

DUKE POWER COMPANY

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HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

January 12, 1984

TELEPHONE
(704) 373-4531

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Ms. E. G. Adensam, Chief
Licensing Branch No. 4

Subject: McGuire Nuclear Station
Docket No. 50-369
License Condition 2.C.(11)f.(3) Amendment
License Section 2.G Report

Dear Mr. Denton:

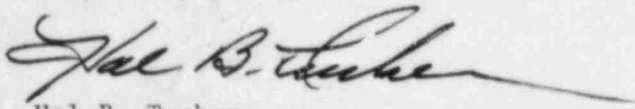
Attached is a proposed amendment to Facility Operating License No. NPF-9 for McGuire Nuclear Station Unit 1. The proposed amendment involves extending the required implementation date for the outside-containment portion of the incore thermocouple system upgrade (NUREG-0737, "Clarification of TMI Action Plan Requirements"; Item II.F.2 - Inadequate Core Cooling Instruments) as specified in License Condition 2.C.(11)f.(3). The new implementation date is consistent with the schedules being identified as part of the response to NUREG-0737, Supplement 1. The in-containment portion of the upgrade will be completed on schedule.

Attachment 1 contains the License Amendment, and Attachment 2 discusses the justification and safety analysis to support the proposed amendment. Pursuant to 10 CFR 50.91, Attachment 3 provides an analysis performed in accordance with the standards contained in 10 CFR 50.92 which concludes that the proposed amendment does not involve a significant hazards consideration. The proposed amendment has been reviewed and determined to have no adverse safety or environmental impact.

Pursuant to 10 CFR 170.22, Duke Power proposes that this application contains one Class II license amendment for McGuire Unit 1. Therefore, a check in the amount of \$1200 is enclosed in accordance with 10 CFR 170.12.

Initial notification of Duke Power's inability to comply with condition 2.C.(11)f.(3) of License No. NPF-9 was made with members of your staff and the regional office on December 30, 1983 in compliance with Section 2.G of the license, with a confirming letter submitted the same date. Accordingly, the information provided herein is also submitted in fulfillment of the written followup reporting provisions of license Section 2.G.

Very truly yours,


Hal B. Tucker

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Attachments

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Harold R. Denton
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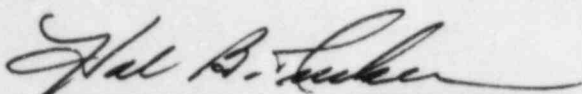
cc: Mr. Dayne Brown, Chief
Radiation Protection Branch
Division of Facility Services
Department of Human Resources
P. O. Box 12200
Raleigh, NC 27605

Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 2900
Atlanta, Georgia 30303

Mr. W. T. Orders
NRC Resident Inspector
McGuire Nuclear Station

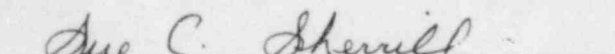
Harold R. Denton
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HAL B. TUCKER, being duly sworn, states that he is Vice President of Duke Power Company; that he is authorized on the part of said Company to sign and file with the Nuclear Regulatory Commission this amendment to the McGuire Nuclear 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.



Hal B. Tucker, Vice President

Subscribed and sworn to before me this 12th day of January, 1984


Notary Public

My Commission Expires:

Sept. 20, 1984

Attachment 1.

McGUIRE NUCLEAR STATION
FACILITY OPERATING LICENSE NO. NPF-9
PROPOSED LICENSE AMENDMENT

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

Inadequate Core Cooling Instruments

(3) Upgrade Incore Thermocouple Monitoring 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 provide a schedule for upgrade of the remainder of the system in the Regulatory Guide 1.97 Accident Monitoring Review Report submittal pursuant to NUREG 0737, Supplement 1."

Attachment 2

JUSTIFICATION AND SAFETY ANALYSIS

Discussion

The license condition 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 the condition was initially included in the McGuire license, Duke Power Company concluded that satisfying these requirements by the original date of 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.

