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September 12, 2002

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Subject: Duke Energy Corporation
Catawba Nuclear Station, Units 1 and 2
Docket Numbers 50-413 and 50-414
Proposed Technical Specification Amendment
Technical Specification 3.5.2, Emergency Core Cooling System, 3.6.6, Containment Spray System, 3.7.5, Auxiliary Feedwater System, 3.7.7, Component Cooling Water System, 3.7.8, Nuclear Service Water System, & 3.8.1, AC Sources - Operating

Pursuant to 10 CFR 50.90, Duke Energy Corporation is requesting an amendment to the Catawba Nuclear Station Facility Operating License and Technical Specifications (TS). This request is for temporary changes to TS 3.5.2, Emergency Core Cooling System (ECCS), 3.6.6, Containment Spray System, TS 3.7.5, Auxiliary Feedwater (AFW) System, TS 3.7.7, Component Cooling Water (CCW) System, TS 3.7.8, Nuclear Service Water System (NSWS), and 3.8.1 AC Sources - Operating for Catawba Nuclear Station Units 1 and 2. The proposed TS changes will allow the "A" Nuclear Service Water System (NSWS) header for each unit to be taken out of service for 7 days for pipe replacement. This pipe replacement is scheduled to occur when Units 1 and 2 are at power operation.

The attached justification supports these proposed changes.

The contents of this amendment request package are as follows:

Attachment 1 provides a marked copy of the affected TS pages for Catawba, showing the proposed changes. Attachment 2 contains reprinted pages of the affected TS pages. Attachment 3 provides a description of the proposed changes and technical justification.

A001

Pursuant to 10 CFR 50.92, Attachment 4 documents the determination that the amendment contains No Significant Hazards Considerations.

Pursuant to 10 CFR 51.22(c)(9), Attachment 5 provides the basis for the categorical exclusion from performing an Environmental Assessment/Impact Statement. Implementation of this amendment to the Catawba Facility Operating License and TS will not impact the Catawba Updated Final Safety Analysis Report (UFSAR).

Catawba Nuclear Station has used probabilistic risk analysis (PRA) to determine the risk associated with taking a loop of NSWS out of service for this project. Catawba Nuclear Station has taken a proactive approach towards proper risk management as demonstrated by the installation of reactor coolant pump seals designed to accommodate higher temperatures. The risk increase associated with the proposed NSWS outage extension should be considered in combination with the risk reductions already achieved at Catawba. The core damage frequency contribution from the proposed outage extension is judged to be acceptable for a one-time, or rare, evolution.

The proposed NSWS pipe replacement modification will increase over system reliability. Catawba Nuclear Station strongly believes that the short term increase in risk associated with this temporary TS change is acceptable because of the increased reliability gained.

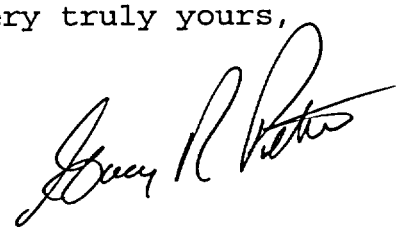
Duke is requesting NRC review and approval of this proposed amendment by December 1, 2002, so that the NSWS pipe replacement may commence. The structural integrity of this section of NSWS piping is not in question at this time. The concern is that over time the pipe will degrade and eventually leak. This proposed license amendment was modeled after a similar license amendment previously granted by the NRC for Catawba Nuclear Station. Catawba has kept this submittal as close to the previous amendment to the extent practicable. The NRC granted the SER for Amendment Nos. 189 and 182 on October 4, 2000.

In accordance with Duke administrative procedures and the Quality Assurance Program Topical Report, this proposed amendment has been previously reviewed and approved by the Catawba Plant Operations Review Committee and the Duke Corporate Nuclear Safety Review Board.

Pursuant to 10 CFR 50.91, a copy of this proposed amendment is being sent to the appropriate State of South Carolina official.

Inquiries on this matter should be directed to R. D. Hart at (803) 831-3622.

Very truly yours,



Gary R. Peterson

RDH/s

Attachments

Gary R. Peterson affirms that he is the person who subscribed his name to the foregoing statement, and that all the matters and facts set forth herein are true and correct to the best of his knowledge.

Gary R. Peterson, Site Vice President

Subscribed and sworn to me: 9/12/2002
Date

Notary Public

My commission expires: 7/10/2012
Date

SEAL

xc (with attachments):

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ATTACHMENT 1

MARKED-UP TECHNICAL SPECIFICATIONS PAGES FOR CATAWBA

## 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

### 3.5.2 ECCS—Operating

LCO 3.5.2 Two ECCS trains shall be OPERABLE*.

APPLICABILITY: MODES 1, 2, and 3.

---NOTE---
In MODE 3, both safety injection (SI) pump flow paths may be isolated by closing the isolation valves for up to 2 hours to perform pressure isolation valve testing per SR 3.4.14.1.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One or more trains inoperable.<br><br>AND<br><br>At least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available. | A.1 Restore train(s) to OPERABLE status. | 72 hours* |
| B. Required Action and associated Completion Time not met. | B.1 Be in MODE 3.<br><br>AND<br><br>B.2 Be in MODE 4. | 6 hours<br><br><br><br>12 hours |

insert A

*For each ECCS train on Unit 2, the Completion Time that one ECCS train can be inoperable as specified by Required Action A.1 may be extended beyond the 72 hours up to 288 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with cleaning of NSWS piping, valves and branch lines, necessary repairs and/or replacement, valve repair and/or replacement, and replacement of portions of the NSWS piping to the AFW system. Upon completion of the cleaning, upgrades, and system restoration in refueling outage 1 EOC12, this footnote is no longer applicable.

