

January 7, 2003

Mr. G. R. Peterson
Site Vice President
Catawba Nuclear Station
Duke Energy Corporation
4800 Concord Road
York, South Carolina 29745-9635

SUBJECT: CATAWBA NUCLEAR STATION, UNITS 1 AND 2 RE: ISSUANCE OF
AMENDMENTS (TAC NOS. MB6311 AND MB6312)

Dear Mr. Peterson:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 203 to Facility Operating License NPF-35 and Amendment No. 196 to Facility Operating License NPF-52 for the Catawba Nuclear Station, Units 1 and 2. The amendments consist of changes to the Technical Specifications in response to your application dated September 12, 2002, as supplemented by letter dated December 30, 2002.

The amendments temporarily revise TS 3.5.2, "Emergency Core Cooling System;" TS 3.6.6, "Containment Spray System;" TS 3.7.5, "Auxiliary Feedwater System;" TS 3.7.7, "Component Cooling Water System;" TS 3.7.8, "Nuclear Service Water System;" and TS 3.8.1, "AC Sources."

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/RA/

Robert E. Martin, Senior Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-413 and 50-414

Enclosures:

1. Amendment No. 203 to NPF-35
2. Amendment No. 196 to NPF-52
3. Safety Evaluation

cc w/encls: See next page

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DISTRIBUTION:

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3. Safety Evaluation

PUBLIC	ACRS	RDennig
PDII-1 R/F	GHill (4)	LPlisco, RII
RHaag,RII	OGC	CDoutt
WBeckner	HBerkow	

cc w/encls: See next page

ADAMS ACCESSION NO: ML030070375

*See Previous concurrence

OFFICE	PDII-1/PM	PDII-1/LA	DSSA/SPSB*	DSSA/SPLB*	DSSA/SRXB*	OGC*	PDII-1/SC
NAME	RMartin for CPatel	CHawes	MReinhart	SWeerakkody	FAkstulewicz	RWeisman	JNakoski
DATE	1/6/03	1/6/03	12/10/02	12/6/02	12/6/02	12/31/02	1/3/03

OFFICIAL RECORD COPY

DUKE ENERGY CORPORATION
NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION
SALUDA RIVER ELECTRIC COOPERATIVE, INC.
DOCKET NO. 50-413
CATAWBA NUCLEAR STATION, UNIT 1
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 203
License No. NPF-35

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Catawba Nuclear Station, Unit 1 (the facility) Facility Operating License No. NPF-35 filed by the Duke Energy Corporation, acting for itself, North Carolina Electric Membership Corporation and Saluda River Electric Cooperative, Inc. (licensees), dated September 12, 2002, as supplemented by letter dated December 30, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-35 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 203 , which are attached hereto, are hereby incorporated into this license. Duke Energy Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

John A. Nakoski, Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: January 7, 2003

DUKE ENERGY CORPORATION
NORTH CAROLINA MUNICIPAL POWER AGENCY NO. 1
PIEDMONT MUNICIPAL POWER AGENCY
DOCKET NO. 50-414
CATAWBA NUCLEAR STATION, UNIT 2
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 196
License No. NPF-52

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Catawba Nuclear Station, Unit 2 (the facility) Facility Operating License No. NPF-52 filed by the Duke Energy Corporation, acting for itself, North Carolina Municipal Power Agency No. 1 and Piedmont Municipal Power Agency (licensees), dated September 12, 2002, as supplemented by letter dated December 30, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 196 , which are attached hereto, are hereby incorporated into this license. Duke Energy Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

John A. Nakoski, Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: January 7, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 203

FACILITY OPERATING LICENSE NO. NPF-35

DOCKET NO. 50-413

AND LICENSE AMENDMENT NO. 196

FACILITY OPERATING LICENSE NO. NPF-52

DOCKET NO. 50-414

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

3.5.2-1

3.6.6-1

3.7.5-1

3.7.7-1

3.7.8-1

3.8.1-1

3.8.1-3

Insert

3.5.2-1

3.6.6-1

3.7.5-1

3.7.7-1

3.7.8-1

3.8.1-1

3.8.1-3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 203 TO FACILITY OPERATING LICENSE NPF-35
AND AMENDMENT NO. 196 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

