Duke Power
A Duke Energy Company

Gary R. Peterson
Vice President

Duke Power
Catawba Nuclear Station
4800 Concord Road
York, SC 29745
(803) 831-4251 OFFICE
(803) 831-3426 FAX

August 8, 2000

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
Revised Proposed Technical Specification Amendment
Technical Specification 3.5.2, Emergency Core Cooling System, 3.6.6, Containment Spray System, 3.6.17, Containment Valve Injection Water System, 3.7.5, Auxiliary Feedwater System, 3.7.7, Component Cooling Water System, 3.7.8, Nuclear Service Water System, 3.7.10, Control Room Area Ventilation System, 3.7.12, Auxiliary Building Filtered Ventilation Exhaust System, & 3.8.1, AC Sources - Operating

This letter transmits a revised Technical Specification (TS) amendment package. This revision is based on discussions with the NRC after receipt of our July 31, 2000 letter. The conference call was held on August 2, 2000. The call was productive and Catawba has revised the amendment package dated May 25, 2000 based on the results. This revision includes revised results based on an updated PRA model.

The contents of this revised amendment request package are as follows:

Attachment 3 provides a revised description of the proposed changes and technical justification and supercedes the previous Attachment 3 submitted on May 25, 2000. Pursuant to 10 CFR 50.92, Attachment 4 documents the determination that the amendment contains No Significant Hazards Considerations. The revised No Significant Hazards Considerations Attachment 4 supercedes the previous Attachment 4 submitted in our May 25, 2000 letter in its entirety.

A001

The conclusions reached in the original no significant hazards evaluation have not been changed based on the revisions in the attachments to this letter.

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, being duly sworn, states that he is Site Vice President of Duke Energy Corporation; that he is authorized on the part of said corporation to sign and file with the Nuclear Regulatory Commission this request for additional information for an amendment to the Catawba Nuclear Station Facility Operating License Numbers NPF-35 and NPF-52 and Technical Specifications; and that all statements and matters set forth herein are true and correct to the best of his knowledge.

Gary R. Peterson, Site Vice President

Subscribed and sworn to me: 8/8/2000
Date

Notary Public

My commission expires: 6-26-2002
Date

SEAL

xc (with attachments):

L.A. Reyes
U.S. Nuclear Regulatory Commission
Regional Administrator, Region II
Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, GA 30303

D.J. Roberts
Senior Resident Inspector (CNS)
U.S. Nuclear Regulatory Commission
Catawba Nuclear Station

C.P. Patel
NRC Senior Project Manager (CNS)
U.S. Nuclear Regulatory Commission
Mail Stop O13-H3
Washington, D.C. 20555-0001

V.R. Autry, Director
Division of Radioactive Waste Management
Bureau of Land and Waste Management
Department of Health and Environmental Control
2600 Bull St.
Columbia, SC 29201

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 (CSS), 3.6.17, Containment Valve Injection Water System (CVIWS), 3.7.5, Auxiliary Feedwater (AFW) System, 3.7.7, Component Cooling Water (CCW) System, 3.7.8, Nuclear Service Water System (NSWS), 3.7.10, Control Room Area Ventilation System (CRAVS), 3.7.12, Auxiliary Building Filtered Ventilation Exhaust System (ABFVES), and 3.8.1 AC Sources - Operating for Catawba Nuclear Station Unit 2. The proposed TS changes will allow the "A" and "B" Nuclear Service Water System (NSWS) headers to be sequentially taken out of service for 12 days each for cleaning and pipe replacement. This cleaning and pipe replacement is scheduled to occur when Unit 1 is in refueling outage 1EOC12 and Unit 2 is at power operation.

Recent operating history has indicated a declining performance trend for the NSWS. System flow balance testing has been performed which revealed an adverse trend in system pressure and flow coefficient. Inspections were done of available piping in June 1999. Inspections revealed corrosion product buildup on the piping walls. Based on this data, Duke Energy has decided to perform a detailed cleaning of the NSWS piping. A project team was formed to manage this pipe cleaning effort.

