

November 25, 2002

Mr. J. A. Price
Site Vice President - Millstone
Mr. David A. Smith
Dominion Nuclear Connecticut, Inc.
Rope Ferry Road
Waterford, CT 06385

SUBJECT: MILLSTONE POWER STATION, UNIT NO. 3 - CORRECTION TO SAFETY
EVALUATION (SE) FOR AMENDMENT NO. 211 (TAC NO. MB3700)

Dear Mr. Price:

On September 16, 2002, the U.S. Nuclear Regulatory Commission (NRC) issued Amendment No. 211 to Facility Operating License No. NPF-49 for the Millstone Power Station, Unit No. 3 (MP3) in response to your application dated December 20, 2001.

The amendment changed the licensing basis for the post-accident operation of the Supplementary Leakage Collection and Release System as described in the MP3 Final Safety Analysis Report.

In the Safety Evaluation (SE) Section 3.1, "Relative Concentrations (X/Q) Estimates," 3^d paragraph, last sentence, the word "DNC" should have been "NRC."

In the SE Section 3.2.2, "Technical Evaluation," first paragraph, fifth sentence, the phrase "that the NNS fans continue" should have been "one fan (3HVQ-FN2) continues."

Enclosed, please find the revised SE pages 2 and 5.

Sincerely,

/RA/

Victor Nerses, Sr. Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosure: As stated

cc w/encl: See next page

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Millstone Power Station
Unit 3

cc:

Ms. L. M. Cuoco
Senior Nuclear Counsel
Dominion Nuclear Connecticut, Inc.
Rope Ferry Road
Waterford, CT 06385

Edward L. Wilds, Jr., Ph.D.
Director, Division of Radiation
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

First Selectmen
Town of Waterford
15 Rope Ferry Road
Waterford, CT 06385

Mr. P. J. Parulis
Manager - Nuclear Oversight
Dominion Nuclear Connecticut, Inc.
Rope Ferry Road
Waterford, CT 06385

Mr. W. R. Matthews
Vice President and Senior
Nuclear Executive - Millstone
Dominion Nuclear Connecticut, Inc.
Rope Ferry Road
Waterford, CT 06385

Ernest C. Hadley, Esquire
P.O. Box 1104
West Falmouth, MA 02574-1104

Mr. John Markowicz
Co-Chair
Nuclear Energy Advisory Council
9 Susan Terrace
Waterford, CT 06385

Mr. Evan W. Woollacott
Co-Chair
Nuclear Energy Advisory Council

128 Terry's Plain Road
Simsbury, CT 06070

Mr. D. A. Christian
Senior Vice President - Nuclear Operations
and Chief Nuclear Officer
Innsbrook Technical Center - 2SW
5000 Dominion Boulevard
Waterford, CT 06385

Senior Resident Inspector
Millstone Nuclear Power Station
c/o U.S. Nuclear Regulatory Commission
P. O. Box 513
Niantic, CT 06357

Mr. G. D. Hicks
Director - Nuclear Station Safety
and Licensing
Dominion Nuclear Connecticut, Inc.
Rope Ferry Road
Waterford, CT 06385

Mr. D. A. Smith
Manager - Licensing
Dominion Nuclear Connecticut, Inc.
Rope Ferry Road
Waterford, CT 06385

Ms. Nancy Burton
147 Cross Highway
Redding Ridge, CT 00870

Mr. William D. Meinert
Nuclear Engineer
Massachusetts Municipal Wholesale
Electric Company
Moody Street
P.O. Box 426
Ludlow, MA 01056

Millstone Power Station
Unit 3

cc:

Mr. S. E. Scace
Director - Nuclear Engineering
Dominion Nuclear Connecticut, Inc.
Rope Ferry Road
Waterford, CT 06385

Mr. M. J. Wilson
Manager - Nuclear Training
Dominion Nuclear Connecticut, Inc.
Rope Ferry Road
Waterford, CT 06385

supporting the determination of spray coverage within the free volume of the containment. The licensee's proposed resolution of this concern and subsequent impacts to the radiological analyses were submitted to the NRC by letter dated September 28, 2000.

During an August 29, 2001, conference call between the NRC staff and DNC personnel, the staff raised further questions related to the analysis of containment spray mixing rate during a design-basis loss-of-coolant accident (LOCA). Specifically, the analysis uses an enhanced mixing model to quantify the spray coverage and the time-dependent mixing rate between the unsprayed regions and the sprayed regions. During the conference call, the staff indicated that based on their review, additional information would be needed for approval of the application of the mixing model relied upon in the MP3 license amendment request. Containment spray coverage and the derived mixing rates are used to establish the iodine removal efficiency of the sprays and, therefore, have a direct impact on the associated post-accident dose assessment.