By letter dated September 12, 2002, as supplemented by letter dated December 30, 2002, Duke Energy Corporation, et al. (DEC, the licensee), submitted a request for changes to the Catawba Nuclear Station, Units 1 and 2, Technical Specifications (TS). The requested changes would temporarily revise TS 3.5.2, "Emergency Core Cooling System (ECCS)"; TS 3.6.6, "Containment Spray System (CSS)"; TS 3.7.5, "Auxiliary Feedwater System (AFW)"; TS 3.7.7, "Component Cooling Water System (CCW)"; TS 3.7.8, "Nuclear Service Water System (NSWS)"; and TS 3.8.1, "AC Sources."

On October 4, 2000, the Nuclear Regulatory Commission staff (NRC) issued TS Amendment Nos. 189 and 182 for Catawba Nuclear Station, Units 1 and 2, to temporarily revise several TS sections to allow the systems listed above (among others) to be inoperable for up to 12 days during NSWS system upgrades. The upgrades included a cleaning and pipe replacement project that was completed during the last Unit 1 refueling outage in the fall of 2000. The cleaning process removed corrosion products, silt, sediment, and biological build-up from the pipe inside diameter. The cleaning also allowed for an internal inspection of the NSWS piping. Based on the results of those inspections, the licensee has identified a longitudinal seam weld over an approximately 20-foot section of the "A" NSWS header that is undergoing degradation. The weld is located on the bottom of the pipe that was covered with silt prior to the pipe cleaning in the fall of 2000. The licensee stated that the integrity of this section of pipe is not in jeopardy at this time. However, the licensee is concerned that, over time, the pipe will degrade and will eventually begin to leak. After evaluating different options, the licensee has determined that removal of the affected pipe section is the preferred course of action. During detailed planning by the licensee, it was determined that the scope of activities is such that the work could not be completed within the 72-hour Required Action time that the TS currently allows. Therefore, the licensee has requested a temporary (one time) extension of the Required Action time from 3 days to 7 days for the systems listed above. This will allow the NSWS header "A" to be taken out of service for up to 7 days for pipe replacement.

The licensee stated that the pipe replacement will enhance system integrity for long term operation, minimize system unavailability and allow for detailed inspection and testing of the section of pipe removed. The proposed changes to TS requirements provide the operational flexibility necessary to perform the NSWS pipe replacement with both units operating at power. During the time period that the "A" NSWS header will be inoperable, the "B" NSWS header and associated support systems will remain operable. In this configuration, the operable loop will

still respond as designed during design basis events. The supplement dated December 30, 2002, provided clarifying information that did not change the scope of the September 12, 2002, application, nor the initial no significant hazard consideration determination.

2.0 REGULATORY EVALUATION

Section 50.36 of Title 10 of Code of Federal Regulation requires all operating licenses for nuclear power reactors to include Technical Specifications (TS) for the subject plant. The limiting conditions for operation along with required completion times are specified for each system included in the TS. Catawba, Units 1 and 2 have implemented the Improved Technical Specifications. The licensee has submitted risk information in support of the proposed temporary changes. In evaluating the risk information submitted by the licensee, the three-tiered approach documented in Regulatory Guide (RG) 1.177, "An approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," was followed. The first tier of the three-tiered approach includes the assessment of the risk impact of the proposed change for comparison to acceptance guidelines consistent with the Commission's Safety Goal Policy Statement, as documented in RG 1.174 entitled "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis."

3.0 TECHNICAL EVALUATION

3.1 Evaluation of Systems Operation

3.1.1 TS 3.7.8 Nuclear Service Water System

The NSWS provides heat removal for safety related components during a design basis accident (DBA), normal operation, and plant shutdown. In addition, the NSWS provides heat removal for non-safety-related equipment during normal operation.

Each of the two independent NSWS loops (A and B), is shared between the two units. Each loop contains two NSWS pumps that can be powered from separate emergency diesel generator (EDG) and a loop can supply either unit through common discharge piping. The NSWS provides a safety-related source of water to the AFW system and cooling water to the EDGs.