The project will include both "A" and "B" redundant trains of the system and will be sequenced independently into the 1EOC12 outage schedule. The cleaning boundary will extend from the discharge of the 1A, 2A, 1B & 2B Pump Discharge Strainers to the inlet of safety related heat exchangers, assured sources, and components in the auxiliary building and diesel rooms. Approximately 8,000 feet of pipe will be cleaned during this project. During this evolution, instrumentation lines, branch connections, inline equipment / components within the boundary of this project will be inspected, cleaned, repaired and or replaced. The basic steps necessary to accomplish this project include system draining / disassembly for access, inspection, installation of temporary cleaning equipment, piping / component cleaning, repairs/replacements, system re-assembly / restoration, flow balance / heat exchanger testing and return to service.

During the NSWS pipe cleaning project, Nuclear Station Modifications (NSMs) will be implemented on both units to

replace piping and move system boundary valves in the branch lines off the NSWS system to the auxiliary feedwater (AFW) system. This modification is being implemented because of the continual degradation of the NSWS to AFW piping. This degradation is occurring because of exposure to stagnant raw water in that portion of the piping. Recent testing has determined that the piping has continued its increase in roughness and is continuing to corrode which reduces the flow margin in the piping. The piping is periodically flow tested and currently passes the operability requirements. Continued exposure to raw water will increase the corrosion layer and eventually the piping will fall below operability limits. This piping replacement will return margin to the flow requirements and inhibit future potential for corrosion. Moving the system boundary valves will help to maintain flow margin.

The proposed changes to TS requirements provide operational flexibility needed to perform necessary cleaning, repairs and replacement of NSWS piping.

This project is currently scheduled to be implemented during the Unit 1 refueling outage 1EOC12. The first loop will be taken out of service after Unit 1 has filled the refueling cavity to a level of 23 feet above the reactor vessel flange. In this condition TS 3.9.4 requires only one residual heat removal (RHR) loop operable and in operation. The NSWS project will continue during the time that the core is off loaded into the spent fuel pit. Therefore, the NSWS headers will be removed from service on Unit 1 during the time period when they are not required to be operable. During the time period that one NSWS header is inoperable the opposite NSWS header and support systems will remain operable.

Project Discussion

The purpose of this project is to remove mud, silt, and corrosion byproducts safely from the internal pipe surfaces of the supply side piping of the Nuclear Service Water System. The process used for this cleaning will insure an uninterrupted flow of service water to one train of safety related components and assured sources within the system. This activity is based on recommendations from Engineering and is based on the concern for heat exchanger / component fouling due to the corrosion deposits and debris within the system and reduction in flow.

Additionally, during this cleaning operation, modifications will be made to the four loops of the AFW Supply. These

modifications consist of relocating isolation valves off the main NSWS header(s) so the normally stagnant NSWS to AFW piping can be backfilled with condensate grade water. This minimizes corrosion and fouling concerns associated with raw water and will help maintain the existing margin. The general corrosion rate will be greatly reduced, the pitting associated with raw water corrosion will be eliminated, and the macro fouling will be minimized. In addition, portions of the NSWS to AFW piping will be replaced with a larger diameter pipe to enhance the current flow margin.

The project will include both "A" and "B" redundant NSWS loops and will be sequenced independently into the 1EOC12 outage schedule. The cleaning boundary will extend from the discharge of the 1A, 2A, 1B & 2B Pump Discharge Strainers to the inlet of all safety related heat exchangers, assured sources, and components in the auxiliary building and diesel rooms. Approximately 8,000 feet of pipe will be cleaned during this project. During this evolution instrumentation lines, branch connections, inline equipment / components within the boundary of this project will be inspected, cleaned, repaired and or replaced. The basic steps necessary to accomplish this project include, system draining / disassembly for access, inspection, installation of temporary cleaning equipment, piping / component cleaning, repairs/replacements, system re-assembly / restoration, flow balance / heat exchanger testing and return to service.

