

May 31, 2001

Mr. R. P. Necci
Vice President - Nuclear Technical Services
c/o Mr. David A. Smith
Dominion Nuclear Connecticut, Inc.
Rope Ferry Road
Waterford, CT 06385

SUBJECT: MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2 - ISSUANCE
OF AMENDMENT RE: ULTIMATE HEAT SINK ACTION REQUIREMENTS
(TAC NO. MB0867)

Dear Mr. Necci:

The Commission has issued the enclosed Amendment No. 257 to Facility Operating License No. DPR-65 for the Millstone Nuclear Power Station, Unit No. 2 (MP2). This amendment consists of changes to the Technical Specifications (TSs) in response to the application dated December 21, 2000, filed by Northeast Nuclear Energy Company (NNECO) as the then licensee for MP2.

At the time of the December 21, 2000, application NNECO was the licensed operator of MP2. On March 31, 2001, all of the owners of MP2 transferred their ownership interests in MP2 to Dominion Nuclear Connecticut, Inc. (DNC), and NNECO's operating authority for MP2 was transferred to DNC. By letter dated April 2, 2001, DNC requested that the U.S. Nuclear Regulatory Commission continue to review and act upon all requests before the Commission that had been submitted by NNECO. Accordingly, we have completed our review of the December 21, 2000, application.

The amendment changes TS 3.7.11 to allow plant operation to continue if the temperature of the Ultimate Heat Sink (UHS) exceeds the TS limit of 75 °F provided the water temperature, averaged over the previous 24-hour period, is at or below 75 °F, and provided the UHS temperature is between 75 °F and 77 °F. Additionally, an associated footnote that is no longer applicable is deleted, and the associated TS Bases are revised to reflect these changes.

R. Necci

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A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/RA/

Jacob I. Zimmerman, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-336

Enclosures: 1. Amendment No. 257 to DPR-65
2. Safety Evaluation

cc w/encls: See next page

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/RA/

Jacob I. Zimmerman, Project Manager, Section 2
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Docket No. 50-336

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2. Safety Evaluation

cc w/encls: See next page

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Accession Number: ML011410153 *SE provided; no major changes made.

OFFICE	PDI-2/PM	PDI-2/LA	RTSB/SC*	SPLB/SC*	OGC	PDI-2/SC
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Millstone Nuclear Power Station
Unit 2

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DOMINION NUCLEAR CONNECTICUT, INC.

DOCKET NO. 50-336

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 257
License No. DPR-65

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the applicant dated December 21, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-65 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 257, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance, and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA VNurses for/

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: May 31, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 257

FACILITY OPERATING LICENSE NO. DPR-65

DOCKET NO. 50-336

Replace the following pages of the Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

3/4 7-34

B 3/4 7-7

Insert

3/4 7-34

B 3/4 7-7

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 257

TO FACILITY OPERATING LICENSE NO. DPR-65

DOMINION NUCLEAR CONNECTICUT, INC.

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

DOCKET NO. 50-336

1.0 INTRODUCTION

By letter dated December 21, 2000, Northeast Nuclear Energy Company (NNECO), the then licensee for Millstone Nuclear Power Station, Unit No. 2 (MP2), requested a change to the MP2 Technical Specification (TS) 3/4.7.11, "Plant Systems - Ultimate Heat Sink." The proposed change is based on the action requirement provisions of Specification 3.7.9, "Ultimate Heat Sink," of NUREG-1432, "Standard Technical Specifications Combustion Engineering Plants" (STS), Revision 1, dated April 7, 1995, as revised by STS generic change TSTF-330, Revision 3, approved on October 13, 2000. Specifically, the proposed action requirements would permit plant operation above the current ultimate heat sink (UHS) temperature limit of 75 °F on the conditions that (a) the temperature averaged over the previous 24-hour period is verified ≤ 75 °F at least once per hour, and (b) the temperature does not exceed a maximum value of 77 °F. In addition to the proposed change to the existing action requirement, NNECO proposed to delete the existing Actions footnote, denoted by an asterisk (*). This footnote was only valid through October 15, 2000, as later explained in the Background Section, and is no longer applicable. Accompanying changes to the Bases pages for TS 3/4.7.11 were also provided.

At the time of the December 21, 2000, application NNECO was the licensed operator of MP2. On March 31, 2001, all of the owners of MP2 transferred their ownership interests in MP2 to Dominion Nuclear Connecticut, Inc. (DNC), and NNECO's operating authority for MP2 was transferred to DNC. By letter dated April 2, 2001, DNC requested that the U.S. Nuclear Regulatory Commission (NRC) continue to review and act upon all requests before the Commission that had been submitted by NNECO. Accordingly, the NRC staff has completed a review of the December 21, 2000, application. The NRC staff's findings are presented below.

