided by NNECO to support the proposed license amendment. Provided below are responses to NRC questions related to the amendment request concerning the draw down requirement for the secondary containment:

Question 1: The standard review plan criterion of -0.25 inch water gauge is corrected for the temperature effect of Information Notice 88-76 to -0.4 inch water. According tc plant calculations, the NRC Staff understands that this corresponds to a temperature difference between the inside and outside of only 30 degrees. Is this sufficient for winter conditions?

Response:

The current Surveillance Requirement 4.6.6.1.d.3 verifies that one train of SLCRS in conjunction with the auxiliary building filter system (ABFS) will produce a negative pressure of 0.4 inch water gauge relative to the outside atmosphere at the 24'6" elevation of the auxiliary building within 120 seconds of a start signal (this includes the diesel generator start and load time of approximately 10 seconds).

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(1) J. F. Opeka letter to the U.S. Nuclear Regulatory Commission, "Proposed Revision to Technical Specifications - Supplementary Leak Collection and Release System," dated December 14, 1994.

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Information Notice No. 88-76 informed licensees of a previously unidentified phenomenon which could cause the secondary containment pressure to rise above the allowable value. Basically, the Information Notice states that if a licensee is measuring the pressure differential at lower elevations, the potential exists for the licensee to be at an unacceptable pressure at higher elevations in a tall building during periods of time when the outside and inside air temperatures are significantly different. The Information Notice did not state where pressure differential measurements should be taken, or provide calculational guidance to assume a given percent exfilteration if specific negative pressure differential could not be achieved.

A detailed review of the Millstone Unit No. 3 design drawings has shown that the contiguous buildings defined to be within the secondary containment boundary, namely the engineered safety features (ESF) building, and the auxiliary building (AB), the exterior wall of the hydrogen recombiner building (HRB), and the main steam valve (MSV) building, are interconnected via open air spaces (called shake spaces) to the enclosure building. These connections have a large total cross section, as shown in the following table. Each of the buildings, except for the MSV building, are further connected to the SLCRS suction by ductwork.

BUILDING	HRB	AB	MSV	ESF
Conn. Area, sq. ft.	24	46	38	56
SLCRS Duct. Conn.	Yes	Yes	No	Yes
Top Elev.	47'-10"	91'-6"	84'-11"	54'-9"

An evaluation determined that the various sections of the secondary containment boundary can be considered as one large space due to the large interconnections and ductwork. Any pressure measurement in one location will represent the pressure in other locations at the same elevation.

Since the top of the enclosure building (approx. el. 186') is higher than the top elevation of the other buildings, the calculation for establishing the acceptance criterion only dealt with the enclosure building. Indoor temperature

differences between buildings will have no effect on the acceptance criterion, because the limiting case is the enclosure building.

The proposed changes to Technical Specification 4.6.6.1.d.3 will verify that one train of SLCRS in conjunction with the ABFS will produce a negative pressure of 0.1 inch water gauge relative to the outside atmosphere at the 24'-6" elevation of the AB within 60 seconds of a start signal and the final required negative pressure of 0.4 inch water gauge relative to the outside atmosphere at the 24'-6" elevation of the AB within the next 120 seconds.

For the purpose of this surveillance, pressure measurements will be made at the 24'-6" elevation in the AB. Measuring the negative pressure at this single location is adequate and representative of the entire secondary containment boundary due to the large cross-section of the air passages which interconnect the various buildings within the boundary. In order to ensure a negative pressure in all areas inside the secondary containment boundary under most meteorological conditions, the acceptance criterion at the measured location is a negative pressure of 0.4 inches water gauge. It is recognized that there will be an occasional meteorological condition during which slightly positive internal differential pressure may exist at some localized portions of the boundary (e.g., the upper elevations on the down wind side of a building). For example, a very low outside temperature combined with a moderate wind speed could cause a slightly positive pressure at the upper elevations of the containment enclosure building on the leeward face. Based upon one year's (i.e., 1992) data, the probability of occurrence of meteorological conditions which could result in such a positive differential pressure condition in the upper levels of the enclosure building has been estimated to be less than 2% of the time.

The probability of wind speed within the necessary moderate band, combined with the probability of extreme low temperature, the small portion of the boundary affected, and the low probability of airborne radioactive material migrating to the upper levels ensure that the overall effect on the design basis dose calculations is insignificant.