The large scope of this maintenance activity requires direct upper management involvement. The Outage Work Activity Risk Management Process (Catawba Nuclear Station (CNS) Site Directive 3.0.23) 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 Maintenance Process" and will follow that format. The controlling document for the project is called the "Critical Maintenance Process Plan". The site will incorporate this "Plan" into the outage schedule.

The primary method for this cleaning will be high-pressure water. Due to piping configuration and access concerns, the supply lines to the Diesel Jacket Water lines will be cleaned using the "Pigging" process, which consists of injecting abrasive objects into the line.

Personnel experienced in cleaning piping systems will be used for this project. These resources will clean the pipe, remove and dispose of the debris. A rotating spin nozzle operating at 8,000-10,000 PSI with a flow rate designed to remove debris will be the primary method used to dislodge the corrosion deposits from the large pipe. Access to the pipe will be gained through the flange openings by removing valves/equipment and manways. Some sections of the system will require access by selectively cutting the piping.

The refueling outage schedule will determine which loop is to be cleaned first. Current schedule is to start with A loop while B loop remains in service. To better manage the cleaning process each loop will be divided into five sections respectively. Each section will be assigned an execution team and a coordinator. The five sections will be scheduled and worked in parallel during the 12 day Required Action time. Attachment 6 contains simplified figures that depict the sections of NSWS piping that are scheduled to be cleaned as a part of this project and the sections of piping from the NSWS to AFW system that are to be replaced. Figure 1 is a general overview of the NSWS with the 5 sections identified. Figures 2 - 6 provide details of the 5 sections to be cleaned. Each figure shows both the A and B loop, but only one loop will be cleaned at a time. Some portions of the NSWS system may be cleaned during a different time period. These portions are those that can be cleaned within the existing TS Required Action time frame. Figures 7 - 10 show the sections of NSWS piping to the AFW system that are to be modified.

Plans are to clean the five sections and install the NSWS to AFW modifications concurrently. Presently it is estimated that this work, including taking the system out of service and draining the affected portions, will take between 7 - 8 days. Following the cleaning and modifications, 2 days will be required to fill, perform the NSWS / AFW flow test, NSWS heat exchanger DP testing and NSWS flow balance. Therefore, the total time should run from 9-10 days. This project is being carefully scheduled to minimize the outage time. However, this is the first time that Catawba has undergone this type of project for the NSWS. Catawba is requesting a TS extension for 12 days. Additional time is being requested to allow for any unforeseen circumstances that may arise which could lengthen the project.

Description of Proposed Changes

Duke Energy proposes to temporarily change TS 3.5.2, ECCS - Operating, 3.6.6, Containment Spray System, 3.6.17, Containment Valve Injection Water System, 3.7.5, Auxiliary Feedwater (AFW) System, TS 3.7.7, Component Cooling Water System, 3.7.8, Nuclear Service Water System, TS 3.7.10, Control Room Area Ventilation System (CRAVS), TS 3.7.12, Auxiliary Building Filtered Ventilation Exhaust System (ABFVES), 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 12 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, CSS, CVIWS, NSWS, AFW, CCW, CRAVS, ABFVES, 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, CSS, CVIWS, NSWS, AFW, CCW, CRAVS, ABFVES, and EDG systems during the two 12-day periods was evaluated. The proposed temporary TS changes discussed below address the conclusions of this evaluation.

These proposed changes apply to Unit 2 (except for CRAVS) because the NSWS system work is scheduled during a Unit 1 refueling outage when the Unit 1 NSWS system TS requirements are reduced.

The NSWS TS 3.7.8 only requires additional entry into TS 3.8.1 for the associated EDG and TS 3.4.6 for the associated RHR loop made inoperable by the inoperable NSWS train. No other TS are required by TS 3.7.8 to be directly entered. Since the inoperability of NSWS results in the inoperability of it's associated DG, TS that specifically rely on DG operability will have to be entered. The TS bases for CRAVS and ABFVES both state that because these are shared systems loss of normal or emergency power requires entry into the TS LCO for each unit in the modes of applicability. This results in entry into the TS LCO for TS 3.7.10, CRAVS, and TS 3.7.12, ABFVES during the time in the project when a NSWS loop is inoperable.