2.0 BACKGROUND

The UHS for MP2 is Long Island Sound. The UHS provides the water for the Circulating Water System (CWS) and the Service Water System (SWS) to remove sensible heat from both safety and non-safety components and cooling systems during normal operation, shutdown, and

accident conditions. The CWS is a non-safety system that provides cooling water to the main condenser, and is not used for accident mitigation. The SWS is designed to provide sufficient cooling water to safety-related systems and components to mitigate postulated accident conditions in accordance with the system design basis, which currently assumes the UHS temperature does not exceed 75 °F.

The SWS consists of two independent and redundant flow paths, each supplying cooling water to the following safety-related components:

- Emergency Diesel Generator (EDG) engine coolers,
- Reactor Building Closed Cooling Water (RBCCW) System heat exchangers,
- Vital DC switchgear room chillers, and
- Vital AC switchgear room coolers.

The SWS also removes heat from the non-safety related Turbine Building Closed Cooling Water (TBCCW) System heat exchangers. Service water flow to the TBCCW heat exchangers is isolated on either a loss of normal (offsite) power, or on a safety injection actuation signal (SIAS).

NNECO indicated that tidal effects in the Long Island Sound can cause the UHS to experience temperature swings of 2 to 3 degrees during hot weather conditions. In its application, NNECO reported that a review of plant data for the past 18 years revealed that the 75 °F UHS temperature limit has been exceeded approximately five times, each with a duration of less than 2 hours. During hot weather conditions, in anticipation of exceeding the UHS temperature limit, NNECO has previously sought, and the NRC has granted, temporary relief from the shutdown action required by TS 3/4.7.11. Most recently, on July 10, 2000, the NRC approved a TS change of this nature that was valid through October 15, 2000 (License Amendment No. 247). The TS change allowed continued plant operation for up to 12 hours if the UHS temperature limit was exceeded, provided that NNECO confirmed on an hourly basis that the UHS did not exceed 77 °F while the temperature was above the TS limit. DNC expects the UHS temperature to continue to approach the TS limit during hot weather conditions and, on rare occasions, expects the UHS temperature to exceed 75 °F for short periods of time. The proposed change is expected to enhance safe operation of MP2 by avoiding (a) the risk associated with unnecessary unit shutdown transients, and (b) the administrative burden of processing temporary relief requests during periods when weather conditions are expected to be hot and dry for prolonged periods of time.

3.0 EVALUATION

Licensees have historically experienced elevated UHS temperature conditions during prolonged periods of hot, dry weather and, on occasion, TS temperature limits have been exceeded. Typically, these situations are infrequent, of short duration, and do not pose a challenge to accident mitigating systems and components. Unfortunately, when these conditions arise, prompt action is required by licensees to address TS requirements, which typically include a request for the NRC to exercise enforcement discretion. The Nuclear Energy Institute's TS Task Force (TSTF) proposed a change to the Standard Technical Specification (STS) requirements in order to deal more efficiently with short-lived elevated UHS temperatures that

exceed accident analysis assumptions. The proposed STS change was submitted as TSTF-330, "Allowed Outage Time--Ultimate Heat Sink," and Revision 3 of the TSTF was approved by the NRC for use by licensees on October 13, 2000.

TSTF-330 allows licensees to adopt an averaging approach for satisfying the UHS temperature limit as long as certain criteria are met. During periods when the temperature of the UHS exceeds the TS limit, continued operation is allowed provided that: (a) the licensee confirms on an hourly basis that the rolling 24-hour average UHS temperature does not exceed the TS temperature limit, and (b) the UHS temperature does not exceed a new peak temperature limit that is established based on equipment limitations. TSTF-330 is not applicable for all situations, and licensees who wish to adopt this change to the STS must either confirm that the following conditions are satisfied, or provide justification for any exceptions that are identified:

- The UHS is not relied upon for immediate heat removal (such as to prevent containment overpressurization), but is relied upon for longer-term cooling such that the temperature averaging approach continues to satisfy the accident analysis assumptions for heat removal over time.
- When the UHS is at the peak temperature that is proposed pursuant to TSTF-330, equipment that is relied upon for accident mitigation, anticipated operational occurrences, or for safe shutdown, will not be adversely affected and are not placed in alarm condition or limited in any way at this higher temperature.
- Plant-specific assumptions, such as those that were credited in addressing station blackout and Generic Letter (GL) 96-06, have been adjusted (as necessary) to be consistent with the peak UHS temperature that is proposed pursuant to TSTF-330.
- Cooling water that is being discharged from the plant (either during normal plant operation, or during accident conditions) does not affect the UHS intake water temperature (typical of an infinite heat sink, but the location of the intake and discharge connections, and characteristics of the UHS can have an impact).

