



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 73

TO FACILITY OPERATING LICENSE NO. DPR-21

NORTHEAST NUCLEAR ENERGY COMPANY

MILLSTONE NUCLEAR POWER STATION, UNIT 1

DOCKET NO. 50-245

1.0 INTRODUCTION

By letter dated November 22, 1993, as supplemented March 4, 1994, the Northeast Nuclear Energy Company (NNECO) submitted a request for changes to the Millstone Nuclear Power Station, Unit 1 Technical Specifications (TS). The requested change would revise the TS by clarifying the operability requirements relative to the design function of the scram discharge volume (SDV) - water level high rod block. In addition, NNECO is adding a statement which defines operability and surveillance requirements for the rod block functions while the reactor mode selector switch is in the REFUEL or SHUTDOWN positions. The March 4, 1994, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

The rod block circuitry includes initiation of rod blocks in the event of a high water level in the SDV. This ensures that no control rod is withdrawn unless sufficient capacity is available in the SDV to accommodate the water from the hydraulic control units in the event of a scram. The design of the SDV - water level high input to the rod block monitor circuitry consists of two switches. One switch is located on each of the two instrument volume tanks. Both switches are wired into the "B" rod block trip circuit. The "A" rod block trip circuit does not have any SDV - water level high inputs. A high water level in either SDV will initiate a rod block. This instrumentation was installed during the refueling outage in fall 1982 and the associated TS were approved by the NRC staff in a letter dated November 12, 1982.

On October 14, 1993, questions were raised regarding the consistency between the Millstone Unit 1 TS and the SDV system design. Table 3.2.3, "Instrumentation that Initiates a Rod Block" requires a minimum of one operable instrument channel per trip system for initiation of the SDV - water level high rod block. Note (1) of the table states that there shall be two operable or tripped trip systems for each function.

NNECO determined that the operability requirements for the two switches were not clearly stated in Note (1) of TS Table 3.2.3. NNECO's determination was that, for the SDV - water level high rod block, each of the instrument signals and associated sets of auxiliary equipment is a trip system. A TS clarification was prepared and incorporated into the Technical Requirements Manual. This clarification was discussed with the NRC staff on October 18, 1993. At that time, NNECO committed to provide a license amendment request which would more clearly articulate the appropriate technical specification requirements for the SDV - water level high rod block.

3.0 EVALUATION

In the letter dated November 22, 1993, NNECO proposed to revise TS Table 3.2.3 by clarifying the operability requirements relative to the design function of the SDV - water level high rod block. Specifically, (1) Note (1) of Table 3.2.3 will exclude SDV - water level high from the requirement to have two operable or tripped trip systems for each function, and (2) the "1" in column one of Table 3.2.3 for SDV - water level high, will be replaced with a new Note (8), which describes the operability requirements for SDV water level instruments. This note also requires that a rod block be initiated within 1 hour if either instrument is inoperable. In a conference call with NNECO on January 26, 1994, the NRC staff noted that Note (8) did not contain the modes for which it was applicable. NNECO agreed that mode applicability should be added to Note (8) and in a letter dated March 4, 1994, requested that the words "for the STARTUP/HOT STANDBY and RUN positions of the Reactor Mode Selector Switch, there shall be" be added to the beginning of Note (8). In addition, NNECO is adding a statement to surveillance Section 4.2 which defines operability and surveillance requirements for the rod block functions while the reactor mode selector switch is in the REFUEL or SHUTDOWN positions. This statement is being added as requirement 4.2.B. The existing surveillance requirement is being identified as 4.2.A. This additional surveillance requirement is being added to clarify the requirements for the rod block function in either of these two conditions.

The SDV - water level high rod block is the second tier in a three tier process designed to ensure the SDV can perform its function. Initially, the operator will receive an alarm indicating water level has increased. NNECO procedures direct the operator to drain the water from the SDV on receipt of the alarm. The second tier is the rod block, which prevents the control rods from being moved outward. The third tier is the reactor protection system trip which will scram the reactor on high water level in the SDV. The proposed changes do not change the function of the SDV system.

The changes to TS Table 3.2.3 clarify the wording to more accurately reflect the plant system design. The SDV - water level high rod block was installed in 1982 and the associated TS changes were issued November 12, 1982. The scram discharge system level instrumentation was also the subject of a NRC safety evaluation dated March 6, 1985. In the safety evaluation, the staff concluded that the existing scram discharge volume TS are adequate and do not warrant further revision. There have been no changes to the design of this

interlock since the original safety evaluation was issued. The installed configuration will initiate a rod block in the event of a high water level signal, failure in either instrument, or a failure in the circuitry.

The NRC staff has concluded that the clarifications to TS Table 3.2.3 more clearly describe the operability requirements of the SDV - water level high rod block and are, therefore, acceptable.

The addition of surveillance requirement 4.2.B which defines operability and surveillance requirements for the rod block functions while the reactor mode selector switch is in the REFUEL or SHUTDOWN positions, adds clarity to the requirements for the rod block function. The operability requirements for control rod block instrumentation while in the SHUTDOWN or REFUEL condition are not specifically identified in the Millstone Unit 1 TS. Historically, NNECO has conservatively required the rod block initiation function to be operable in accordance with Table 3.2.3 unless the provisions of Surveillance Requirement 4.1.D are met. Surveillance Requirement 4.1.D contains the surveillance requirements for the reactor protection system when the reactor mode selector switch is in REFUEL or SHUTDOWN and fuel is in the reactor vessel. It states "... no trip functions are required to be operable provided that all control rods are fully inserted, and either electrically or hydraulically disarmed. Thereafter, daily surveillance shall be performed to verify that all control rods remain valved out or electrically disarmed." Having all control rods fully inserted assures the maximum negative reactivity, and having the control rods electrically or hydraulically disarmed will not allow for any control rod motion. Once disarmed, the daily surveillance requirement ensures that the control rods cannot be moved.

The addition of the surveillance requirement for rod block while the reactor is shutdown or is being refueled ensures that the TS contain the necessary controls to ensure that rod block is operable when the ability to move control rods exists. The control rod block instrumentation does not provide any benefit to safety if the control rods are fully inserted and the control rods are either electrically or hydraulically disarmed. Therefore, the NRC staff has concluded that the addition of Surveillance Requirement 4.2.B is acceptable.

4.0 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.

5.0 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 and changes surveillance requirements. 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 (58 FR 67851). 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.

6.0 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: March 30, 1994