The CSS relies on NSWS flow through CSS heat exchangers during the recirculation phase of a LOCA. Therefore, during each NSWS loop outage, NSWS flow will be isolated to its respective CSS heat exchanger. In this condition the CSS train with its NSWS supply isolated will be considered inoperable. This results in entry into the TS LCO for TS

3.6.6 for CSS during the time in the project when a NSWS loop is inoperable.

NSWS is the safety related assured source for make up water supply to the CVIWS during a postulated accident. During each NSWS loop outage, NSWS flow will be isolated to its respective CVIWS train. In this condition the CVIWS train with its NSWS supply isolated will be considered inoperable. This results in entry into the TS LCO for TS 3.6.17 for CVIWS during the time in the project when a NSWS loop is inoperable.

During each 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.

During Unit power operations however, the Catawba operating procedures are written to maintain availability of essential heat loads associated with the CCW train made unavailable when the CCW system is in a cross train 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 Unit 2 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 states 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 NSWS project, this source will be taken out of service for 12 days. This will affect one motor driven AFW pump. The other motor driven AFW pump and the turbine AFW pump will still have a safety-related source of water supply.

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 12 days:

> *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.

TS 3.6.6, "Containment Spray System"

The following footnote will be added for the Containment Spray System to temporarily allow one train of CSS to be inoperable for 12 days:

> *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 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.

TS 3.6.17 "Containment Valve Injection Water System (CVIWS)"

The following footnote will be added for the CVIWS to temporarily allow one train of CVIWS to be inoperable for 12 days:

> *For each Containment Valve Injection Water System (CVIWS) train on Unit 2, the Completion Time that one CVIWS train can be inoperable as specified by Required Action A.1 may be extended beyond the 168 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.

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 12 days:

> *For each AFW train on Unit 2, the Completion Time that one AFW train 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 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.

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 10 days:

> *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 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.

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 12 days:

*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 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.

TS 3.7.10 "Control Room Area Ventilation System"

The following footnote will be added for the CRAVS to temporarily allow one train of CRAVS to be inoperable for 12 days:

*For each CRAVS train, the Completion Time that one CRAVS train can be inoperable as specified by Required Action A.1 may be extended beyond the 168 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.

TS 3.7.12 "Auxiliary Building Filtered Ventilation Exhaust System"

The following footnote will be added for the ABFVES to temporarily allow one train of ABFVES to be inoperable for 12 days:

> *For each ABFVES train on Unit 2, the Completion Time that one ABFVES train can be inoperable as specified by Required Action A.1 may be extended beyond the 168 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.

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 12 days:

> *For each EDG on Unit 2, the Completion Time that one 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 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.

Technical Justification

The NSWS cleaning and repair project and the proposed temporary changes to TS 3.5.2, 3.6.6, 3.6.17, 3.7.5, 3.7.7, 3.7.8, 3.7.10, 3.7.12, 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. A calculation has been performed which shows that the CCW train inservice can support the loads during the cross train alignment.

This one time extension of the Completion Time from 72 hours to 288 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 CSS suction is from the containment recirculation sump, its associated heat exchanger receives NSWS flow for cooling. During the NSWS system upgrades 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 CSS 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 Valve Injection Water System

The CVIWS is designed to inject water between the two seating surfaces of double disc gate valves used for Containment isolation. The injection pressure is higher than Containment design peak pressure during a LOCA. This will prevent leakage of the Containment atmosphere through the gate valves, thereby reducing potential offsite dose below the values specified by 10 CFR 100 limits following the postulated accident.

The system consists of two independent, redundant trains; one supplying gate valves that are powered by the A train diesel and the other supplying gate valves powered by the B train diesel. This separation of trains prevents the possibility of both containment isolation valves not sealing due to a single failure.