During the refurbishing period, the operable NSWS loop will respond "as designed" to DBAs. Maintenance activities that could impact the NSWS will be curtailed to protect its operability during the refurbishment period. As described in the December 30, 2002, supplement, such activities will be controlled under a "Critical Evolution Plan" that has been developed for the pipe replacement project. As further set forth in the supplement, the Critical Evolution Plan was developed in accordance with Site Directive 3.0.18, "On-Line Maintenance," that was developed to ensure compliance with 10 CFR 50.65(a)(4). The requested 7 days for completing the Required Action is reasonable considering the redundant capabilities of the NSWS, the proposed measures that will be taken to satisfy 10 CFR 50.65(a)(4), and the risk considerations discussed in Section 3.2 of this safety evaluation. Therefore, the requested extension of the Required Action time from 3 to 7 days is acceptable.

3.1.2 TS 3.5.2 Emergency Core Cooling System

The three separate subsystems of ECCS (charging, safety injection, and residual heat removal subsystems) each contain two redundant 100 percent capacity trains. Either of the two trains is capable of supplying all of the required flow for accident mitigation. In addition, the ability to interconnect the two trains provides the flexibility of providing 100 percent of the required flow from either loop. Certain ECCS component cooling functions are met by the CCW system. The licensee indicated that calculations show that the CCW train in service can support required loads during cross train alignment.

In this configuration, the one available NSWS loop and associated train are able to respond to design basis events. In accordance with the Critical Evolution Plan, the operable loop and train will be protected to the extent practical during this extended period of operation. The requested period of 7 days for completing the Required Action is reasonable considering the redundant capabilities of the system, the ability to interconnect the two trains, and the risk considerations discussed in Section 3.2 of this evaluation. Therefore, the requested extension of the Required Action time from 3 days to 7 days is acceptable.

3.1.3 TS 3.6.6 Containment Spray System

The CSS provides containment atmosphere cooling to limit post-accident pressure and temperature increase to within design limits. There are two separate, equal-capacity trains, each capable of meeting the requirements for post-accident cooling. During the injection phase of a postulated accident, the CSS takes suction from the refueling water storage tank. In the recirculation phase, it takes suction from the containment sump. In this case, the water is cooled through a heat exchanger, that is supplied with cooling water from the NSWS. This water will not be available to the affected train during the refurbishment period of 7 days.

The requested period of 7 days for completing the Required Action is reasonable considering the redundant capabilities of the system and the risk considerations discussed in Section 3.2 of this safety evaluation. Therefore, the requested extension of the Required Action time from 3 days to 7 days is acceptable.

3.1.4 TS 3.7.5 Auxiliary Feedwater System

The AFW includes three trains, two with motor driven pumps and one with a turbine driven pump, capable of feeding all steam generators through various valving alignments. The AFW system is considered operable when the components and flow paths required to provide redundant flow are operable. The turbine driven AFW pump is supplied water by both loops of NSWS. Therefore, the loss of one loop of NSWS renders only one train of motor driven AFW inoperable. The operable NSWS loop provides water to the other motor driven pump and the turbine driven pump. The preferred source of water supply for normal operation is from the condenser hotwell or the upper surge tanks, which are not safety grade. Additional water is available from the standby nuclear service water pond. In addition, another source of water is available to the turbine driven AFW pump from the piping in the Condenser Circulating Water System as part of the operation of the system known as the Standby Shutdown System. This

system provides an alternate means to achieve and maintain a hot shutdown condition following postulated fire and sabotage events.

Unless there is a transient and the condensate quality water supply becomes unavailable, the NSWWS will not be required. In case of an accident, the operable trains will be able to respond fully to the AFW supply needs. In accordance with the Critical Evolution Plan, the available NSWWS train will be protected to the extent practical during the refurbishing period. The requested period of 7 days for completing the Required Action is reasonable considering the redundant capabilities of the system and the risk considerations discussed in Section 3.2 of this safety evaluation. Therefore, the requested extension of the Required Action time from 3 days to 7 days is acceptable.