The licensee's submittal dated December 21, 2000, requests a change to TS 3.7.11 to include requirements for adopting the UHS temperature averaging approach as allowed by TSTF-330. NNECO proposed to establish 77 °F as the peak UHS temperature that can be allowed based on equipment limitations, and has confirmed that the conditions required by TSTF-330, Revision 3, are satisfied for MP2. NNECO's judgement was based in part on the following considerations:

- The UHS is relied upon for immediate heat removal (containment air recirculation coolers) following a design basis accident. However, the containment temperature/pressure analysis uses 77 °F as the limiting UHS temperature and as long as the peak UHS temperature remains below 77 °F (as required by the proposed change to TS 3.7.11), the accident analysis remains valid.
- The current analysis of the emergency diesel generator (EDG) coolers assumes a SW temperature of 75 °F, with 10% tube plugging. This analysis was reevaluated assuming a 77 °F SW temperature, with EDG cooler tube plugging limited to 5%. NNECO

concluded that the reduced tube plugging limit adequately compensated for the 2 °F increase in UHS temperature, and operation of the EDGs would not be compromised.

- The worst-case fire event (Appendix R) scenario with respect to elevated UHS temperature is a fire in the intake structure. The analysis for this event demonstrates that the reactor coolant system (RCS) can be cooled from hot shutdown to cold shutdown conditions in less than 16.5 hours with the UHS at 75 °F. NNECO concluded that a 2 °F increase in UHS temperature may result in a slight increase in the time required to reach cold shutdown conditions, but will not cause the total time to exceed the 72-hour Appendix R criteria.
- The peak RBCCW temperature attained using a UHS temperature of 77 °F will slightly exceed the RBCCW temperature limit that was assumed in the electrical equipment qualification program (EEQ), RBCCW pipe stress analysis, and RBCCW waterhammer analysis. NNECO qualitatively assessed the impact of an increase in RBCCW temperature by assuming a nominal increase of 2 °F for each of the areas affected (i.e., the difference between 75 °F and 77 °F), and the following conclusions were reached:
 - The engineered safety feature (ESF) room temperature profiles were originally evaluated based on the RBCCW peak temperature analysis of record, with a UHS temperature of 75 °F. The EEQ temperature profiles and qualified post accident operating times were reviewed, and NNECO concluded that there is adequate margin to accommodate a 2 °F rise in the ESF room ambient temperature conditions.
 - Evaluation of RBCCW piping thermal stress levels assumes that a loss of coolant accident (LOCA) or a main steamline break (MSLB) has occurred. These events are emergency or faulted conditions for the purpose of stress analysis, which allow the use of higher stress limits than for normal operating conditions. NNECO concluded that a 2 °F increase in the RBCCW peak operating temperature will not result in stress levels that exceed the allowable values for faulted conditions.
 - In response to GL 96-06, an evaluation was completed to determine if the RBCCW system was vulnerable to waterhammer events. Under accident conditions, the minimum saturation margin during pump operation is about 30 °F, which bounds a 2 °F increase in the RBCCW supply and return temperatures. NNECO also evaluated delayed pump start and cavitation considerations. NNECO concluded that the response to GL 96-06 was not invalidated by a 2 °F increase in UHS temperature.

Based on the NRC staff's review of NNECO's submittal, recognizing the considerations mentioned above, the staff agrees that the criteria for adopting the temperature averaging TS requirements for the UHS as allowed by TSTF-330, Revision 3, are satisfied for MP2. The proposed TS requirements are consistent with the standard that was established by TSTF-330 and approved by the NRC. Therefore, the proposed change to TS 3/4.7.11, to include temperature averaging requirements for elevated UHS temperature conditions, is acceptable to the NRC staff.

In addition to the proposed change to add temperature averaging requirements for the UHS, NNECO also proposed to delete the Actions footnote that is denoted by an asterisk (*). This footnote contains a temporary action requirement that was valid only through October 15, 2000, as discussed above in the Background section. Therefore, deletion of this footnote is administrative and is acceptable to the NRC staff.

4.0 SUMMARY

The NRC staff has reviewed NNECO's submittal and supporting documentation. Based on our review, we find the proposed changes to TS 3/4.7.11 for MP2 to be acceptable. Additionally, we conclude that there is reasonable assurance that plant operation in the proposed manner poses no undue risk to the health and safety of the public.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the staff made a good faith attempt to consult with the Connecticut State official, via e-mail and telephone, of the proposed issuance of the amendment. The State official was not available.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (66 FR 20007). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: J. Tatum
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Date: May 25, 2001