Each train consists of a surge chamber, which is filled with water and pressurized with nitrogen. One main header exits the chamber and splits into several headers. A solenoid valve is located in the main header before any of the branch headers, which will open after a 60 second, delay on a Phase A isolation signal. Each of the headers supply injection water to containment isolation valves located in the same general location, and close on the same engineered safety signal. A solenoid valve is located in each header, which supplies seal water to valves closing on a Containment Pressure - High-High signal. These solenoid valves open after a 60 second delay on a Containment Pressure - High-High signal. Since a Phase A isolation signal occurs before a Containment Pressure - High-High signal, the solenoid valve located in the main header will already be injecting water to Containment isolation valves closing on a Phase A isolation signal. This leaves an open path to the headers supplying injection water on a Containment Pressure - High-High signal. The delay for the solenoid valves opening is to allow adequate time for the slowest gate valve to close, before water is injected into the valve seat.

Makeup water is provided from the Demineralized Water Storage Tank for testing and adding water to the surge chamber during normal plant operation. Assured water is provided from the essential header of the Nuclear Service

Water System (NSWS). This supply is assured for at least 30 days following a postulated accident. If the water level in the surge chamber drops below the low-low level or if the surge chamber nitrogen pressure drops below the low-low pressure after a Phase A isolation signal, a solenoid valve in the supply line from the NSWS will automatically open and remains open, assuring makeup to the CVIWS at a pressure greater than 110% of peak Containment accident pressure.

During the NSWS system upgrades this assured makeup flow would not be available during the time frame that each NSWS loop is out of service. However this does not affect the operation of the system during the initial phase of a postulated accident. 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 operable CVIWS 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 CSS. The CSS 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 CSS supplies the AFW requirements during normal system operating modes; but, since the CSS 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 CSS to be operable in modes 1,2,3 and mode 4 when steam generator is relied upon for heat removal. The CSS 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.

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.

<u>Component Cooling Water System</u>

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 288 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.

Control Room Area Ventilation System

The CRAVS provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity or high chlorine gas. The CRAVS consists of two independent, redundant trains that recirculate and filter the control room area air. Each train consists of a prefilter, a high efficiency particulate air (HEPA) filter, an activated carbon adsorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, and instrumentation also form part of the system, as well as prefilters to remove water droplets from the air stream. A second bank of HEPA filters follows the adsorber section to collect carbon fines and provide backup in case of failure of the main HEPA filters. The CRAVS is shared between the two units. The system must be operable for each unit when that unit is in the mode of applicability. Additionally, both normal and emergency power must also be operable because the system is shared. If a CRAVS component becomes inoperable, or normal or emergency power to a CRAVS component becomes inoperable, then the Required Actions of this LCO must be entered

independently for each unit that is in the mode of applicability of the LCO.

During the NSWS system upgrades, a train of NSWS will be inoperable for 12 days. This results in the DGs on both units associated with the NSWS train being declared inoperable. Therefore the associated CRAVS train will also be inoperable during the 12-day period. TS LCO 3.7.10 requires two CRAVS trains operable in modes 1,2,3,4,5, and 6, during movement of irradiated assemblies, and during core alterations. Condition A for this LCO states that with one CRAVS train inoperable, the CRAVS train must be restored to operable status within 7 days. This one time request is to extend the time frame from 7 days to 12 days.

During this time period the operable CRAVS 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.

<u>Auxiliary Building Filtered Ventilation Exhaust System</u>

The ABFVES normally filters air exhausted from potentially contaminated areas of the auxiliary building, which includes the Emergency Core Cooling System (ECCS) area and non-safety portions of the auxiliary building. The ABFVES, in conjunction with other normally operating systems, also provides ventilation for these areas of the auxiliary building. The ABFVES consists of two independent and redundant trains. Each train consists of a heater demister section and a filter unit section. The heater demister section consists of a prefilter/moisture separator (to remove entrained water droplets and to prevent excessive loading of the carbon adsorber) and an electric heater (to reduce the relative humidity of air entering the filter unit). The filter unit section consists of a prefilter, an upstream HEPA filter, an activated carbon adsorber (for the removal of gaseous activity, principally iodines), a downstream HEPA, and a fan.