Subsequently, in a letter dated September 21, 2001, DNC committed to submit a revised dose assessment using an NRC-approved methodology and requested that the staff suspend their review until a revised dose assessment related to the dose consequences was completed and formally submitted to the NRC. The licensee's letter dated December 20, 2001, provided the information so the staff could complete the review that had been suspended.

3.0 EVALUATION

Two FSAR Chapter 15 design-basis accident (DBA) radiological consequences analyses were affected by the change to the SLCRS design-basis, the LOCA and the Rod Ejection Accident. The following discusses the changes made by the licensee and the staff's evaluation.

3.1 Relative Concentration (X/Q) Estimates

The licensee has provided X/Q estimates for postulated design-basis accident releases to the exclusion area boundary (EAB), low population zone (LPZ), and control room air intake. X/Q values calculated for the EAB and LPZ use the methodology described in Regulatory Guide (RG) 1.145 (Ref. 1) and adapted from RG 1.3 (Ref. 2) for fumigation conditions. X/Q values for ground level releases to the control room air intake were estimated using the Murphy-Campe (Ref. 3) methodology. Estimates for the MP3 elevated release from the MP1 stack were made using the RG 1.145 methodology assuming both fumigation and non-fumigation conditions.

Some of the X/Q values provided update historical values using computer assessment to replace the original hand calculations. The licensee had observed some inconsistencies in the statistical analyses between the older and newer calculations and determined that the X/Q values should be based on the modern techniques. In addition, new control room X/Q values were calculated for several other postulated release locations that were recently identified.

The postulated release from the Main Steam Valve Building (MSVB) does not meet the diffuse source option criteria of the Murphy-Campe methodology since the difference in elevation between the release and receptor height is less than 30 percent of the building height. However, flow that would carry effluent to the control room intake would meet several aerodynamic obstructions, resulting in enhanced mixing. NRC staff also made limited confirmatory approximations for the MSVB release point using the ARCON96 (Ref. 4) methodology.

were inadvertently manipulated. The licensee's analysis indicated that inadvertent manipulation of the adjacent equipment within the NNS fan breaker cubicles would have no effect on the successful mitigation of the LOCA event.

In summary, the licensee has provided the staff with sufficient information to demonstrate that the operators are capable of performing the required functions to secure selected NNS-grade fans within a prescribed timeframe following a LOCA and under conditions presumed to exist at the time the actions are required. The licensee has developed and implemented adequate procedures and training for the conduct of such actions. The proposed use of operator actions, as described in the proposed license amendment and revision to the licensee's FSAR are, therefore, acceptable.

3.2.2 Technical Evaluation

The licensee has performed three separate leakage scenarios, each one limiting for the dose calculation offsite, in the control room, and in the technical support center (TSC). For calculation of the offsite dose, the licensee assumed the NNS fans continue operating, with the associated leakage through boundary dampers, for the entire 30-day dose analysis period. For the control room habitability analysis, the licensee assumed the NNS fans continue to operate for 1 hour and 20 minutes, at which time the fan breaker is assumed to have been manually tripped. At 1 hour and 40 minutes, the control room ventilation system is realigned to the filtered recirculation mode and the control room is repressurized. The TSC habitability analysis assumes one fan (3HVQ-FN2) continues to operate until manually secured by an operator 1 hour and 20 minutes after the accident. This proposed use of operator actions was found acceptable as described in detail in Section 3.2.1. Therefore, the staff found the licensee's radiological analysis assumptions that take credit for these operator actions acceptable. For example, the duration and rate of the release through the SLCRS bypass pathways are based on operator actions to secure certain NNS fans. It is also noted that all scenarios assume offsite power is available for the duration of the accident.

The licensee made some additional changes to the LOCA dose analysis. The iodine species composition and iodine core inventory available for release from the containment have been changed to be those assumed in U.S. Atomic Energy Commission (USAEC) Technical Information Document (TID) 14844 (Ref. 5), and are, therefore, acceptable. In addition, the licensee used dose conversion factors from the International Commission on Radiation Protection Publication 30 (ICRP-30), which the staff also finds acceptable.

The iodine removal coefficients (λ) in Insert G of the licensee's submittal dated April 19, 2000, were verified by the staff using the information provided by the licensee. All the coefficients were calculated using the methodology described in Standard Review Plan (SRP) Section 6.5.2, "Containment Spray as a Fission Product Cleanup System." NRC staff review has verified that the licensee's calculated values for these coefficients are acceptable.

The licensee's analysis submitted in 1998 used a Stone and Webster Engineering Corporation proprietary methodology to determine calculated input values for containment mixing due to sprays. The staff had many discussions with the licensee and its contractor about this methodology. In particular, during a conference call on August 29, 2001, the staff requested more information about this methodology, because the docketed information did not support a finding of acceptability. By letter dated December 20, 2001, the licensee supplemented the