3.1.6 TS 3.7.7 Component Cooling Water System

The CCW system provides a heat sink for the process and operating heat from safety related components during a DBA or a transient. During normal operation, the CCW provides a heat sink for various non-essential components and acts as a barrier (for the potential release of radioactive byproducts) between potentially radioactive systems and the environment. The CCW system is configured as two independent, full capacity loops, each of which includes two 50 percent capacity pumps. Each train is powered from a separate electrical bus. In the event of a DBA, only one train is needed to supply the flow assumed in the safety analysis. Therefore, only the redundancy of the CCW is affected by the extension of the required action from 3 days to 7 days. In accordance with the Critical Evolution Plan, the licensee is also planning, using plant procedures, to cross tie selected CCW loads while the affected CCW heat exchanger is out of service. The requested period of 7 days for completing the Required Action is reasonable considering the redundant capabilities of the system, proposed measures that will be taken, and the risk considerations discussed in Section 3.2 of this safety evaluation in accordance with the Critical Evolution Plan. Therefore, the requested extension of the Required Action time from 3 days to 7 days is acceptable.

3.1.7 TS 3.8.1 Emergency Diesel Generators

The EDGs provide essential auxiliary power to supply the class 1 E loads required to safely shut down the plant following a DBA. The EDGs are required to assume certain loads upon detection of bus undervoltage and to also supply the blackout switchgear. Diesel cooling water is supplied by the NSWWS. During the NSWWS refurbishment, cooling water from NSWWS will not be available to one of the EDGs. Although the affected EDG will be declared inoperable in accordance with TS requirements, the licensee stated that the DG will be functional because it will be supplied with an alternate non-safety related water supply, in accordance with the Critical Evolution Plan. The requested period of 7 days for completing the Required Action is reasonable considering the redundant capabilities of the system, proposed measures that will be taken, and the risk considerations discussed in Section 3.2 of this safety evaluation. Therefore, the requested extension of the Required Action time from 3 days to 7 days is acceptable.

3.1.8 Contingencies

The extensions of the Required Action times to 7 days that is discussed for the various systems above will be used only once during the replacement of the affected pipe in one NSWS loop. During this period, the licensee stated that there will be no major testing or maintenance planned on the NSWS or the affected systems. The licensee also stated that the affected EDG will be provided with a non-safety related water supply and will be functional even though it will be declared inoperable due to the unavailability of its NSWS cooling.

In addition, the licensee stated that the following measures will be implemented to enhance the safety of the operation during the 7 day period:

1. During the 7-day period when operating with only one operable NSWS header, no major maintenance or testing shall be planned on the remaining operable NSWS header. In addition, during the 7-day period, no major maintenance or testing shall be planned on the operable equipment that relies upon NSWS as a support system. To the maximum extent practicable, routine tests (e.g. quarterly pump tests) and preventive maintenance work (e.g. motor checks) will be scheduled prior to or following the 7-day period. Certain tests may have to be performed during the 7-day period.
2. Diesel Generator Jacket Water Heat Exchanger - A Temporary Station Modification will be installed on the "A" train EDGs on both units to maintain the technically inoperable EDG capable of being manually started while the normal NSWS supply piping is being replaced. This will be accomplished by using water from the fire protection system.
3. Diesel Generator Starting Air - A Temporary Station Modification will be installed on the "A" train EDGs on both units to maintain the cooling water to the diesel generator starting air system aftercoolers while the normal NSWS supply piping is being replaced. This will be accomplished by using drinking water to supply the aftercooler. This cooling water flow rate is adequate to maintain the non safety-related function of the starting air compressors.
4. No major maintenance or testing shall be planned on the operable offsite power sources during the NSWS system pipe replacement. Switchyard activities will be coordinated to ensure that the operable offsite power supply and main transformer on both units are protected to the maximum extent practicable.
5. Appropriate training will be provided to Operations personnel on this TS change, contingency measures to be implemented during this pipe replacement project, and actions to be taken in the event of flooding in the turbine building. Also, Operations will review the loss of NSWS and loss of CCW procedures.
6. During the 7-day period, no major maintenance or testing shall be planned on the Standby Shutdown Facility (SSF). To the maximum extent practicable, routine tests and preventive maintenance work for the SSF will be scheduled prior to or following the 7-day period.