**Insert A**

*For each Unit, the Completion Time that ECCS train 'A' can be inoperable, as specified by Required Action A.1 may be extended beyond the 72 hours up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray System

LCO 3.6.6 Two containment spray trains shall be OPERABLE*.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One containment spray train inoperable. | A.1 Restore containment spray train to OPERABLE status. | 72 hours* |
| B. Required Action and associated Completion Time not met. | B.1 Be in MODE 3.<br>AND<br>B.2 Be in MODE 5. | 6 hours<br><br>84 hours |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.6.1 | Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position. | 31 days |

(continued)

insert B

*For each CSS train on Unit 2, the Completion Time that one CSS train can be inoperable as specified by Required Action A.1 may be extended beyond the 72 hours up to 288 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with the NSWS piping, valves, and branch lines, necessary repairs and/or replacement, and replacement of portions of the NSWS piping to the AFW system. Upon completion of the cleaning, upgrades, and system restoration in refueling outage 1 EOC12, this footnote is no longer applicable.

**Insert B**

*For each Unit, the Completion Time that Containment Spray System train 'A' can be inoperable, as specified by Required Action A.1 may be extended beyond the 72 hours up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

## 3.7 PLANT SYSTEMS

### 3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE*.

---NOTE---
Only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.
---

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One steam supply to turbine driven AFW pump inoperable. | A.1 Restore steam supply to OPERABLE status. | 7 days<br>AND<br>10 days from discovery of failure to meet the LCO |
| B. One AFW train inoperable in MODE 1, 2 or 3 for reasons other than Condition A. | B.1 Restore AFW train to OPERABLE status. | 72 hours*<br>AND<br>10 days* from discovery of failure to meet the LCO |

(continued)

insert C

*For each AFW train on Unit 2, the Completion Time that one AFW train can be inoperable as specified by Required Action A.1 may be extended beyond the "72 hours and 10 days from discovery of failure to meet the LCO" up to 288 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with the NSWS piping, valves, and branch lines, necessary repairs and/or replacement, and replacement of portions of the NSWS piping to the AFW system. Upon completion of the cleaning, upgrades, and system restoration in refueling outage 1 EOC12, this footnote is no longer applicable.

**Insert C**

*For each Unit, the Completion Time that AFW train 'A' can be inoperable as specified by Required Action B.1 may be extended beyond the "72 hours and 10 days from discovery of failure to meet the LCO" up to "168 hours and 10 days from discovery of failure to meet the LCO" as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water (CCW) System

LCO 3.7.7 Two CCW trains shall be OPERABLE*.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One CCW train inoperable. | A.1 ----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops—MODE 4," for residual heat removal loops made inoperable by CCW. ---------- Restore CCW train to OPERABLE status. | 72 hours* |
| B. Required Action and associated Completion Time of Condition A not met. | B.1 Be in MODE 3. AND B.2 Be in MODE 5. | 6 hours 36 hours |

insert D

*For each CCW train on Unit 2, the Completion Time that one CCW train can be inoperable as specified by Required Action A.1 may be extended beyond the 72 hours up to 288 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with the NSWS piping, valves, and branch lines, necessary repairs and/or replacement, and replacement of portions of the NSWS piping to the AFW system. Upon completion of the cleaning, upgrades, and system restoration in refueling outage 1 EOC12, this footnote is no longer applicable.

**Insert D**

*For each Unit, the Completion Time that CCW train 'A' can be inoperable, as specified by Required Action A.1 may be extended beyond the 72 hours up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

## 3.7 PLANT SYSTEMS

### 3.7.8 Nuclear Service Water System (NSWS)

LCO 3.7.8 Two NSWS trains shall be OPERABLE*.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One NSWS train inoperable. | A.1 ----------NOTES----------<br>1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources—Operating," for emergency diesel generator made inoperable by NSWS.<br>2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops—MODE 4," for residual heat removal loops made inoperable by NSWS.<br>----------<br>Restore NSWS train to OPERABLE status. | 72 hours* |

(continued)

Insert E4

*For each NSWS train on Unit 2, the Completion Time that one NSWS train can be inoperable as specified by Required Action A.1 may be extended beyond the 72 hours up to 288 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with the NSWS piping, valves, and branch lines, necessary repairs and/or replacement, and replacement of portions of the NSWS piping to the AFW system. Upon completion of the cleaning, upgrades, and system restoration in refueling outage 1 EOC12, this footnote is no longer applicable.

**Insert E**

*For each Unit, the Completion Time that NSWS train 'A' can be inoperable, as specified by Required Action A.1 may be extended beyond the 72 hours up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

## 3.8 ELECTRICAL POWER SYSTEMS

### 3.8.1 AC Sources—Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE*:

a. Two qualified circuits between the offsite transmission network and the Onsite Essential Auxiliary Power System; and

b. Two diesel generators (DGs) capable of supplying the Onsite Essential Auxiliary Power Systems;

AND

The automatic load sequencers for Train A and Train B shall be OPERABLE.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One offsite circuit inoperable. | A.1 Perform SR 3.8.1.1 for OPERABLE offsite circuit. | 1 hour<br>AND<br>Once per 8 hours thereafter |
| | AND | |
| | A.2 Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable. | 24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s) |
| | AND | |

insert F

(continued)

*For each EDG on Unit 2, the Completion Time that one EDG can be inoperable as specified by Required Action A.1 may be extended beyond the "72 hours and 6 days from failure to meet the LCO" up to 288 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with the NSWS piping, valves, and branch lines, necessary repairs and/or replacement, and replacement of portions of the NSWS piping to the AFW system. Upon completion of the cleaning, upgrades, and system restoration in refueling outage 1 EOC12, this footnote is no longer applicable.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| B. (continued) | B.4 Restore DG to OPERABLE status. | 72 hours*<br>AND<br>6 days* from discovery of failure to meet LCO |
| C. Two offsite circuits inoperable. | C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.<br>AND<br>C.2 Restore one offsite circuit to OPERABLE status. | 12 hours from discovery of Condition C concurrent with inoperability of redundant required features<br><br>24 hours |

(continued)

insert F

*For each EDG on Unit 2, the Completion Time that one EDG can be inoperable as specified by Required Action A.1 may be extended beyond the "72 hours and 6 days from discovery of failure to meet the LCO" up to 288 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with the NSWS piping, valves, and branch lines, necessary repairs and/or replacement, and replacement of portions of the NSWS piping to the AFW system. Upon completion of the cleaning, upgrades, and system restoration in refueling outage 1 EOC12, this footnote is no longer applicable.

