

Mr. Harold R. Denton, Director
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December 16, 1981

A. C. THIES, being duly sworn, states that he is Senior Vice President of Duke Power Company; that he is authorized on the part of said Company to sign and file with the Nuclear Regulatory Commission this change to the McGuire Nuclear Station Facility Operating License No. NPF-9; and that all statements and matters set forth therein are true and correct to the best of his knowledge.

A. C. Thies
A. C. Thies, Senior Vice President

Subscribed and sworn to before me this 16th day of December, 1981.

Sue C. Sherrill
Notary Public

My Commission Expires:

September 20, 1984

Attachment 1

McGUIRE NUCLEAR STATION
OPERATING LICENSE NO. NPF-9
PROPOSED LICENSE AMENDMENTS

License Condition No. 2 C.(11)f.

Inadequate Core Cooling Instruments

(3) Upgrade Thermocouple System

Proposed Change

Change the subject license condition to read as follows:

"The licensee shall upgrade the in-containment portion of the incore thermocouple system prior to startup following the first refueling outage and shall upgrade the remainder of the system consistent with implementation of other changes resulting from the Control Room Design Review but no later than December 31, 1983."

Discussion

This item requires the incore thermocouple system to meet a revised set of design criteria in the areas of performance, qualification and operator interface. At the time this condition was included in the McGuire license, Duke Power Company concluded that satisfying these requirements by January 1, 1982 was a virtual impossibility because of the nature of the changes that would be required and the relatively short time available to accomplish them. In a letter to the NRC on April 23, 1981 Duke provided its assessment of the installed thermocouple system and stated its intent to pursue development of a thermocouple system which would meet the criteria in NUREG-0737. Toward this end Duke has done the following:

- (1) Requested a proposal from Westinghouse for an upgraded system
- (2) Evaluated the separation of thermocouple cables for compliance with 10 CFR 50 Appendix R (See my October 21, 1981 letter to Mr. Harold R. Denton)
- (3) Evaluated the survivability of the cables associated with the incore (core exit) thermocouples (See "Analysis of Hydrogen Control Measures at McGuire Nuclear Station", Section 5.0, submitted to the NRC staff on October 31, 1981.)
- (4) Increased the range of the backup display to 2300°F from the original 700°F.

In spite of the above efforts, a final system design has not been developed. Technical problems have delayed the proposal from Westinghouse such that a firm date for receipt of a proposal has not been established. Once a proposed system design is received it must be evaluated against other related requirements.

These include control room design review requirements, safety parameter display system requirements, Regulatory Guide 1.97 requirements and NUREG 0588 requirements to name a few.

The proposed change to the license condition recognizes that there are two distinct phases to this effort. The first phase to be completed prior to the end of the first refueling, involves upgrading the in-containment portion of the system. This would include meeting qualification and separation requirements. The second phase involves upgrading the control room displays. Rather than modify the control room displays in isolation, it is proposed that these displays be modified upon completion of the Control Room Design Review which has been initiated. This assures that all pertinent criteria are properly considered in the final design of the display system.

Safety Analysis

It is Duke Power Company's conclusion that extension of the implementation date beyond January 1, 1982 does not involve any adverse safety considerations. The thermocouple monitoring system as presently installed is a very simple system which by virtue of its simplicity is highly reliable and accessible. The system has the following capabilities:

- (a) A spatially oriented core map is available on demand which indicates the temperature at each core exit thermocouple location. This map can be displayed or printed on demand.
- (b) An example of the McGuire selective readings is an on-demand tabular listing of all instantaneous incore thermocouple values. This listing can be displayed or printed on demand.
- (c) Direct readout of average and instantaneous values, as well as hard-copy capabilities, are provided for all thermocouple temperatures. The range is 0-2300°F.
- (d) Trend capability showing temperature-time histories is designed into the system. Strip chart recorder points are available to assign to any incore thermocouples on demand. In addition, a point-value trend printout is available on the control room typer.
- (e) Alarm capability is provided in conjunction with the Subcooling Monitor, which uses the average of all valid thermocouple readings in its calculations and alarms when the value drops below the setpoint.
- (f) The CRT displays are designed for rapid operator access and ease of viewing data. In addition, the incore program has a validity-check comparison which reduces the probability of accessing false readings.

The backup display has an extended range (0-2300°F) which does not rely on the plant computer. Both the primary and backup display channels are powered by a highly reliable battery-backed power supply.

Thus deferral of the required implementation date will not result in a reduction in the level of safety.

License Condition No. 2.C.(11)1

Final Recommendations of B & O Task Force

(2) Revised Small Break LOCA Model

Proposed Change

Change the subject license condition to read as follows:

"With respect to a revised small break LOCA model (II.K.3.30), the license shall submit prior to May 1, 1982 to the NRC a revised model to account for recent experimental data including data from the LOFT Test Facility and the Semiscale Test Facility."

Discussion

This item requires that the analysis methods used by NSSS vendors and/or fuel suppliers for small-break LOCA analysis for compliance with Appendix K to 10 CFR Part 50 be revised, documented, and submitted for NRC approval.

Westinghouse feels very strongly and Duke Power Company agrees that the small-break LOCA analysis model currently approved by the NRC for use on McGuire Nuclear Station is conservative and in conformance with Appendix K to 10 CFR Part 50. However, (as documented in letter NS-TMA-2318, dated September 26, 1980, T. M. Anderson to D. G. Eisenhower) Westinghouse believes that improvement in the realism of small-break calculations is a worthwhile effort and has committed to revise its small-break LOCA analysis model to address NRC concerns (e.g. NUREG-0611, NUREG-0623, etc.) This revised Westinghouse model is currently scheduled for submittal to the NRC by April 1, 1982 as documented in letter NS-EPR-2524, dated November 25, 1981, E. P. Rahe to D. G. Eisenhower. Duke Power Company, upon review of the Westinghouse submittal would then submit by May 1, 1982 a separate letter referencing the Westinghouse submittal.

Safety Analysis

This item involves improvement to existing safety analyses. In the long term some positive safety benefits may be realized however, deferral of the required submittal date will not result in any adverse safety considerations.