7. During the 7-day period, no major maintenance or testing shall be planned on the operable trains of ECCS, containment spray system, AFW, CCW, and EDG. Routine tests and preventive maintenance work for these systems will be scheduled prior to or following the 7-day period. These items are being done to ensure the operable trains are protected to the maximum extent practicable.
8. During the 7-day period that a NSWS header is out of service, the operable trains remaining in service will be considered protected trains. Operations will increase their routine monitoring of these trains to help ensure their operability. This increase in routine monitoring will also include the Turbine Building to ensure no flooding in this area.
9. Plant procedures will be used to cross tie selected CCW system loads during the time period a CCW heat exchanger will be out of service during the NSWS pipe replacement.
10. The turbine building flood event is one of the dominant contributors to the results [of the risk assessment]. For both units, the condenser circulating system will be inservice and no major maintenance or testing shall be planned. This will help minimize any potential challenges to this system.
11. An action taken by Catawba to reduce the likelihood of an operator failing to get to the SSF and perform the required actions is to station an individual in the SSF continuously. This individual is trained on how to operate the SSF diesel generator and the standby makeup pump to establish an alternate method of reactor coolant pump (RCP) seal injection. This will provide additional assurance that the SSF will be available during the NSWS pipe replacement project.

The licensee also stated that the project to replace the degraded section of the "A" train of the NSWS will require an excavation area of considerable size to achieve personnel safety requirements. Since the "B" train is located approximately four feet away from the "A" train, there will be a time period during which portions of both trains will be uncovered. Therefore, compensatory measures for missile protection will be in place to ensure proper protection.

3.1.9 Summary and Conclusion for System Operations

The licensee requested a temporary extension for the Required Action time for systems affected by the NSWS piping replacement activities. The actual extension is from 3 to 7 days for Catawba, Units 1 and 2 while both units are operating. The replacement activities will affect the availability of the redundant systems. Each unit will be able to respond to a DBA if the available trains respond as designed. The licensee will enhance this capability by treating the affected trains as protected systems, in satisfaction of 10 CFR 50.65(a)(4). Given these considerations, in conjunction with the risk perspective discussed in Section 3.2 of this safety evaluation, the staff finds the requested extension in Required Action time from 3 to 7 days is acceptable.

3.2 Evaluation of Risk Assessment

3.2.1 Risk Assessment Evaluation

In evaluating the risk information submitted by the licensee, the three-tiered approach documented in RG 1.177 was followed. The first tier of the three-tiered approach includes the assessment of the risk impact of the proposed change for comparison to acceptance guidelines consistent with the Commission's Safety Goal Policy Statement, as documented in RG 1.174. The first tier aims at ensuring that the plant risk does not increase unacceptably during the period the equipment is taken out of service. The second tier addresses the need to preclude potentially high risk configurations that could result if equipment in addition to that associated with the change is taken out of service simultaneously. The third tier addresses the establishment of an overall configuration risk management program (CRMP) for identifying risk significant configurations resulting from maintenance or other operational activities and taking appropriate compensatory measures to avoid such configurations.

3.2.2 Quality of Risk Assessment

The licensee used its probabilistic risk assessment (PRA) model to assess the risk associated with taking the "A" loop of the NSWS for each unit out of service for up to 7 days (4 days beyond its current TS limit of 72 hours). The risk assessment has taken some credit for the compensatory actions that are to be implemented during the proposed NSWS outage. For example, it was assumed that there will be no planned outage of several risk-significant equipment, such as the redundant trains of the safety-related systems, during the NSWS outage. In addition, the licensee used its PRA to identify dominant contributing sequences to the estimated increase in risk as well as major contributing failures and human errors. Insights from the risk assessment were used in identifying appropriate monitoring and compensatory measures. For example, the risk assessment identified a flooding initiating event in the Turbine Building (TB) as a dominant risk contributor when the "A" loop of NSWS is unavailable. To reduce this risk, the licensee committed to avoid any planned maintenance of the condenser circulating water system in both units, the major source of flooding in the TB.

In support of a previous similar amendment request to upgrade the NSWS (NRC issued related TS amendment on October 4, 2000), the licensee submitted its list of the dominant sequences and cutsets that contributed over 90 percent to the estimated increase in risk. The staff evaluated the quality of this information by comparing it to applicable findings from the staff's review of the PRA (developed as part of licensee's individual plant evaluation) as well as to findings for similar plants and found it acceptable.

