ATTACHMENT I

PROPOSED TECHNICAL SPECIFICATION REVISION

CONTAINMENT ICE CONDENSER DOORS

CONTAINMENT SYSTEMS

ICE CONDENSER DOORS

LIMITING CONDITION FOR OPERATION

3.6.5.3 The ice condenser inlet doors, intermediate deck doors, and top deck doors shall be closed and OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one or more ice condenser doors open or otherwise inoperable, POWER OPERATION may continue for up to 14 days provided the ice bed temperature is monitored at least once per 4 hours and the maximum ice bed temperature is maintained less than or equal to 27°F; otherwise, restore the doors to their closed positions or OPERABLE status (as applicable) within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.3.1 Inlet Doors - Ice condenser inlet doors shall be:

a. Continuously monitored and determined closed by the inlet door position monitoring system, and

b. Demonstrated OPERABLE during shutdown at least once per ~~9~~ 18 months by:

1) Verifying that the torque required to initially open each door is less than or equal to 675 inch pounds;

2) Verifying that opening of each door is not impaired by ice, frost or debris;

3) Testing a sample of at least 50% of the doors and verifying that the torque required to open each door is less than 195 inch-pounds when the door is 40 degrees open. This torque is defined as the "door opening torque" and is equal to the nominal door torque plus a frictional torque component. The doors selected for determination of the "door opening torque" shall be selected to ensure that all doors are tested at least once during two test intervals;

ATTACHMENT II

JUSTIFICATION AND SAFETY ANALYSIS

JUSTIFICATION AND SAFETY ANALYSIS

The current Technical Specification 4.6.5.3.1 requires that the ice condenser inlet doors be demonstrated operable during shutdown at least once every 9 months. The testing and surveillance required to demonstrate operability is time consuming as well as requiring a power plant shutdown. In the past the ice condenser door testing was scheduled concurrently with the ice weighing operations in the containment. The ice weighing surveillance for the containment is also required once every 9 months. Weighing of the ice baskets of the ice condenser has been carried out with the reactor "ON-LINE". Therefore, an extension of the duration between two ice condenser door inspections to 18 months would avoid a plant shutdown to carry out the ice condenser door surveillance.

The proposed Technical Specification changes would require that the surveillance on the ice condenser doors be performed at least once every 18 months rather than every 9 months as currently required. The extension of the surveillance interval to 18 months would not be a safety concern due to high reliability and forgiving design features of the ice condenser doors as discussed below:

High Reliability of the Ice Condenser Doors

Due Power has reviewed the surveillance records of the ice condenser door to evaluate the door reliability. Unit 1 and Unit 2 doors have been inspected periodically since 1981 and 1983 respectively. There have been 416 individual inspections of the doors at Unit 1 and 216 door inspections at Unit 2. There has not been any failure to meet the acceptance criteria for door testing in all the inspections/tests carried on to date. One reason for the excellent surveillance history of the ice condenser doors is a design change made to the McGuire door seals to prevent the doors from freezing closed. The efficacy of this modification has been commended in the NRC Safety Evaluation Report (Amendment 36, License NPF-9, 1984) concerning the door surveillance requirements (Ref. 1).

In view of the fact that the ice condenser doors have a history of very high reliability, extension of the surveillance interval to 18 months is not a safety concern.

Forgiving Design Features of the Ice Condenser Doors

The acceptance criteria for the ice condenser door passing the inspection is that the door should open with relatively low torque of 675 inch-pounds. This translates into a force of 17 pounds at the door handle. A very small change in the differential pressure across the door exerts a large force on the door. During a LOCA or a high energy line break within the containment, the internal pressure of the containment will rise to between 0 to 15 psig. A rise of internal pressure of about 0.1 psia will open all ice condenser doors by exerting a force of at least 160 lbs.

A rise of pressure of 1 or 2 psig following an accident would open the ice condenser doors even if these were obstructed by debris or were restrained shut by a ½" thick iron bar (Ref. 2). The ice condenser doors are made of 0.5 inch thick Fiber Reinforced Polyester (FRP) reinforced by 6 steel ribs. The doors are expected to rupture during accident if the doors fail to open, thus venting steam to the ice condenser (Ref. 3). The ice condenser doors are designed so that it is virtually impossible to keep the doors shut during any small increase of containment pressure. Surveillance or testing of the doors does not make the doors more or less reliable as far as accident mitigation is concerned.

The doors perform two distinct functions. While the doors are shut, the doors insulate the lower containment from the ice condenser to prevent the degradation of the ice condenser by sublimation, etc. This function is monitored continuously by the inlet door position monitoring system. The second function for the doors is to open during a LOCA or high energy line break. Our analysis has demonstrated that the doors are virtually impossible to keep shut in event of a minor rise of containment pressure. The extension of the ice condenser door surveillance interval to 18 months would not have any adverse impact on the proper functioning of the ice condenser doors.

Conclusion

The ice condenser doors at McGuire have a history of very reliable operation for several years. The doors are designed to make a door-failure virtually impossible during a LOCA or a large high energy line break; the proper functioning of the door during an accident is a passive design feature and it does not depend upon performance of periodic surveillance and testing of the doors. The current Technical Specifications for the ice condenser doors are excessive as well as disruptive. The functional readiness of the ice condenser doors as deemed necessary in the Bases 3/4.6.5.3 (pg. B 3/4 6-5) is adequately addressed by operability of the Door Position Monitoring System and door surveillance once every 18 months.

The extension of the door surveillance interval to 18 months would not have any significant adverse safety consequences.

REFERENCES:

1. NRC Safety Evaluation Report related to Amendment No. 36 to Facility Operating License NPF-9 and Amendment No. 17 to Facility Operating License to Facility Operating License NPF-17.

2. Letter from H. B. Tucker to Dr. J. Nelson Grace (NRC, Region II) dated Feb. 8, 1985. Subject: LER 413/85-02 - Concerning the Blockage of Ice Condenser Lower Inlet Doors (Catawba Nuclear Station).

3. McGuire FSAR Section 6.2.2.8.

ATTACHMENT III

SIGNIFICANT HAZARDS EVALUATION

ANALYSIS OF SIGNIFICANT HAZARDS CONSIDERATION

The proposed changes to the Technical Specification 4.6.5.3.1 have been reviewed pursuant to the requirements of 10CFR50.91. The following analysis provides a determination that the proposed amendment of the Technical Specifications does not involve any significant hazards consideration, as defined by 10CFR50.92.

The proposed amendment seeks to relax an excessive surveillance requirement. The Duke Power review of the ice condenser door surveillance records concludes that higher frequency of door testing does not contribute to improving the reliability of the doors. Similarly reduction of routine surveillance of the ice condenser doors does not reduce their reliability in fulfilling their protective function during an accident. The protective function of the doors is semi-passive and the doors do not require much maintenance or testing. Therefore, the extension of the surveillance interval to 18 months is not a safety concern.

The proposed amendments 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.

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