

Proposed Amendment to Catawba Unit 1 and McGuire Units 1 and
Technical Specification 3.6.5.3 Concerning
Ice Condenser Doors

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JUSTIFICATION AND ANALYSIS OF SIGNIFICANT HAZARDS CONSIDERATION

The proposed amendment is in response to a commitment made during the February 8, 1985 Enforcement Conference for Catawba Unit 1. The Conference was in regard to the incident at Catawba where all but one pair of lower inlet ice condenser doors were found blocked closed. NRC/Region II Staff determined that the applicable ACTION Statement in the Technical Specifications was inadequate in that it allowed the ice condenser doors to be in a closed and inoperable condition for an inordinate amount of time when compared to their safety significance. This proposed amendment is based upon a draft Technical Specification distributed by the Region II Staff at this Conference.

10 CFR 50.92 states that a proposed amendment involves no significant hazards considerations if operation 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 does not increase the probability or consequences of an accident previously evaluated, it does not create the possibility of a new or different kind of accident and it does not involve a significant reduction in a margin of safety.

The Commission has provided guidance concerning the application of standards of no significant hazards determination by providing certain examples (48 FR 14870). One of the examples of actions likely to involve no significant hazards considerations is a change that constitutes an additional limitation, restriction or control not presently included in the Technical Specifications: for example, a more stringent surveillance requirement. This amendment request is adding an additional limitation beyond that currently contained in the Technical Specifications but does not involve reducing any safety margins.

Based upon the above analysis, the proposed amendments are determined to involve no significant hazard considerations.

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:

- (but capable of opening automatically)*
- a. 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.
- b. With one or more ice condenser doors inoperable *(not capable of opening automatically)*, restore all doors to OPERABLE status within 1 hour or be in HOT STANDBY with 6 hours and in HOT SHUTDOWN within the following 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 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~~ *capable of opening automatically in that it is* each door is not impaired by ice, frost, ~~or debris~~ *or other obstruction*;
 - 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;

CONTAINMENT SYSTEMS

BASES

3/4.6.5 ICE CONDENSER

The requirements associated with each of the components of the ice condenser ensure that the overall system will be available to provide sufficient pressure suppression capability to limit the containment peak pressure transient to less than 14.8 psig during LOCA conditions.

3/4.6.5.1 ICE BED

The OPERABILITY of the ice bed ensures that the required ice inventory will: (1) be distributed evenly through the containment bays, (2) contain sufficient boron to preclude dilution of the containment sump following the LOCA, and (3) contain sufficient heat removal capability to condense the Reactor Coolant System volume released during a LOCA. These conditions are consistent with the assumptions used in the accident analyses.

The minimum weight figure of 1269 pounds of ice per basket contains a 10% conservative allowance for ice loss through sublimation which is a factor of 10 higher than assumed for the ice condenser design. The minimum weight figure of 2,466,420 pounds of ice also contains an additional 1% conservative allowance to account for systematic error in weighing instruments. In the event that observed sublimation rates are equal to or lower than design predictions after 3 years of operation, the minimum ice baskets weight may be adjusted downward. In addition, the number of ice baskets required to be weighed each 9 months may be reduced after 3 years of operation if such a reduction is supported by observed sublimation data.

3/4.6.5.2 ICE BED TEMPERATURE MONITORING SYSTEM

The OPERABILITY of the Ice Bed Temperature Monitoring System ensures that the capability is available for monitoring the ice temperature. In the event the system is inoperable, the ACTION requirements provide assurance that the ice bed heat removal capacity will be retained within the specified time limits.

3/4.6.5.3 ICE CONDENSER DOORS

The OPERABILITY of the ice condenser doors and the requirement that they be maintained closed ensures that the Reactor Coolant System fluid released during a LOCA will be diverted through the ice condenser bays for heat removal and that excessive sublimation of the ice bed will not occur because of warm air intrusion.

If an Ice Condenser Door is not capable of opening automatically then system function is seriously degraded and immediate action must be taken to restore the opening capability of the door. Not capable of opening automatically is defined as those conditions in which a door is physically blocked from opening by installation of a blocking device or by obstruction from temporary or permanent installed equipment.

ICE CONDENSER DOORSLIMITING 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:

(but capable of opening automatically)

- a. 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.
- b. With one or more ice condenser doors inoperable (not capable of opening automatically), restore all doors to OPERABLE status within 1 hour or be in HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 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 3 months during the first year after the ice bed is initially fully-loaded and at least once per 6 months thereafter by:
 - 1) Verifying that the torque required to initially open each door is less than or equal to 675 inch pounds;
 - 2) Verifying that ^{capable of opening automatically in that it is} ~~opening of~~ each door is not impaired by ice, frost, ~~or~~ debris; ^{or other obstruction}
 - 3) Testing a sample of at least 25% 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 four test intervals;

CONTAINMENT SYSTEMS

BASES

3/4.6.5 ICE CONDENSER

The requirements associated with each of the components of the ice condenser ensure that the overall system will be available to provide sufficient pressure suppression capability to limit the containment peak pressure transient to less than 14.7 psig during LOCA conditions.

3/4.6.5.1 ICE BED

The OPERABILITY of the ice bed ensures that the required ice inventory will: (1) be distributed evenly through the containment bays, (2) contain sufficient boron to preclude dilution of the containment sump following the LOCA, and (3) contain sufficient heat removal capability to condense the Reactor Coolant System volume released during a LOCA. These conditions are consistent with the assumptions used in the safety analyses.

The minimum weight figure of 1218 pounds of ice per basket contains a 10% conservative allowance for ice loss through sublimation which is a factor of 10 higher than assumed for the ice condenser design. The minimum total weight of 2,368,652 pounds of ice also contains an additional 1% conservative allowance to account for systematic error in the weighing instruments. In the event that observed sublimation rates are equal to or lower than design predictions after 3 years of operation, the minimum ice baskets weight may be adjusted downward. In addition, the number of ice baskets required to be weighed each 9 months may be reduced after 3 years of operation if such a reduction is supported by observed sublimation data.

3/4.6.5.2 ICE BED TEMPERATURE MONITORING SYSTEM

The OPERABILITY of the Ice Bed Temperature Monitoring System ensures that the capability is available for monitoring the ice temperature. In the event the system is inoperable, the ACTION requirements provide assurance that the ice bed heat removal capacity will be retained within the specified time limits.

3/4.6.5.3 ICE CONDENSER DOORS

The OPERABILITY of the ice condenser doors and the requirement that they be maintained closed ensures that the Reactor Coolant System fluid released during a LOCA will be diverted through the ice condenser bays for heat removal and that excessive sublimation of the ice bed will not occur because of warm air intrusion.

3/4.6.5.4 INLET DOOR POSITION MONITORING SYSTEM

The OPERABILITY of the Inlet Door Position Monitoring System ensures that the capability is available for monitoring the individual inlet door position. In the event the system is inoperable, the ACTION requirements provide assurance that the ice bed heat removal capacity will be retained within the specified time limits.

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3/4.6.5.3 ICE CONDENSER DOORS

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