The ability of the SLCRS and ABFS to meet the proposed Technical Specification requirement to draw a negative pressure of 0.1 inch water gauge in 60 seconds and the final negative pressure of 0.4 inch water gauge within the next 120

seconds at the 24'-6" elevation of the AB has been demonstrated (refer to the response to second question in this submittal).

Question 2: Provide data to show that the pressure at all areas served by SLCRS is less than that measured at the 24'-6" elevation of the auxiliary building and is trending in the negative direction during the first 60 seconds of operation of SLCRS. Provide a brief description of how the data were obtained.

Response:

Inservice Tests 3-93-045 and 046 recorded SLCRS drawdown data at the 24'-6" elevation of the AB, MSV, and ESF buildings in October 1993. These additional data points were taken to verify that the AB readings were reflective of the rest of the boundary. All three locations measured differential pressure from inside to outside the SLCRS boundary. The first 60 seconds of data is provided below. The summer data shows that pressures in the MSV and ESF buildings were less than the AB at the 60 second mark. The winter data shows that the pressure differential in the MSV and ESF AB was equal to or .05 inch water gauge higher than the AB at 60 seconds. Except for the first 10-20 seconds, all data trends in the negative direction. The initial trend is caused by the shutdown of normal ventilation systems which have designed excess exhaust flow rates. The exterior walls of the HRB forms a part of the enclosure building boundary. No interior area of the HRD is within the secondary containment boundary. Therefore, no data was taken for the HRB.

---\Season ----\Bldg. Time\Train	SUMMER AB A B	SUMMER MSVB A B	SUMMER ESF Bldg. A B	WINTER AB A B	WINTER MSVB A B	WINTER ESF Bldg. A B
0	-0.14/-0.18	-0.25/-0.30	-0.12/-0.15	0.15/-0.10	NA /NA	-0.10/-0.15
10	-0.10/-0.11	-0.30/-0.25	-0.12/-0.15	-0.20/-0.10	NA/-0.15	-0.07/-0.10
20	-0.10/-0.22	-0.35/-0.35	-0.12/-0.23	-0.20/-0.20	NA/-0.15	-0.15/-0.20
30	-0.18/-0.30	-0.25/-0.40	-0.25/-0.29	-0.25/-0.35	NA/-0.25	-0.25/-0.30
40	-0.28/-0.38	-0.30/-0.55	-0.35/-0.40	-0.45/-0.40	NA/-0.35	-0.45/-0.45
50	-0.38/-0.42	-0.45/-0.50	-0.45/-0.45	-0.45/-0.45	NA/-0.40	-0.55/-0.48
60	-0.42/-0.48	-0.50/-0.60	-0.50/-0.52	-0.50/-0.55	NA/-0.50	-0.60/-0.55

Question 3: Millstone 3 LER 93-009-00 (Page 3 of 3) contains the following discussion of air flows in the Enclosure Building.

"Air flows throughout the Enclosure Building, other than the MSVB hot air stream, were into the Auxiliary Building directly or via the Engineered Safety Features Building. This general flow path would be expected with SLCRS running except that most of the air normally flowing to the Auxiliary Building would be directed to the SLCRS ductwork in the Enclosure Building."

Describe the testing and measurements which provide the basis for this statement.

Response:

Air flow directions and patterns were determined by use of a smoke generator in the ESF, MSV, Auxiliary and Enclosure Buildings with normal ventilation running. Air volume and velocities were not quantified during this testing. Smoke generated at the open shake spaces in the ESF and MSV Buildings was drawn into the Enclosure Building. Smoke generated in the Enclosure Building at both the ESF and MSV Building locations was carried towards the AB. Some smoke generated at the MSV was carried via a thermal column, up to higher elevations of the Enclosure Building, which were not readily accessible. At the openings between the AB and the Enclosure Building, the generated smoke was flowing into the AB. The SLCRS suction ductwork is broken up into four branches, the largest of which is located in the Enclosure Building on the AB side at approximately 112' in elevation. When SLCRS operation is required, all ESF and MSV Building ventilation within the SLCRS boundary is shutdown, therefore Enclosure Building air flows would be most influenced by the >5000 cfm SLCRS suction in the Enclosure Building.

We believe the above information, coupled with the information provided in our December 14, 1994, submittal, provides a complete basis for approval of the requested amendment. NNECO requests that this proposed license amendment be reviewed and approved by May 25, 1995, to support the plant startup from the current refueling outage which began on April 14, 1995.

Should the NRC Staff require any additional information, please contact Mr. R. G. Joshi at (203) 440-2080.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

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