



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 119

TO FACILITY OPERATING LICENSE NO. NPF-49

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3

DOCKET NO. 50-423

1.0 INTRODUCTION

By letter dated April 28, 1995, as supplemented August 2, 1995, the Northeast Nuclear Energy Company (the licensee), submitted a request for changes to the Millstone Nuclear Power Station, Unit No. 3 Technical Specifications (TS). The requested changes would change TS Sections 3.7.5, 4.7.5, and 3/4.7.5 to permit Millstone Unit 3 to remain in operation with the average ultimate heat sink (UHS) water temperature greater than 75° F (but less than or equal to 77° F) for 12 hours and would delete from the TS the location specified for measurement of the UHS water temperature. The August 2, 1995, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

The UHS for Millstone Unit 3 is the Long Island Sound which is the source of cooling water for removing heat from both safety and non-safety related cooling systems during normal power operation, shutdowns and accident conditions via the service water and circulating water systems. It is required to be OPERABLE and is considered OPERABLE if the average water temperature is less than or equal to 75° F. Due to the unusually hot weather experienced in July 1994 (the highest average monthly temperature on record in Connecticut), the Long Island Sound temperature approached the 75° F limit. It is expected that, in the future, the Long Island Sound water temperature may approach or exceed the 75° F limit for a short duration. Therefore, by letter dated April 28, 1995, the licensee requested an amendment to Operating License NPF-49.

2.0 EVALUATION

2.1 TS Section 3.7.5 - Limiting Condition for Operation

With regard to LCO, current TS Section 3.7.5 states that:

The ultimate heat sink shall be OPERABLE with an average water temperature of less than or equal to 75° F at the Unit 3 intake structure.

The licensee proposed to delete the phrase, "at the Unit 3 intake structure," from the current TS.

The licensee stated that the average UHS temperature is obtained by averaging the temperatures measured at the service and circulating water system inlet waterboxes located at the intake structure. Based on an evaluation, the licensee determined that measuring at this location is representative of the UHS temperature. The only exception to this would be when a condenser thermal backwashing evolution is being conducted. Since there is a potential for significant water temperature stratification at the intake structure during this evolution, the licensee stated that when thermal backwashing occurs, operability of the UHS should be monitored by temperature instruments in the service water system. Deleting the phrase, "at the Unit 3 intake structure," from the current TS will permit the use of the temperatures measured in the service water system to represent the average UHS temperature during the evolution when a condenser thermal backwashing is being conducted, and is acceptable as described below.

Based on the staff's review of the licensee's rationale, the staff finds that there is no change to the measuring method used to determine the average UHS temperature during normal operation (when a condenser thermal backwashing is not being conducted), and that the use of the temperatures measured in the service water system to represent the average UHS temperature during the evolution when a condenser thermal backwashing occurs provides an alternate method and a more conservative approach to determine the average UHS temperature. Therefore, the staff agrees with the licensee that operability of the UHS should be monitored by temperature instruments in the service water system during the brief period when a condenser thermal backwashing evolution is being conducted. No safety significance is attached to the UHS temperature monitoring location, as long as the location is representative of the average temperature of the circulating and service water systems. The monitoring location should measure a temperature representative of the temperature of cooling water which reaches the heat exchangers where heat is rejected from reactor and plant heat sources. The optimum location can vary for a particular plant based on the operation configuration (as in this case during condenser backwash). The location of measurement is not required to be in Technical specifications by 10 CFR 50.36(c)(2)(ii)(A), (B), (C), or (D). Also, the staff concludes that deleting the phrase, "at the Unit 3 intake structure," from the current TS will have insignificant or no impact on the performance of both safety and non-safety systems. Therefore, the staff finds the above proposed changes acceptable.

2.2 TS Section 3.7.5 - Action

With regard to action, current TS Section 3.7.5 requires that:

With the requirement of the above application not satisfied, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

The licensee proposed to revise the above action requirement as follows:

If the UHS temperature is above 75° F, monitor the UHS temperature for 12 hours. If the UHS temperature does not drop below 75° F during this period, place the plant in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. During this period, if the UHS temperature increases above 77° F place the plant in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

The licensee stated that based on plant data, the average UHS temperature varies approximately 2° F to 3° F during a typical summer day. Allowing a 12-hour period for monitoring the UHS temperature, if it rises above 75° F, will allow for continuous plant operation without the potential for cyclic power changes as the UHS temperature cycles above and below 75° F. Should the UHS temperature cycle above 75° F for extended periods, the plant will be placed in HOT STANDBY within 18 hours based on a 12-hour monitoring period and a 6 hour time to place the plant in HOT STANDBY. The licensee performed evaluations and concluded that the risk significance of increasing the allowable time to be in HOT STANDBY from 6 to 18 hours should the UHS temperature rise above 75° F is very low. In addition, by letter dated August 2, 1995, the licensee stated that an evaluation of the service water system heat removal capability was performed and concluded that the service water system is capable of performing its accident mitigation function given a UHS temperature of 77° F.

Based on the staff's review of the licensee's rationale, the low probability of an event during this brief period of 12 hours, and the evaluation which was performed to demonstrate that the service water system is capable of performing its accident mitigation function given a UHS temperature of 77° F, the staff concludes that the above proposed changes will have insignificant or no impact on the performance of both safety and non-safety systems. Therefore, the staff finds them acceptable.

2.3 TS Section 4.7.5 - Surveillance Requirements

Current TS Surveillance Requirements Section 4.7.5 states that:

The ultimate heat sink shall be determined OPERABLE:

- a. At least once per 24 hours by verifying the average water temperature at the Unit 3 intake structure to be within limits.
- b. At least once per 6 hours by verifying the average water temperature at the Unit 3 intake structure to be within limits when the average water temperature exceeds 70° F.

The licensee proposed to delete the phrase, "at the Unit 3 intake structure," from the above TS Surveillance Requirements. Based on the evaluation described in the above Section 2.1, the staff finds the above proposed changes to TS Surveillance Requirements Section 4.7.5 acceptable.

2.3 TS Section 3/4.7.5 - Bases

Current TS Bases Section 3/4.7.5 states that:

The limitation on the ultimate heat sink temperature ensures that cooling water at less than the design temperature limit is available to either: (1) provide normal cooldown of the facility or (2) mitigate the effects of accident conditions within acceptable limits.

The limitation on maximum temperature is based on providing a 30-day cooling water supply to safety-related equipment without exceeding its design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Plants," March 1974.

The licensee proposed to replace the above paragraphs with more detailed descriptions to better describe the bases for establishing the proposed LCO, action and surveillance requirements for the UHS.

Based on the staff's review, the staff finds the proposed replacement for the above paragraphs which clarifies and states the bases for the intent of TS Section 3.7.5 and TS Surveillance Requirements Section 4.7.5. for the UHS acceptable.

Based on the staff's review and evaluation, as described above, the staff finds that the proposed changes to TS Section 3.7.5 and TS Surveillance Requirements Section 4.7.5 will provide added flexibility in plant operation and will not endanger the public health and safety. In addition, the proposed modification to the TS Bases will provide personnel with detailed information regarding the bases for establishing the proposed LCO, action and surveillance requirements for the UHS and does not alter the manner in which equipment is operated, nor does it affect equipment availability. Therefore, the staff concludes that the above proposed changes are acceptable and should be approved.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Connecticut State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 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 (60 FR 29881). 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.

5.0 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.

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Date: August 28, 1995