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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 129

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 June 27, 1995, as supplemented July 21, 1995, the Northeast Nuclear Energy Company, submitted a request for changes to the Millstone Nuclear Power Station, Unit No. 3 Technical Specifications (TS). The requested changes would revise the TS to relocate containment purge exhaust and supply valves TS requirements, and to remove a duplicate testing requirement for the safety injection input from engineered safety features (ESF) from the TS.

2.0 EVALUATION

2.1 Relocation of Requirements for Containment High Range Radiation Monitors

The licensee proposed to relocate the operability and surveillance requirements for the containment high range radiation monitors (3RMS*RE41 and 3RMS*RE42) from TS Section 3/4.3.3, "Monitoring Instrumentation - Radiation Monitoring for Plant Operations," to TS Section 3/4.3.2, "Engineered Safety Features Actuation System Instrumentation." This change was initiated following an investigation of the December 10, 1991, failure of radiation monitor 3RMS*RE41, which resulted in the automatic closure of the containment purge exhaust and supply valves. After reviewing the reporting criteria under 10 CFR 50.73(a), the licensee initially determined that the event should be classified as non-reportable. However, subsequent evaluations concluded that the event described was an ESF actuation which must be reported pursuant to 10 CFR 50.73(a)(iv). The licensee's misclassification of the event was attributed to the fact that the requirements for the containment purge exhaust and supply valves were not located in the ESF TS tables.

The containment purge supply and exhaust isolation valves are part of the Containment Isolation System. These valves are normally closed during power operation and are designed to close automatically during cold shutdown on a high radiation signal from the containment area radiation monitors. Currently, the TS requirements for the containment purge supply and exhaust isolation valves are located in the Radiation Monitoring Instrumentation TS

tables. In Chapter 6 of the Millstone Unit 3, Final Safety Analysis Report (FSAR), the Containment Isolation System is identified as an ESF. To avoid additional errors in reporting, the licensee proposed to move the containment purge exhaust and supply valves TS requirements to the ESF Instrumentation TS tables. The licensee proposed the following changes to remove all of the containment purge exhaust and supply valve requirements from the Radiation Monitoring portions of TS:

(1) Table 3.3-6, "Radiation Monitoring Instrumentation for Plant Operations"

   (a) Delete line item 1a, Containment Area Purge and Exhaust Isolation

   (b) Delete Action 26 from "Action Statements"

(2) Delete line item 1a, Containment Area Purge and Exhaust Isolation, from Table 4.3-3, "Radiation Monitoring Instrumentation for Plant Operations Surveillance Requirements"

(3) Remove "or automatic isolation action and actuation of Emergency Exhaust or Ventilation System" from the latter part of the last sentence in TS Section 3/4.3.3.1, "Radiation Monitoring for Plant Operations." The last sentence would read "Once the required logic combination is completed, the system sends actuation signals to initiate alarms."

The licensee proposed the following changes to add all of the containment purge exhaust and supply valve requirements to the ESF portions of the TS. With the exception of a few editorial changes, the new table values and table notes were taken directly from the Radiation Monitoring TS tables:

(1) Table 3.3-3, "Engineered Safety Features Actuation System Instrumentation"

   (a) Add an item to line item 3, Containment Isolation, that would describe the purge isolation as having 2 total number of channels, 1 trip channel, 2 minimum channels required operable, Modes 5 and 6 as the applicable modes (with a reference to change 1b below), and Action 26 (with a reference to change 1c below). The table details were obtained from Table 3.3-6.

   (b) Add a note to the table to clarify that in addition to Modes 5 and 6, the Action Statements are also applicable during core alterations and movement of irradiated fuel within the containment. Also noted, the provisions of Specification 3.0.3 are applicable only in Modes 1 through 4.

   (c) Add Action 26 from Table 3.3-6 to the Action Statements list. The first sentence would be reworded for clarity.

(2) Table 3.3-4, "Engineered Safety Features Actuation System Instrumentation Trip Setpoints" - Add an item to line item 3, Containment Isolation, that would denote the trip setpoint and allowable value to be ≤1R/h which is obtained from Table 3.3-6.

(3) Table 4.3-2, "Engineered Safety Features Actuation System Instrumentation Surveillance Requirements"

(a) Add an item to line item 3, Containment Isolation, to describe the purge isolation Surveillance Requirements to include a semi-annual channel check, a refueling outage channel calibration, a quarterly analog channel operational test, and Modes 5 and 6 for which surveillance is required (with reference to change 3b below).

(b) Add a note to specify that in addition to Modes 5 and 6, the Actions are also applicable during core alterations and movement of irradiated fuel within the containment. It was also noted that the provisions of Specification 3.0.3 are not applicable (only applicable in Modes 1 through 4).

