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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 67 TO FACILITY OPERATING LICENSE NO. DPR-65

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

DOCKET NOS. 50-336

Introduction

By application dated December 27, 1976, as supplemented by submittals dated July 27, 1977, January 16, 1979 and October 31, 1980, NNECO proposed that the automatic test feature of the engineered safety feature (ESF) actuation instrumentation be accepted and, therefore, allow a reduction in the manual surveillance requirements.

Discussion and Evaluation

The emergency safety features actuation system (ESFAS) design for Millstone-2 included an automatic test-feature injection (ATI) which tests all combinations of two out of four bistable trip conditions for each ESFAS parameter. The auto test feature automatically indicates and identifies faults and verifies bistable calibration every 27 seconds. Each bistable is tested to check that the trip setpoint is functioning properly. This is accomplished by inserting two test pulses in succession at 5% above and 5% below the trip setpoints. Actuation modules and the pulses are returned to the bistables if the equipment performs properly. If the first pulse trips a bistable, or the second pulse does not get through, an ATI fault is indicated. The time duration of the test pulses are sufficiently short to prevent picking up the output actuation relay. The test results are indicated locally by a panel ATI FAULT Lamp. Remote ATI fault status is also reported to the computer and an annunciator. An ATI FAULT indication is held until "cleared" by a reset push button located on the module front panel.

The above description is from NNECO's application for a TS change dated December 27, 1976. In the application, the licensee emphasized its view that ESFAS automatic test-feature provides a more comprehensive test than the manual capability as provided by the original ESFAS logic design. During the meeting of April 26, 1977, between members of the staff and representatives from NNECO, the licensee presented to the staff its proposed modification to the ESF for manually testing of all the ESFAS logic. This modification consists of a manually initiated test pulse which will verify the integrity of the ESFAS logic circuit from the input bistable to the actuation module output. (This modification was described in NNECO letter dated July 27, 1977.) The modified manual test injection (MTI) capability of the logic circuitry now provides a [illegible]

[illegible] ESFAS manual test system and found it acceptable for plant [illegible] in accordance with our letter of May 6, 1977.

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By letter dated January 16, 1979, NNECO presented an accumulation of data on the performance of the continuous ATI surveillance of the ESFAS for over one year of operation. This data documents the reliability of the ATI system in that:

- When challenged with several hundred intentionally applied faults, it has never failed to discover and identify the faulted channel within its overall test program.
- In the five instances reported where ATI identified a real failure, all such operations were subsequently determined to be correct for the situation discovered.
- In the one instance where the channel was discovered not functional, ATI reported this at the time it happened rather than at the next surveillance, as would have been the case with manual testing.

In the fall of 1977 when we were reviewing the use of ATI, we concluded that operating experience must be obtained utilizing such a test circuit before full credit could be given to reduce manual surveillance requirements. We find the data provided now justifies the ATI system reliability to the limit that manual testing of the Millstone-2 ESFAS on a monthly basis is no longer required. Thus, TS Table 4.3-2 notation should be changed to allow credit for automatic testing of the ESFAS as modified by the staff and agreed to by NNECO.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Safety Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: April 9, 1981