**Insert F**

*For each Unit, the Completion Time that the 'A' EDG can be inoperable as specified by Required Action B.4 may be extended beyond the "72 hours and 6 days from discovery of failure to meet the LCO" up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

ATTACHMENT 2

REPRINTED TECHNICAL SPECIFICATIONS PAGES FOR CATAWBA

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 ECCS—Operating

LCO 3.5.2 Two ECCS trains shall be OPERABLE*.

APPLICABILITY: MODES 1, 2, and 3.

---NOTE---
In MODE 3, both safety injection (SI) pump flow paths may be isolated by closing the isolation valves for up to 2 hours to perform pressure isolation valve testing per SR 3.4.14.1.
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ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One or more trains inoperable.<br><br>AND<br><br>At least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available. | A.1 Restore train(s) to OPERABLE status. | 72 hours* |
| B. Required Action and associated Completion Time not met. | B.1 Be in MODE 3.<br><br>AND<br><br>B.2 Be in MODE 4. | 6 hours<br><br>12 hours |

*For each Unit, the Completion Time that ECCS train 'A' can be inoperable, as specified by Required Action A.1 may be extended beyond the 72 hours up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

## 3.6 CONTAINMENT SYSTEMS

### 3.6.6 Containment Spray System

LCO 3.6.6 Two containment spray trains shall be OPERABLE*.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One containment spray train inoperable. | A.1 Restore containment spray train to OPERABLE status. | 72 hours* |
| B. Required Action and associated Completion Time not met. | B.1 Be in MODE 3.<br>AND<br>B.2 Be in MODE 5. | 6 hours<br><br>84 hours |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.6.1 | Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position. | 31 days |

(continued)

*For each Unit, the Completion Time that Containment Spray System train 'A' can be inoperable, as specified by Required Action A.1 may be extended beyond the 72 hours up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

## 3.7 PLANT SYSTEMS

### 3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE*.

---NOTE---
Only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.
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APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One steam supply to turbine driven AFW pump inoperable. | A.1 Restore steam supply to OPERABLE status. | 7 days<br>AND<br>10 days from discovery of failure to meet the LCO |
| B. One AFW train inoperable in MODE 1, 2 or 3 for reasons other than Condition A. | B.1 Restore AFW train to OPERABLE status. | 72 hours*<br>AND<br>10 days* from discovery of failure to meet the LCO |

(continued)

*For each Unit, the Completion Time that AFW train 'A' can be inoperable as specified by Required Action B.1 may be extended beyond the "72 hours and 10 days from discovery of failure to meet the LCO" up to "168 hours and 10 days from discovery of failure to meet the LCO" as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water (CCW) System

LCO 3.7.7 Two CCW trains shall be OPERABLE*.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One CCW train inoperable. | A.1 ----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops—MODE 4," for residual heat removal loops made inoperable by CCW. ---------- Restore CCW train to OPERABLE status. | 72 hours* |
| B. Required Action and associated Completion Time of Condition A not met. | B.1 Be in MODE 3. AND B.2 Be in MODE 5. | 6 hours 36 hours |

*For each Unit, the Completion Time that CCW train 'A' can be inoperable, as specified by Required Action A.1 may be extended beyond the 72 hours up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

3.7 PLANT SYSTEMS

3.7.8 Nuclear Service Water System (NSWS)

LCO 3.7.8 Two NSWS trains shall be OPERABLE*.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One NSWS train inoperable. | A.1 ----------NOTES----------<br>1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources—Operating," for emergency diesel generator made inoperable by NSWS.<br>2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops—MODE 4," for residual heat removal loops made inoperable by NSWS.<br>----------<br>Restore NSWS train to OPERABLE status. | 72 hours* |

(continued)

*For each Unit, the Completion Time that NSWS train 'A' can be inoperable, as specified by Required Action A.1 may be extended beyond the 72 hours up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

## 3.8 ELECTRICAL POWER SYSTEMS

### 3.8.1 AC Sources—Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE*:

a. Two qualified circuits between the offsite transmission network and the Onsite Essential Auxiliary Power System; and

b. Two diesel generators (DGs) capable of supplying the Onsite Essential Auxiliary Power Systems;

AND

The automatic load sequencers for Train A and Train B shall be OPERABLE.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One offsite circuit inoperable. | A.1 Perform SR 3.8.1.1 for OPERABLE offsite circuit. | 1 hour<br>AND<br>Once per 8 hours thereafter |
| | AND | |
| | A.2 Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable. | 24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s) |
| | AND | |

(continued)

*For each Unit, the Completion Time that the 'A' EDG can be inoperable as specified by Required Action B.4 may be extended beyond the "72 hours and 6 days from discovery of failure to meet the LCO" up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| B. (continued) | B.4 Restore DG to OPERABLE status. | 72 hours*<br>AND<br>6 days* from discovery of failure to meet LCO |
| C. Two offsite circuits inoperable. | C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable. | 12 hours from discovery of Condition C concurrent with inoperability of redundant required features |
| | AND | |
| | C.2 Restore one offsite circuit to OPERABLE status. | 24 hours |

(continued)

*For each Unit, the Completion Time that the 'A' EDG can be inoperable as specified by Required Action B.4 may be extended beyond the "72 hours and 6 days from discovery of failure to meet the LCO" up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

# ATTACHMENT 3

# DESCRIPTION OF PROPOSED CHANGES AND TECHNICAL JUSTIFICATION

## Introduction

Pursuant to 10 CFR 50.90, Duke Energy requests temporary changes to Technical Specification (TS) 3.5.2, Emergency Core Cooling System (ECCS) - Operating, 3.6.6, Containment Spray System, 3.7.5, Auxiliary Feedwater (AFW) System, 3.7.7, Component Cooling Water (CCW) System, 3.7.8, Nuclear Service Water System (NSWS), and 3.8.1 AC Sources - Operating for Catawba Nuclear Station Units 1 and 2. The proposed TS changes will allow the "A" Nuclear Service Water System (NSWS) header for each unit to be taken out of service for 7 days to replace a portion of piping. This pipe replacement is scheduled to occur when Unit 1 and 2 are at power operation.