The NRC staff has determined that the change relocates previously approved TS requirements from one TS table to another and is therefore, acceptable.

2.2 Removal of Duplicate Testing Requirements for Safety Injection (SI) Input from ESF

The licensee proposed to remove line item 16, Safety Injection (SI) Input from ESF, from TS Table 3.3-1, "Reactor Trip System (RTS) Instrumentation", and from TS Table 4.3-1, "RTS Instrumentation Surveillance Requirements." As indicated in Table 4.3-1, the TS currently require that a trip actuating device operational test (TADOT) be performed on an 18-month frequency for line item 16. As defined in the TS, a TADOT consists of operating the trip actuating device and verifying operability of alarm, interlock, and/or trip functions.

A reactor trip occurs when the SI system is manually or automatically actuated. Automatic SI actuation is initiated by high containment pressure, low compensated steamline pressure, or pressurizer low pressure. The licensee stated that there is no single trip actuating device associated with the automatic SI actuation signal to cause a reactor trip. Instead, the signal originates as three separate inputs from the three pressure signals that cause an automatic SI actuation. Likewise, the manual SI actuation signal, which is generated by pressing two pushbuttons in the main control room, is fed directly to the reactor trip instrumentation to cause a reactor trip. A requirement for a TADOT for "Safety Injection Input from ESF" is very misleading since it does not correspond to a single device. In addition, a TADOT is not specified for any other automatic reactor trip signal.

The safety injection signal is listed as a reactor trip in FSAR Table 7.2-1, "List of Reactor Trips." However, the safety injection signal is not listed along with the other reactor trip signals as having associated instrumentation in FSAR Table 7.2-3, "Reactor Trip System Instrumentation." In addition, FSAR Figure 7.2-1, Sheet 8, "Safeguards Actuation Signals," shows four separate signals going directly to the reactor trip instrumentation - high containment pressure, low compensated steamline pressure, pressurizer low pressure, and manual SI actuation. This confirms that there is no single trip actuating device associated with an automatic SI actuation signal to cause a reactor trip.

The licensee stated that the current testing associated with "SI Input from ESF" (Table 4.3-1, Item 16) is duplicated by the following line items: (1) Table 4.3-1, Item 19, "Automatic Actuation Logic and Actuation Relays," (2) Table 4.3-2, Item 1a, "Safety Injection - Manual Initiation," and (3) Table 4.3-2, Item 1b, "Safety Injection - Automatic Actuation Logic and Actuation Relays." Item 19 requires the performance of an Actuation Logic Test on a monthly staggered test basis. The TS defines the actuation logic test to be the application of various simulated input combinations in conjunction with each possible interlock state and verification of the required logic output. This test also includes a continuity check, as a minimum, of the output devices. Item 19 covers the testing of all of the logic circuitry that produces a signal to perform a reactor trip, which would therefore include the signals generated by a manual or automatic SI. In addition, this testing is performed on a more frequent basis than Item 16, monthly staggered versus refueling.

Item 1a, "SI - Manual Initiation," requires the performance of a TADOT on a refueling basis. This test verifies the operability of the manual SI pushbuttons in the control room through to the initiation of SI, as well as, a reactor trip. Item 1b, "SI - Automatic Actuation Logic and Actuation Relays," requires the performance of an actuation logic test on a monthly staggered basis. This test covers the testing of all of the logic circuitry that produces a signal to initiate a safety injection, which would therefore include the signals generated by the manual SI pushbuttons, low pressurizer pressure, low steamline pressure, and high containment pressure.

The NRC staff concludes that removal of the tests required by line item 16 in TS Tables 3.3.1 and 4.3.1 will not impact overall testing of ESF or RTS instrumentation logics. The staff finds that the tests are duplicated by other RTS and ESF Actuation System Instrumentation Surveillance Requirements. The change is therefore acceptable.

The licensee proposed two changes to the plant's TS. The first change relocates the TS requirements for the containment purge exhaust and supply valves from the radiation monitoring instrumentation tables to the ESF actuation system tables. This change resulted in the transfer of previously approved data from one table to another. The second proposed change removes line item 16, SI Input from ESF, from TS Tables 3.3-1 and 4.3-1. The NRC staff agrees that the tests required by Item 16, "SI Input from ESF," are in fact duplicated by other RTS and ESF Actuation System Instrumentation

Surveillance Requirements. The removal of line item 16 from Tables 4.3-1 and 3.3-1 has no impact on the overall testing of ESF or RTS instrumentation logics. In conclusion, the NRC staff reviewed the proposed changes and finds them to be acceptable.

3.0 STATE CONSULTATION

In accordance with the Commiss[illegible]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 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 (60 FR 62494 dated December 6, 1995). 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.

Principal Contributor: S. Wittenburg

Date: June 27, 1996