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U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Catawba Nuclear Station
Docket Nos. 50-413 and 50-414
TAC Numbers: 68527, 68528
10CFR50.63, Requirements for Station Blackout

Gentlemen:

On July 21, 1988, the Nuclear Regulatory Commission (NRC) amended its regulations in 10 C.F.R., Part 50. A new section, 50.63, was added which requires that each light-water-cooled nuclear power plant be able to withstand and recover from a station blackout (SBO) of a specified duration. Utilities are expected to have the baseline assumptions, analyses and related information used in their coping evaluation available for NRC review. It also identifies the factors that must be considered in specifying the station blackout duration. Section 50.63 requires that, for the station blackout duration, the plant be capable of maintaining core cooling and appropriate containment integrity. Section 50.63 further requires that each licensee submit the following information:

- A proposed station blackout duration including a justification for the selection based on the redundancy and reliability of the onsite emergency AC power sources, the expected frequency of loss of offsite power, and the probable time needed to restore offsite power.
- A description of the procedures that will be implemented for station blackout events for the duration (as determined in 1 above) and for recovery therefrom.
- A list and proposed schedule for any needed modifications to equipment and associated procedures necessary for the specified SBO duration.

The NRC has issued Regulatory Guide 1.155 "Station Blackout" which describes a means acceptable to the NRC Staff for meeting the requirements of 10 C.F.R. 50.63. Regulatory Guide (RG) 1.155 states that the NRC Staff has determined that NUMARC 87-00 "Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout At Light Water Reactors" also provides guidance that is in large part identical to the RG 1.155 guidance and is acceptable to the NRC Staff for meeting these requirements.

Table 1 to RG 1.155 provides a cross-reference between RG 1.155 and NUMARC 87-00 and notes where the RG takes precedence.

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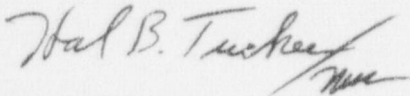
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Catawba has been evaluated against the requirements of the SBO rule using guidance from NUMARC 87-00 except where RG 1.155 takes precedence. The results of this evaluation are detailed in the attached enclosures.

The procedure changes identified in the attached enclosures will be completed 120 days after the notification provided by the Director, Office of Nuclear Reactor Regulation in accordance with 10 C.F.R. 50.63(c) (3).

Very truly yours,



Hal B. Tucker

PGL/III/27

Attachments

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Proposed Station Blackout Duration

NUMARC 87-00, Section 3 was used to determine a proposed SBO duration of four hours.

The following plant factors were identified in determining the proposed station blackout duration:

1. AC Power Design Characteristic Group is P1 based on:
 - a. Expected frequency of grid-related LOOPS does not exceed once per 20 years (Section 3.2.1, Part 1A, p. 3-3);
 - b. Estimated frequency of LOOPS due to extremely severe weather places the plant in ESW Group 1 (Section 3.2.1, Part 1B, p. 3-4);
 - c. Estimated frequency of LOOPS due to severe weather places the plant in SW Group 1 (Section 3.2.1, Part 1C, p. 3-7);
 - d. The offsite power system is in the I1/2 Group (Section 3.2.1, Part 1D, p.3-10);
2. The emergency AC power configuration group is C based on: (Section 3.2.2, Part 2C, p. 3-13)
 - a. There are 2 emergency AC power supplies per unit not credited as alternate AC power sources (Section 3.2.2, Part 2A, p. 3-15);
 - b. 1 emergency AC power supply is necessary per unit to operate safe shutdown equipment following a loss of offsite power (Section 3.2.2, Part 2B, p. 3-15).
3. The target EDG reliability is 0.95.
 - a. A target EDG reliability of 0.95 was selected based on having a nuclear unit average EDG reliability for the last 100 demands greater than 0.95 consistent with NUMARC 87-00, Section 3.2.4.

4. An alternate AC (AAC) power source will be utilized at Catawba which meets the criteria specified in Appendix B to NUMARC 87-00.

The AAC power source is available within ten minutes of the onset of the station blackout event and has sufficient capacity and capability to operate systems necessary for coping with a station blackout for the required SBO duration of four hours to bring and maintain the plant in safe shutdown. It is noted that Class 1E battery(ies) capacity, compressed air and containment isolation need not be addressed.

The AAC power source is the Standby Shutdown Facility (SSF). The SSF houses systems and components necessary to provide an alternate and independent means to achieve and maintain a hot shutdown condition for either Catawba unit. The SSF was designed to resolve the safe shutdown requirements for fire protection and physical security. The SSF has the capability of maintaining hot standby conditions for approximately three and a half days following a loss of normal AC power. This is well beyond the required coping duration of four hours. Due to the safeguards nature of a detailed description of the SSF, no more details of the SSF will be given in this letter.

B. Procedure Description

Plant procedures have been reviewed and modified, if necessary, to meet the guidelines in NUMARC 87-00, Section 4 in the following areas. The following procedures have been reviewed:

Station Blackout Response Guidelines

Emergency Procedure for Loss of All AC Power - EP/1(2)/A/5000/03
Standby Shutdown Facility Operations - OP/0/A/6100/13

AC Power Restoration

Emergency Procedure for Loss of All AC Power - EP/1(2)/A/5000/03
Emergency Procedures for Capacity Shortage

Severe Weather Guidelines

Procedure for Natural Disaster and Earthquake - RP/0/A/5000/07

The following procedures will be revised:

Emergency Procedure for Loss of All AC Power - EP/1(2)/A/5000/03
Procedure for Natural Disaster and Earthquake - RP/0/A/5000/07

1. Condensate Inventory For Decay Heat Removal (Section 7.2.1)

It has been determined from Section 7.2.1 of NUMARC 87-00 that 75,452 gallons of water are required for decay heat removal for four hours. There is a technical specification requirement for condensate sources at Catawba for unit 2 only (reference Technical Specification 3.7.1.5) for a contained water volume of at least 225,000 gallons. However, during a Station Blackout the Condenser Cooling Water System will supply the Auxiliary Feedwater Pump. This supply of water is different from the condensate sources required by the Technical Specifications. This source of condensate exceeds the required quantity for coping with a four hour station blackout. No plant modifications or procedure changes are needed to utilize these water sources.

2. Reactor Coolant Inventory (Section 2.5)

The AAC source powers the necessary make-up systems to maintain adequate reactor coolant system inventory to ensure that the core is cooled for the required coping duration.

3. Effects of Loss of Ventilation (Section 7.2.4)

The calculated steady state ambient air temperature for the steam driven AFW pump room (the dominant area of concern for a PWR) during a station blackout induced loss of ventilation is 160^o F.

The assumption in NUMARC 87-00, Section 2.7.1 that the control room will not exceed 120°F during a station blackout has been assessed. The control room complex at Catawba does not exceed 120°F during a station blackout. The blacked out unit will be controlled from the SSF Control Room which has its own ventilation system powered by the SSF Diesel Generator. Therefore, neither control room is a dominant area of concern.

Reasonable assurance of the operability of station blackout response equipment in the above dominant area of concern has been assessed using Appendix F to NUMARC 87-00 and/or the Topical Report. No modifications or associated procedures are required to provide reasonable assurance for equipment operability.