On October 4, 2000 the NRC issued a TS amendment for the Catawba Nuclear Station to temporarily revise several TS sections to allow those systems to be inoperable for up to 12 days for 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, pipe replacement, and testing were performed in 9 ¼ days for train A and 8 ¼ days for B train of the NSWS. This was well within the time frame of 12 days granted by the previous license amendment. The work was performed safely and no licensee event reports (LERs) were generated as a result of this work. This project allowed the inspection of intake structures, cleaning of the NSWS pump house, and cleaning of approximately 8000 linear feet of NSWS piping in various sizes. The cleaning process removed corrosion products, silt, sediment, and biological build-up from the pipe inside diameter and cleaned the pipe to almost bare metal. The cleaning also allowed for an internal inspection of the NSWS piping. This inspection included visual, UT and video taping to document the condition of the NSWS piping after cleaning. Remote cameras were use to videotape internal sections of the piping.

The results of these inspections have been documented in the Catawba corrective action program for review to develop any further actions. This has resulted in identifying the most limiting portions of NSWS piping to schedule repairs and/or replacement. This review 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 which was covered with silt prior to the pipe cleaning in the fall of 2000. The integrity of this section of pipe is not in jeopardy at this time. The concern is that over time the pipe will degrade and

eventually begin to leak. Plant personnel have evaluated several options to address this degradation and have determined that removal of the affected section is the preferred course of action. This work was originally scheduled to coincide with appropriate plant conditions and within current TS requirements. During detailed planning it was determined that the scope of activities is such that the work could not be completed within the 72 hour Required Action time frame that TS allow. Therefore, it was decided to request an extension of the TS Required Action time frame to allow for this work to be completed.

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 removal of this section of pipe will allow for detailed analysis of how the degradation is occurring without affecting system unavailability and provide information for managing the aging of this system. A project team was formed to manage this pipe replacement effort.

The project will involve the "A" train of the NSWS. The pipe replacement boundary will include approximately 20 feet of pipe located between the discharge of the 1A and 2A Pump Discharge Strainers and before entry of the header into the protected area. This section of piping is buried underground, approximately 18 feet to the centerline. This will require an excavation area of considerable size to achieve personnel safety slope layback requirements. The 'B' train of NSWS is located approximately 4 feet away from the 'A' train of NSWS. Therefore during this pipe replacement the 'B' train of NSWS will be partially uncovered. During the time frame that both of the NSWS trains are uncovered, compensatory actions for missile protection will be in place to ensure proper protection.

The basic steps necessary to accomplish this project include excavation of the header, system draining / disassembly for access, inspection, replacement(s) / repair, system re-assembly / restoration, appropriate testing and return to service.

The proposed changes to TS requirements provide the operational flexibility necessary to perform the pipe replacement and/or repairs of NSWS piping. During the time period that the 'A' NSWS header is inoperable the 'B' NSWS header and support systems will remain operable.

**Project Discussion**

This activity is based on recommendations from Engineering and the results of the video inspections completed after the major system cleaning project completed in the fall of 2000.

The large scope of this maintenance activity requires direct management involvement. Catawba Nuclear Station (CNS) Site Directive 3.0.18, "On-Line Maintenance," is the process to be used. This structured approach ensures appropriate level management attention throughout the project. It assures proper review, representation, and planning from appropriate on-site groups prior to execution of work. This process also provides step by step directions for the execution and completion of the project. Under the guidelines of this directive this project is considered a "Critical (Complex) Maintenance Process" and will follow that format. The controlling document for the project is called the "Critical (Complex) Maintenance Process Plan".

Presently it is estimated that this work, including taking the system out of service and draining the affected portions, will take between 4 - 5 days. Following the pipe replacement, approximately 2 days will be required to fill, the NSWS, and perform any necessary post maintenance testing. Therefore, the total time should run from 6 - 7 days. This project is being carefully scheduled to minimize the outage time. Catawba is requesting a TS extension for 7 days.

**Description of Proposed Changes**

Duke Energy proposes to temporarily change TS 3.5.2, ECCS - Operating, 3.6.6, Containment Spray System, 3.7.5, Auxiliary Feedwater (AFW) System, TS 3.7.7, Component Cooling Water System, 3.7.8, Nuclear Service Water System, and 3.8.1 AC Sources - Operating to allow operation of the NSWS with one train inoperable on both units for one time period of 7 days.

An evaluation of the impact of these proposed temporary TS changes on other safety systems was performed. The effect of modified operation of the ECCS, containment spray system, AFW, CCW, NSWS, and EDG systems due to the NSWS activities on equipment required by other TS as well as effect of other TS on the operation of the ECCS, containment spray system, AFW, CCW, NSWS, and EDG systems during the one time 7-day period was evaluated. The proposed temporary TS changes discussed below address the conclusions of this evaluation.

NSWS TS 3.7.8 only requires additional entry into TS 3.8.1 for the associated EDG and TS 3.4.6, "Reactor Coolant System Loops - Mode 4," for the associated RHR loop made inoperable by the inoperable NSWS train. During the pipe replacement project, both units will be in Mode 1, so the requirement to enter TS 3.4.6 will not be applicable. No other TS are required by TS 3.7.8 to be directly entered. Since the inoperability of NSWS results in the inoperability of the associated DG, TS that rely on DG operability will have to be entered.

The containment spray system relies on NSWS flow through containment spray system heat exchangers during the recirculation phase of a LOCA. Therefore, during the 'A' NSWS loop outage, NSWS flow will be isolated to its respective containment spray system heat exchanger. In this condition the containment spray system train with its NSWS supply isolated will be considered inoperable. This results in entry into the TS LCO for TS 3.6.6 for containment spray system during the time in the project when a NSWS loop is inoperable.

During the 'A' NSWS loop outage, NSWS flow will be isolated to its respective CCW heat exchanger. During this alignment, Operations will rack out the respective CCW pump motor breakers. Also the loads on the CCW trains will be in a cross tie alignment. In this condition the CCW train with its NSWS supply isolated will be considered inoperable. This results in entry into the TS LCO for TS 3.7.7 for CCW during the time in the project when a NSWS loop is inoperable.

Catawba operating procedures for CCW cross tie alignment are written to maintain availability of essential heat loads associated with the CCW train made unavailable when the CCW system is in a cross tie alignment except for the heat exchangers associated with the RHR and CCW trains.