3.2.3 Risk Impact of the Proposed Change (Tier 1)

An acceptable approach to risk-informed decisionmaking is to show that the proposed change to the licensing basis meets several key principles (RG 1.174). One of these principles is to show that the proposed change results in an increase in risk, in terms of core damage frequency (CDF) and large early release frequency (LERF), that is small and consistent with the Commission's Safety Goal Policy Statement. Acceptance guidelines for meeting this principle are presented in RG 1.174. Although RG 1.174 refers to permanent changes to the licensing basis while the licensee proposes a temporary change to allow a one-time AOT extension for each NSWS train, the guidance provided in RG 1.174 can be used to show that the proposed

change results in an increase in risk that is small and consistent with the Commission's Safety Goal Policy Statement.

The licensee used its PRA model of the plant to calculate the following risk increases due to the proposed temporary change:

- The mean CDF associated with both units will increase by about $2.6E-6$ /year (i.e., about $1.3E-6$ per year per unit) during the 1-year period following implementation of the 4-day NSW train outage extensions.
- The LERF associated with both units will increase by less than $1E-7$ /year during the 1-year period following implementation of the 4-day NSW train outage extensions.

According to the guidelines of RG 1.174, the estimated increases in the mean values of CDF and LERF are of low to moderate risk significance. However, if several recently implemented improvements in both design and operations are taken into consideration, the actual net risk increase for the plant during the 1-year period following implementation of the 4-day NSW train outage extensions will be insignificant or the plant risk may actually decrease. For example, Catawba recently installed RCP seals that are qualified for higher temperatures. Using the current Catawba PRA model, the licensee estimated that this modification alone has reduced the plant CDF by approximately 16 percent.

In addition to changes in the mean values of CDF and LERF, the incremental conditional core damage probability (ICCDP) and the incremental conditional large early release probability (ICLERP) were assessed. These quantities are a measure of the increase in probability of core damage and large early release, respectively, during a single outage assumed to last for the entire duration allowed by the proposed change and are as follows:

- ICCDP: $2.6E-6$ ($1.3E-6$ per unit)
- ICLERP: less than $5E-8$

These values were compared with the acceptance guidance criteria of $5E-7$ for ICCDP and $5E-8$ for ICLERP, respectively, outlined in RG 1.177. This comparison shows that the value of ICCDP is somewhat higher than $5E-7$ while the value of ICLERP indicates a small risk impact. However, the value of ICCDP would most likely be significantly smaller had the effects of many non-quantified monitoring and compensatory measures been considered. For example, during the 7-day period the operable trains will be considered protected trains and all routine monitoring will be increased. For the above reasons and the fact that the proposed TS change is not a permanent change, the plant risk will not increase unacceptably.

3.2.4 Avoidance of High Risk Plant Configurations (Tier 2)

The licensee used its PRA to identify dominant contributing sequences and associated cutsets to the estimated increase in risk as well as major contributing failures and human errors. Insights from the risk assessment were used in identifying the monitoring and compensatory measures (listed in the submittal on pages 3-13 and 3-14 and in section 3.1.8 of this report) to avoid high risk plant configurations during outage of the NSW "A" train of each Catawba unit.

The staff finds that the proposed precautions, as well as their proposed implementation of compensatory measures to satisfy 10 CFR 50.65(a)(4), are adequate for preventing the identified high risk plant configurations.

3.2.5 Risk-Informed Configuration Risk Management (Tier 3)

The intent of the risk-informed configuration risk management program is to ensure that plant safety is maintained and monitored during an extended outage. A formal commitment to maintain a CRPM is required on the part of a utility prior to implementation of a risk-informed TS whenever such TS is entered and risk-significant components are taken out of service. Licensees have programs in place to comply with 10 CDF 50.65(a)(4) to assess and manage risk from proposed maintenance activities. These programs can support licensee decisionmaking regarding the appropriate actions to control risk whenever a risk-informed TS is entered.

3.2.6 Conclusion for Risk Evaluation

Based on the foregoing, the staff concludes that the results and insights of the risk analysis support the proposed temporary extensions in Required Action time from 3 days to 7 days.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and 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 previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (67 FR 63692). 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.

6.0 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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