In spite of efforts by Duke Power Company, a final system design had not been developed by December, 1981. Since once a proposed system design was received it still had to be evaluated against other related requirements such as control room design review requirements, safety parameter display system requirements, Regulatory Guide 1.97 requirements and NUREG 0588 requirements to name a few, a license amendment request was submitted (ref. Mr. A. C. Thies' December 16, 1981 letter) and approved extending the required implementation date of the license condition. The change to the license condition recognized that there are two distinct phases to the effort. In Duke Power's March 9, 1983 response to NRC Generic Letter No. 82-28 a plan was provided for upgrading the installed incore thermocouple system to meet the criteria in NUREG 0737. This response described the present system and its capabilities, and described the upgraded system along with the two phase approach to this upgrade. 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 of the control room displays. Rather than modify the control room displays in isolation, it was proposed that these displays be modified upon completion of the Control Room Design Review and the RG 1.97 Accident Monitoring Instrumentation Review which have been initiated. This assures that all pertinent criteria are properly considered in the final design of the display system and is consistent with the intent of Supplement 1 to NUREG 0737.

In pursuing this objective, Duke has done the following:

- (1) Written specifications, reviewed proposals, and procured the equipment necessary for the phase 1 upgrade.
- (2) Reviewed vendor drawings and performed the supporting Duke detailed design necessary for the phase 1 installation.
- (3) Initiated the Control Room Design Review.
- (4) Initiated the RG 1.97 Accident Monitoring Review.

Schedule and Status

The phase 1 upgrade is on target for the submitted schedule. All equipment is presently on site and all design documents have been released to support the February-March 84 refueling outage installation.

The current license condition requires the outside containment upgrade to be implemented no later than December 31, 1983. As previously addressed, the phase 2 upgrade design is being incorporated into the RG 1.97 Accident Monitoring Instrumentation Review and the Control Room Design Review. In the April 14, 1983 response to Supplement 1 of NUREG 0737, the schedule for NRC submittal for the reports from both these reviews is March, 1984. The RG 1.97 Accident Monitoring Review Report will contain the schedule for the phase 2 upgrade which will be an integrated part of the installation of changes from the Accident Monitoring Instrumentation Review and Control Room Design Review.

Safety Analysis

It is Duke Power Company's conclusion that extension of the implementation date for upgrading of the outside containment portion of the incore thermocouple system beyond December 31, 1983 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 core exit thermocouple locations. This map can be displayed or printed on demand.
- (b) An example of the McGuire selective readings is an on-demand tabular listing of 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 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 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.

Following the February-March 84 refueling outage, the portion of the upgraded system which may be exposed to a harsh environment will be qualified to withstand

the accident environment. All other parts of the system which remain to be upgraded are located in a mild environment.

In that these and other control room modifications will only provide incremental improvements in the reliability and human factors aspects of existing displays, deferral of the required implementation date will not result in a reduction in the level of safety.

Attachment 3.

ANALYSIS OF SIGNIFICANT HAZARDS CONSIDERATION

As required by 10 CFR 50.91, this analysis is provided concerning whether the proposed amendments involve significant hazards considerations, as defined by 10 CFR 50.92. Standards for determination that a proposed amendment involves no significant hazards considerations are if operation of the facility in accordance with the proposed amendment would not: 1) involve a significant increase in the probability or consequences of an accident previously evaluated; or 2) create the possibility of a new or different kind of accident from any accident previously evaluated; or 3) involve a significant reduction in a margin of safety.

The proposed amendment would not involve a significant increase in the probability of an accident previously evaluated because the incore thermocouple monitoring system is designed to assess plant conditions during and following an accident and can have no effect on cause mechanisms. The consequences of accidents previously evaluated would not be significantly increased by extending the required implementation date because upgrading of the outside-containment portion of the incore thermocouple system will only provide incremental improvements in the reliability and human factors aspects of existing control room displays. The thermocouple monitoring system as presently installed is highly reliable and accessible.

The proposed amendment would not create the possibility of a new or different kind of accident than previously evaluated since the incore thermocouple monitoring system cannot cause an accident to occur. In addition, no changes to margins of safety are involved in extending the implementation date.

Based upon the preceding analysis, Duke Power Company concludes that the proposed amendment does not involve a significant hazards consideration.