The Residual Heat Removal Heat Exchanger associated with the inoperable CCW train would not be aligned to the on-line CCW train. The RHR Heat Exchanger isolation valve associated with the inoperable train is secured by closing the valve and opening its breaker. This causes entry into TS 3.5.2, ECCS - Operating for both units during the time in the project when the NSWS loop is inoperable.

Other systems covered by TS are addressed by TS 3.0.6. TS 3.0.6 requires that when a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this

supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, additional evaluations and limitations may be required in accordance with TS 5.5.15, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists is required to be entered.

The AFW system is an exception to TS 3.0.6 because of the wording in the Bases section for the LCO. The NSWS is the safety-related source of water supply to the AFW system. During the 'A' train NSWS pipe replacement, this source will be taken out of service for 7 days. This will affect the 1A and 2A motor driven AFW pumps. The 1B and 2B motor driven AFW pumps and the turbine AFW pump on each unit will still have a safety-related source of water supply from the 'B' train of NSWS.

TS 3.5.2, "ECCS - Operating"

The following footnote will be added for the ECCS system to temporarily allow one train of ECCS to be inoperable for 7 days:

> *For each Unit, the Completion Time that ECCS train 'A' can be inoperable, as specified by Required Action A.1 may be extended beyond the 72 hours up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

TS 3.6.6, "Containment Spray System"

The following footnote will be added for the Containment Spray System to temporarily allow one train of containment spray to be inoperable for 7 days:

> *For each Unit, the Completion Time that Containment Spray System train 'A' can be inoperable, as specified by Required Action A.1 may be extended beyond the 72 hours up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and

system restoration this footnote is no longer applicable.

TS 3.7.5 "Auxiliary Feedwater (AFW) System"

The following footnote will be added for the AFW system to temporarily allow one train of AFW to be inoperable for 7 days:

*For each Unit, the Completion Time that AFW train 'A' can be inoperable as specified by Required Action B.1 may be extended beyond the "72 hours and 10 days from discovery of failure to meet the LCO" up to "168 hours and 10 days from discovery of failure to meet the LCO" as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

TS 3.7.7 "Component Cooling Water (CCW) System

The following footnote will be added for the CCW system to temporarily allow one train of CCW to be inoperable for 7 days:

*For each Unit, the Completion Time that CCW train 'A' can be inoperable, as specified by Required Action A.1 may be extended beyond the 72 hours up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

TS 3.7.8 "Nuclear Service Water System"

The following footnote will be added for the NSWS to temporarily allow one train of NSWS to be inoperable for 7 days:

*For each Unit, the Completion Time that NSWS train 'A' can be inoperable, as specified by Required Action A.1 may be extended beyond the 72 hours up to 168 hours as part of the NSWS system upgrades. System upgrades

include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

TS 3.8.1 "AC Sources - Operating

The following footnote will be added for the EDGs to temporarily allow one train of NSWS to be inoperable for 7 days:

*For each Unit, the Completion Time that the 'A' EDG can be inoperable as specified by Required Action B.4 may be extended beyond the "72 hours and 7 days from discovery of failure to meet the LCO" up to 168 hours as part of the NSWS system upgrades. System upgrades include maintenance and modification activities associated with replacement of portions of the train 'A' NSWS piping via modification CE-71424. Upon completion of the pipe replacement and system restoration this footnote is no longer applicable.

**Technical Justification**

The 'A' train NSWS pipe replacement project and the proposed temporary changes to TS 3.5.2, 3.6.6, 3.7.5, 3.7.7, 3.7.8, and 3.8.1 have been evaluated to assess their impact on the normal operation of the affected systems and to ensure that the design basis of these functions are preserved.

NSWS System

The NSWS provides a heat sink for the removal of process and operating heat from safety related components during a design basis accident. During normal operation and during normal plant shutdowns, the NSWS also provides this function for various safety related and non-safety-related components.

The NSWS consists of two independent loops (designated A and B) of essential equipment, each of which is shared between the two units. Each loop contains two NSWS pumps, each of which is provided backup emergency power from a separate emergency diesel generator (EDG). Each set of two pumps supplies two trains (1A and 2A, or 1B and 2B) of essential equipment through common discharge piping. While the pumps are unit designated (i.e., 1A, 1B, 2A, 2B), all pumps receive automatic start signals from a safety injection or blackout signal from either unit. Therefore, a pump

designated to one unit will supply post-accident cooling to equipment in that loop on both units, provided its associated EDG is available. The NSWS also provides a safety-related source of water for the Auxiliary Feedwater (AFW) system.

During this time period the operable NSWS loop will be protected to the extent practical by minimizing any maintenance on the system for either unit. In this configuration, the operable loop will still respond as designed during design basis events.

Emergency Core Cooling System

The ECCS consists of three separate subsystems: centrifugal charging (high head), safety injection (SI) (intermediate head), and residual heat removal (RHR) (low head). Each subsystem consists of two redundant, 100% capacity trains. The ECCS flow paths consist of piping, valves, heat exchangers, and pumps such that water from the RWST can be injected into the RCS following the accidents described in this LCO. The major components of each subsystem are the centrifugal charging pumps, the RHR pumps, heat exchangers, and the SI pumps. Each of the three subsystems consists of two 100% capacity trains that are interconnected and redundant such that either train is capable of supplying 100% of the flow required to mitigate the accident consequences. This interconnecting and redundant subsystem design provides the operators with the ability to utilize components from opposite trains to achieve the required 100% flow to the core.

During the time when a NSWS loop is out of service, the respective ECCS equipment on the CCW train without NSWS cooling will be supplied from the opposite CCW train via a cross train alignment. In this cross train alignment selected essential heat loads, except for the heat exchangers associated with the RHR and CCW systems, for the CCW train made inoperable will be supplied by the operable CCW train. A calculation has been performed which shows that the CCW train inservice can support the cross connected loads during the cross train alignment.

This one time extension of the Completion Time from 72 hours to 168 hours is reasonable, based on the redundant capabilities afforded by the operable train, and the low probability of a DBA occurring during this period.

