



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20565-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 172 TO FACILITY OPERATING LICENSE NPF-35  
AND AMENDMENT NO. 163 TO FACILITY OPERATING LICENSE NPF-52  
DUKE ENERGY CORPORATION, ET AL.  
CATAWBA NUCLEAR STATION, UNITS 1 AND 2  
DOCKET NOS. 50-413 AND 50-414

1.0 INTRODUCTION

On August 12, 1998, Duke Energy Corporation (the licensee) determined that Technical Specification Surveillance Requirement (SR) 4.6.5.1.b.2 was not being met at Catawba Nuclear Station, Unit 2, because the licensee could not inspect the lower inlet plenum support structures and turning vanes while the units are at power without incurring significant dose to personnel performing the inspection.

By letter dated August 12, 1998, the licensee requested that the NRC exercise discretion not to enforce compliance with the actions required by SR 4.6.5.1.b.2 related to the verification of ice condenser system components with respect to the accumulation of frost or ice. The August 12, 1998, letter documented information previously discussed with the staff in a telephone conversation on August 12, 1998. As result of its review, the staff verbally granted enforcement discretion to Catawba Unit 2 on August 13, 1998, and documented the verbal authorization by a Notice of Enforcement Discretion (NOED) letter dated August 14, 1998 (98-6-015). The NOED will expire upon Unit 2 entering Mode 5 for the end-of-Cycle-9 refueling outage.

By letter dated August 14, 1998, the licensee submitted a request for changes to the Catawba Nuclear Station, Units 1 and 2, Technical Specifications (TSs). The requested changes would revise TS SR 4.6.5.1.b.2 regarding surveillance requirements for the ice condenser. The current requirement specifies that a visual inspection of flow passages be performed once per 9 months to ensure that there is no significant ice and frost accumulation (less than 0.38 inch). The licensee proposed to relax the visual inspection frequency of the lower plenum support structures and turning vanes to once per 18 months, while the remaining parts of the ice condenser will continue to be inspected at 9-month intervals.

2.0 EVALUATION

Currently SR 4.6.5.1.b.2 requires that, at least once per 9 months:

Verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on flow passages between ice baskets, past lattice frames, through the top deck floor grating, or past the lower inlet

plenum support structures and turning vanes is restricted to a thickness of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

The proposed SR would delete a reference to lower the inlet plenum support structures and turning vanes in SR 4.6.5.1.b.2 and add SR 4.6.5.1.c.1, that requires:

Verifying, for the lower inlet plenum support structures and turning vanes only, by a visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

The staff has reviewed the technical aspects of the licensee's request and believes that the requested TS changes are appropriate with respect to the proposed changes. Staff concern with frost and ice buildup considerations originally involved the relatively restricted flow passages associated with the ice basket matrix, and not the lower inlet plenum. The principal reason for requiring that the frost and ice buildup be limited to 0.38 inch stemmed from the steam flow considerations within the ice basket matrix. Uncontrolled buildup of frost and ice in this region can have a significant effect on the pressure drop across the ice condenser. The current and proposed SR intend to assure that adequate flow area is available for steam flow, so that the pressure drop across the ice matrix is acceptable.

The important factor to note is that the lower inlet plenum and associated components (such as the turning vanes) represent a relatively large free volume, such that the available flow area is not significantly affected by any localized frost/ice buildup within this volume. Specifically, the available flow area in the lower inlet plenum is typically 10 to 100 times the flow area within the ice basket matrix. Hence, the literal application of the current SR to the lower inlet plenum region has no significant physical basis. Based on the above discussion, the staff finds the licensee's proposed changes to the TS acceptable.

### 3.0 STATEMENT OF EXIGENT CIRCUMSTANCES

The Commission's regulation, as stated in 10 CFR 50.91, provides special exceptions for the issuance of amendments when the usual 30-day notice cannot be met. One type of special exception is an exigency. An exigency exists when the staff and the licensee need to act quickly and time does not permit the staff to publish a Federal Register notice allowing 30 days for prior comment, and the staff also determines that the amendments involve no significant hazard consideration.

In accordance with 10 CFR 50.91(a)(6)(i)(A), the staff issued a Federal Register notice on August 27, 1998 (63 FR 45872) providing notice of an opportunity for hearing and proposing that the requested amendments involve no significant hazard consideration. The public was allowed 14 days after the date of publication of that notice to provide comments. No comments were received.

On August 12, 1998, as result of discussions with the staff, the licensee concluded that compliance with SR 4.6.5.1.b.2 was not being met because the licensee could not inspect the lower inlet plenum support structures and turning vanes while the units are at power without incurring significant dose to personnel performing the inspection. On August 14, 1998, the licensee submitted its amendment request. In its application, the licensee explained why the exigent situation occurred.

On the basis of the above discussion, the staff has determined that exigent circumstances exist, that the licensee used its best efforts to make a timely application, and did not cause the exigent situation.

#### 4.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards considerations, if operation of the facility, in accordance with the amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (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.

In its analysis of the issue of no significant hazards consideration, as required by 10 CFR 50.91(a), the licensee has provided the following:

##### First Standard

Implementation of this amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated. Approval of this amendment will have no significant effect on accident probabilities or consequences. The ice condenser is not an accident initiating system; therefore, there will be no impact on any accident probabilities by the approval of this amendment. Each unit's ice condenser is currently fully capable of meeting its design basis accident mitigating function. Therefore, there will be no impact on any accident consequences.

##### Second Standard

Implementation of this amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated. No new accident causal mechanisms are created as a result of NRC approval of this amendment request. No changes are being made to the plant which will introduce any new accident causal

mechanisms. This amendment request does not impact any plant systems that are accident initiators, since the ice condenser is an accident mitigating system.

### Third Standard

Implementation of this amendment would not involve a significant reduction in a margin of safety. Margin of safety is related to the confidence in the ability of the fission product barriers to perform their design functions during and following an accident situation. These barriers include the fuel cladding, the reactor coolant system, and the containment system. The performance of these fission product barriers will not be impacted by implementation of this proposed amendment. The ice condenser for each unit is already capable of performing as designed. Operating experience has shown that the performance of the ice condenser would not be adversely impacted by extending the frequency of these SRs [surveillance requirements] to an 18-month interval. No safety margins will be impacted.

The NRC staff has evaluated the amendments and the licensee's analysis against the three standards of 10 CFR 50.92(c). The NRC staff concludes that the amendments meet the three criteria of 10 CFR 50.92(c). Therefore, the staff has made a final determination that the proposed amendments do not involve a significant hazards consideration.

### 5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the South Carolina State official, Mr. Virgil Autry, was notified of the proposed issuance of the amendments. The State official had no comments.

### 6.0 ENVIRONMENTAL CONSIDERATION

The amendments change surveillance requirements. The NRC staff has determined that the amendments involve 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 made a final finding that the amendments involve no significant hazards consideration. Accordingly, the amendments meet 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 amendments.

### 7.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

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