During this time period the operable ECCS train will be protected to the extent practical by minimizing any

maintenance on the system for either unit. In this configuration, the operable train will still respond as designed during design basis events.

Containment Spray System

The Containment Spray System provides containment atmosphere cooling to limit post accident pressure and temperature in containment to less than the design values. Reduction of containment pressure and the iodine removal capability of the spray reduce the release of fission product radioactivity from containment to the environment, in the event of a Design Basis Accident (DBA).

The Containment Spray System consists of two separate trains of equal capacity, each capable of meeting the system design basis spray coverage. Each train includes a containment spray pump, one containment spray heat exchanger, spray headers, nozzles, valves, and piping. Each train is powered from a separate Engineered Safety Feature (ESF) bus. The refueling water storage tank (RWST) supplies borated water to the Containment Spray System during the injection phase of operation. In the recirculation mode of operation, containment spray pump suction is transferred from the RWST to the containment recirculation sump(s).

When the containment spray system suction is from the containment recirculation sump, its associated heat exchanger receives NSWS flow for cooling. During the NSWS system pipe replacement this flow will not be available. However this does not affect the initial injection flow provided. This one time modification of the operability requirements is reasonable, based on the redundant capabilities afforded by the operable train, and the low probability of a DBA occurring during this period.

During this time period the containment spray system train will be protected to the extent practical by minimizing any maintenance on the system for either unit. In this configuration, the operable train will still respond as designed during design basis events.

Auxiliary Feedwater System

The AFW System is configured into three trains. The AFW System is considered operable when the components and flow paths required to provide redundant AFW flow to the steam generators are operable. This requires that the two motor driven AFW pumps be operable in two diverse paths, each supplying AFW to separate steam generators. The turbine

driven AFW pump is required to be operable with redundant steam supplies from two main steam lines upstream of the Main Steam Isolation Valves (MSIV), and shall be capable of supplying AFW to any of the steam generators. The piping, valves, instrumentation, and controls in the required flow paths also are required to be operable. The NSWS assured source of water supply is configured into two trains. The turbine driven AFW pump receives NSWS from both trains of NSWS, therefore, the loss of one train of assured source renders only one AFW train inoperable. The remaining NSWS train provides an operable assured source to the other motor driven pump and the turbine driven pump.

There are several sources of water available to the AFW pumps. The preferred sources are non-safety grade condensate quality, located in the Turbine and Service Buildings. These are called the condensate storage system. The condensate storage system is formed from the Upper Surge Tanks (two 42,500 gallon tanks per unit) and the Condenser Hotwell (normal operating level of 170,000 gallons). The condensate storage system supplies the AFW requirements during normal system operating modes; but, since the condensate storage system is not safety related its availability is not assured. The assured source of supply to the AFW pumps is provided by the safety related portion of the Nuclear Service Water System. An additional source of supply is available from the Condenser Circulating Water System for safe shutdown events.

TS 3.7.6 requires the condensate storage system to be operable in modes 1, 2, 3 and mode 4 when steam generators are relied upon for heat removal. The condensate storage system contains sufficient cooling water to remove decay heat for 2 hours following a reactor trip from 100% Rated Thermal Power (RTP), and then to cool down the reactor coolant system (RCS) to RHR entry conditions, assuming a natural circulation cooldown. In doing this, it retains sufficient water to ensure adequate net positive suction head for the AFW pumps during cooldown, as well as account for any losses from the steam driven AFW pump turbine, or before isolating AFW to a broken line.

Another non-safety grade source of condensate water for the AFW pumps is the Auxiliary Feedwater Condensate Storage Tank (CACST). Each unit has a CACST that is maintained full by a recirculation flow of condensate from the condensate system and overflow to the CSS. The CACST holds approximately 42,500 gallons of condensate grade water.

For emergency events, when none of the condensate grade sources are available, two redundant and separate trains of nuclear service water are available. The water supplied by the two nuclear service water sources is of lower quality; however, safety considerations override those of steam generator cleanliness.

The Standby Nuclear Service Water Pond serves as the ultimate long-term safety related source of water for the AFW System. The automatic detection and transfer controls of the AFW System will detect and transfer the pump suctions to nuclear service water upon detection of the postulated failures of the condensate supplies.

During this time period the operable AFW trains will be protected to the extent practical by minimizing any maintenance on the system for either unit. In this configuration, the operable trains will still respond as designed during design basis events.

Component Cooling Water System

The CCW System provides a heat sink for the removal of process and operating heat from safety related components during a Design Basis Accident (DBA) or transient. During normal operation, the CCW System also provides this function for various nonessential components, as well as the spent fuel storage pool. The CCW System serves as a barrier to the release of radioactive byproducts between potentially radioactive systems and the Nuclear Service Water System (NSWS), and thus to the environment. The CCW System is arranged as two independent, full capacity cooling loops, and has isolatable non-safety related components. Each safety related train includes two 50% capacity pumps, surge tank, heat exchanger, piping, valves, and instrumentation. Each safety related train is powered from a separate bus.

The CCW trains are independent of each other to the degree that each has separate controls and power supplies and the operation of one does not depend on the other. In the event of a DBA, one CCW train is required to provide the minimum heat removal capability assumed in the safety analysis for the systems to which it supplies cooling water. In this Condition, the remaining operable CCW train is adequate to perform the heat removal function. This one time extension of the Completion Time from 72 hours to 168 hours is reasonable, based on the redundant capabilities afforded by the operable train, and the low probability of a DBA occurring during this period.

During this time period the operable CCW train will be protected to the extent practical by minimizing any maintenance on the system for either unit. In this configuration, the operable train will still respond as designed during design basis events.

Emergency Diesel Generators

Each train of the 4.16 kV Essential Auxiliary Power System is provided with a separate and independent emergency diesel generator (EDG) to supply the Class 1E loads required to safely shut down the unit following a design basis accident. Additionally, each EDG is capable of supplying its associated 4.16 kV blackout switchgear through a connection with the 4.16 kV essential switchgear.

Each EDG must be capable of starting, accelerating to rated speed and voltage, and connecting to its respective ESF bus on detection of bus undervoltage. Each EDG must also be capable of accepting required loads within the assumed loading sequence intervals, and continue to operate until offsite power can be restored to the ESF buses. These capabilities are required to be met from a variety of initial conditions.

The Diesel Generator Engine Cooling Water System for each diesel includes a jacket water-intercooler water heat exchanger located within the Diesel Room, which is supplied with cooling water from the Nuclear Service Water System. The Diesel Generator Engine Cooling Water System is designed to maintain the temperature of the diesel generator engine within an optimum operating range during standby and during full-load operation in order to assure its fast starting and load-accepting capability and to reduce thermal stresses. The system is also designed to supply cooling water to the engine lube oil cooler, the combustion air aftercoolers, and the governor lube oil cooler.

During the NSWS project, the NSWS supply to the 'A' EDG on each unit will be inoperable. A temporary station modification will be implemented for the 'A' train EDGs on each unit to supply an alternate, non-safety related, source of cooling to the EDG with the inoperable NSWS supply. The EDG will be considered inoperable, but it will be technically capable of being manually started to perform its intended function.

During this time period the operable EDG will be protected to the extent practical by minimizing any maintenance on the system for either unit. In this configuration, the operable

train will still respond as designed during design basis events.

Contingency Measures

The proposed work activities to be performed to accomplish the NSWS pipe replacement project were evaluated. As a result, specific contingency measures were developed to provide added assurance of the safe operation of the facility during the project. Listed below is a summary of the contingency measures that will be implemented as a part of the project. These actions will be applied to both Units 1 and 2 as necessary unless otherwise specified.

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. 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 seal injection. This will provide additional assurance that the SSF will be available during the NSWS pipe replacement project.

Additional Plant Systems

A separate plant subsystem has been incorporated into the Catawba design to allow a means of limited plant shutdown, independent from the control room and auxiliary shutdown panels. This system, known as the Standby Shutdown System, provides an alternate means to achieve and maintain a hot shutdown condition following postulated fire and sabotage events. This system is in addition to the normal shutdown capabilities available. The Standby Shutdown System (except for interfaces to existing safety-related systems) is designed in accordance with accepted fire protection and security requirements and is not designed as a safety related system. The Standby Shutdown System utilizes the turbine driven AFW pump to provide adequate secondary side makeup independent from all AC power and normal sources of water. During this mode of operation, the turbine driven AFW pump operates remotely controlled from the Standby Shutdown Facility (SSF). If the turbine has not started automatically prior to the event, it may be started manually and receive suction water from condensate sources. If condensate sources are depleted or lost, the turbine will automatically transfer suction to an independent source initiated by the SSF related train of the condensate source loss detection logic and battery-powered motor-operated valves. The independent source of water is the buried piping of the Condenser Circulating Water System, which contains sufficient water in the embedded pipe to maintain the plant at hot standby for at least 3 days. In this manner, sufficient AFW flow may be maintained even if all normal and emergency AC power is lost, and all condensate and safety-grade water sources are lost.

In order to improve the total core damage frequency, backup cooling was provided to Centrifugal Charging Pump (CCP) 1A (2A). The backup cooling water to CCP 1A (2A) is supplied by a non-safety related four-inch drinking water system header in the Auxiliary Building. The drinking water system supply ties into the Component Cooling Water (CCW) System Supply piping to the CCP 1A Motor Coolers and Pump Bearing and Speed Reducer Oil Coolers. On the CCW System return side of these coolers, drain lines are routed from the return lines to the containment spray/residual heat removal sump in the Auxiliary Building. The backup cooling water can be aligned to either the 1A or 2A CCP but not to both pumps at the same time. The backup cooling supplied by the drinking water system is not safety-related and is not relied upon to mitigate any design basis accidents or events. Operability of the "A" CCPs is not dependent on the backup cooling.

Probabilistic Risk Analysis (PRA)

Duke Power has used a risk-informed approach to determine the risk significance of taking the 'A' loop of NSWS out of service for up to 4 days beyond its current T.S. limit of 72 hrs. The acceptance guidelines given in the EPRI PSA Applications Guide were used as a gauge to determine the significance of the short-term risk increase from the outage extension.

Catawba Nuclear Station has taken a proactive approach to reducing its level of core damage risk. The station has recently installed new redesigned seal packages in its Reactor Coolant Pumps (RCPs) which are qualified for higher temperatures. As a result, in the event of a loss of all seal cooling, the amount of seal leakage would be limited, thereby reducing the seal LOCA frequency. Using the current Catawba PRA model, it is estimated that this modification reduces the annual core damage frequency (CDF) (excluding seismic) by approximately 16%.

The current PRA model was used to perform the risk evaluation for taking a loop of NSWS out of service beyond its TS limit. The evaluation has taken credit for a number of compensatory actions that are to be implemented during replacement operations. This includes that no unavailability is planned for risk significant components (e.g., SSF, AFW turbine driven pump, backup cooling supply to "A" CCP motor coolers) during the NSWS unavailability.

Furthermore, the major source of flooding in the Turbine Building, the Condenser Circulating Water (RC) System, will have no planned maintenance for the operating units. This is judged to reduce the frequency of the turbine building flood initiator by 50% from the base case estimate. The estimated increase in the core damage probability for Catawba during the NSWS loop 4-day outage, beyond the TS allowed 72 hours, is 2.6E-06.

The impact to the seismic CDF was also considered. The NSWS components and piping are considered to be seismically-rugged and the electrical systems are the only failure mechanism. Given that the EDGs and switchyard will be available during the piping replacement, there are no new failure modes introduced and consideration of the seismic impact is not a factor for this assessment.

It is recognized that when taking the 'A' NSWS loop out of service consideration will be given to the protection of the available key safety systems such as the EDGs, SSF, and the

'B' NSWS loop during this time. Also, the quantitative risk analysis assumes the redundant cooling to the "A" CCP is available; thus, no maintenance activities involving this pump are to be performed during the NSWS outage windows.

It is also recognized that reductions in risk can be achieved by the consideration of several other non-quantifiable risk reduction factors. These risk reduction factors are described in detail in the Contingency Measures section of this attachment.

The Large Early Release Frequency (LERF) for Catawba is dominated by the interfacing systems LOCA (ISLOCA) and some seismic events which result in a large containment isolation failure. The other internal events do not contribute significantly to the LERF. The requested NSWS outage extension does not create any new core damage sequences not currently evaluated by the existing PRA model. The frequency of some previously analyzed sequences do, however, increase due to the longer maintenance unavailability of the 'A' NSWS loop. Sequences involving containment isolation or containment bypass (potential LERF contributors) have been evaluated to be 1E-10 in the base case PRA. No sequences involving a loss of NSWS were found to contribute to the LERF. Sequences that were originally evaluated to be less than 1E-10 in the base case PRA are unlikely to increase sufficiently as a result of the NSWS TS extension to significantly change the Catawba LERF which was evaluated to be approximately 4.3E-07 / yr. It is concluded that the LERF implications of the proposed 'A' loop NSWS outage extension are insignificant.

Duke Energy and Catawba have been actively involved since before 1988 in the development of plant-specific probabilistic risk assessments, individual plant examinations (IPE/IPEEE), and component/system reliability studies to evaluate events at Catawba. Risk insights from various Catawba risk assessments have been identified and implemented to improve both the design and operation of the plant. These changes to the plant have been prioritized based on risk significance and implemented accordingly. Catawba has taken a proactive approach towards these risk insights as demonstrated by the installation of the RCP seals designed to accommodate higher temperatures. The risk increase associated with the proposed NSWS outage extension should be considered in combination with the risk reductions already achieved at Catawba. The core damage frequency contribution from the proposed outage extension is judged to be acceptable for a one-time, or rare, evolution. The resulting increase in the annualized core damage risk is

2.6E-06, a low-to-moderate increase in the CDF for consideration of temporary changes to the licensing basis and is acceptable based on consideration of other non-quantifiable factors discussed previously.

Precedent Licensing Actions

This proposed license amendment was modeled after a similar license amendment previously granted by the NRC. This amendment was granted for the Catawba Nuclear Station in support of the NSWS system upgrades. The NRC granted the license amendment in a SER for Amendments Nos. 189 and 182 on October 4, 2000.

# ATTACHMENT 4

# NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

No Significant Hazards Consideration Determination

Catawba is currently pursuing a project to replace a portion of the 'A' train of the nuclear service water system (NSWS) piping for both units. This is necessary to maintain the long-term reliability of the NSWS. This project represents a challenge in that it is not possible to isolate, drain, replace, restore and test the NSWS during the current TS action time frame. The purpose of this submittal is to request a temporary change to the existing TS for the systems affected during the project. This will permit an orderly and efficient project implementation during power operation on both units. The specific change is to extend the TS required action time from 72 hours to 168 hours.

The following discussion is a summary of the evaluation of the changes contained in this proposed amendment against the 10 CFR 50.92(c) requirements to demonstrate that all three standards are satisfied. A no significant hazards consideration is indicated if operation of the facility 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.

First Standard

The pipe replacement project for the NSWS and proposed TS changes have been evaluated to assess their impact on normal operation of the systems affected and to ensure that the design basis safety functions are preserved. During the pipe replacement the other NSWS train will be operable and no major maintenance or testing will be done on the operable train. The operable train will be protected to help ensure it would be available if called upon.

This pipe replacement project will enhance the long term structural integrity in the NSWS system. This will ensure that the 'A' NSWS header maintains its flow margin to ensure its ability to comply with design basis requirements and increase the overall reliability for many years.

The increased NSWS train unavailability as a result of the implementation of this amendment does involve a one time increase in the probability or consequences of an accident previously evaluated during the time frame the NSWS header is out of service for pipe replacement. Considering this small time frame for the 'A' NSWS train outage with the increased reliability and the decrease in unavailability of the NSWS system in the future because of this project, the overall probability or consequences of an accident previously evaluated will decrease.

An evaluation was performed utilizing PRA for extending the NSWS TS time limit from 72 hours to 168 hours. The core damage frequency contribution from the proposed outage extension is judged to be acceptable for a one-time, or rare, evolution. Considering the change in CDF associated with the outage extension in the framework of an average over a five-year period, the average annual contribution is considered a low-to-moderate increase in the CDF for consideration of permanent changes to the licensing basis.

Therefore, because this is a temporary and not a permanent change, the time averaged risk increase is acceptable. The increase in the overall reliability of the NSWS along with the decreased unavailability in the future because of the pipe replacement project will result in an overall increase in the safety of both Catawba units. Therefore, the consequences of an accident previously evaluated remains unaffected and there will be minimal 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. The proposed temporary TS changes do not affect the basic operation of the ECCS, containment spray system, NSWS, AFW, CCW, or EDG systems. The only change is increasing the required action time frame from 72 hours to 168 hours (ECCS, containment spray system, NSWS, AFW, CCW, and EDG). During the project, contingency measures will be in place to provide additional assurance that the affected systems will be able to complete their design functions.

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.

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 temporary TS amendment. During the 'A'NSWS train outage, the affected systems will still be capable of performing their required functions and contingency measures will be in place to provide additional assurance that the affected systems will be maintained in a condition to be able to complete their design functions. No safety margins will be impacted.

The probabilistic risk analysis conducted for this proposed amendment demonstrated that the CDP associated with the outage extension is judged to be acceptable for a one-time or rare evolution. Therefore, there is not a significant reduction in the margin of safety.

Based upon the preceding discussion, Duke Energy has concluded that the proposed amendment for a temporary one time TS change does not involve a significant hazards consideration.

# ATTACHMENT 5

# ENVIRONMENTAL ANALYSIS

Environmental Analysis

Pursuant to 10 CFR 51.22(b), an evaluation of this license amendment request has been performed to determine whether or not it meets the criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) of the regulations.

Implementation of this amendment will have no adverse impact upon the Catawba units; neither will it contribute to any additional quantity or type of effluent being available for adverse environmental impact or personnel exposure.

It has been determined there is:

1. No significant hazards consideration,

2. No significant change in the types, or significant increase in the amounts, of any effluents that may be released offsite, and

3. No significant increase in individual or cumulative occupational radiation exposures involved.

Therefore, this amendment to the Catawba TS meets the criteria of 10 CFR 51.22(c)(9) for categorical exclusion from an environmental impact statement.