Upon receipt of the actuating Engineered Safety Feature Actuation System signal(s), the ABFVES exhausts air from the ECCS pump rooms while remaining portions of the system are isolated. This exhaust air goes through the pump room heater demister. The pump room heater demister removes both large particles within the air and entrained water droplets present in the air. The heater demister also preheats air and reduces the relative humidity of the air prior to entry into the filter unit. The pump room heater demister

prevents excessive loading of the HEPA filters and carbon adsorbers within the filter unit.

The ABFVES fans power supply is provided by electrical buses, which are shared between the two units. If normal or emergency power to the ABFVES becomes inoperable, then the Required Actions of this LCO must be entered independently for each unit that is in the mode of applicability of the LCO.

During the NSWS system upgrades, a train of NSWS will be inoperable for 12 days. This results in the DGs on both units associated with the NSWS train being declared inoperable. This results in the electrical bus supplying the associated ABFVES train not being supplied by an operable DG. Therefore the associated ABFVES train will be inoperable during the 12-day period.

During this time period the operable ABFVES 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 one EDG will be inoperable. A temporary station modification will be implemented for the Unit 2 EDGs to supply an alternate, non-safety related, source of cooling to the EDG with the inoperable NSWS supply. The EDG will still 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.

<u>Contingency Measures</u>

The proposed work activities to be performed to accomplish the NSWS 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 mainly be applied to Unit 2 and to Unit 1 as necessary unless otherwise specified.

1. During the two 12-day periods 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 two 12-day periods, 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 12-day periods. Certain tests may have to be performed during the 12-day periods.

2. Diesel Generator Jacket Water Heat Exchanger - A Temporary Station Modification will be installed on Unit 2 to maintain the technically inoperable EDG capable of being manually started while the normal NSWS supply piping is being cleaned. 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 Unit 2 to maintain the cooling water to the diesel generator starting air system aftercoolers while the normal NSWS supply piping is being cleaned. 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 upgrades. Switchyard activities will be coordinated to ensure that the operable offsite power supply and main transformer on Unit 2 are protected to the maximum extent practicable.

5. Appropriate training will be provided to Operations personnel on this TS change and contingency measures to be implemented during this project.

6. During the two 12-day periods, 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 12-day periods.

7. During the two 12-day periods, no major maintenance or testing shall be planned on the operable trains of ECCS, CSS, CVIWS, AFW, CCW, CRAVS, ABFVES, and EDG. To the maximum extent practicable, routine tests and preventive maintenance work for these systems will be scheduled prior to or following the 12-day periods.

8. During the two 12-day periods 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.

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 cleaning project.

10. The turbine building flood event is one of the dominant contributors to the results. During the two 12-day periods the condenser circulating system on Unit 1 (shutdown unit) will be drained and isolated. This will minimize its potential for being a contributor to a turbine building flood. For Unit 2, 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 two NSWS header outages.

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

Catawba Nuclear Station has used probabilistic risk analysis (PRA) to determine the risk associated with taking a loop of NSWS out of service for up to 12 days (9 days beyond its current TS limit of 72 hrs).

It should be noted that Catawba Nuclear Station has taken a proactive approach to reducing its level of core damage risk. Based upon investigations performed by its PRA personnel, it was determined that the core damage frequency (CDF) could be significantly reduced by the installation of redundant cooling to one train of its CCP pumps. Using the then current Catawba PRA model, it was determined that such a modification would reduce the annual CDF (excluding seismic) by more than 40%. The now current PRA model also shows a significant though smaller percentage reduction, approximately 30%, as a result of the implementation of this modification. This modification has been installed on the 'A' train CCP for both units. The modification will allow only one of the "A" CCP to receive the backup cooling at a time.

The current PRA models were also used to perform the risk evaluation for taking a train 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 for this outage. 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. In addition, the major source of flooding in the turbine building, the Condenser Circulating Water System, will be drained on the shutdown unit (Unit 1) with no maintenance planned on the operating unit. 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 outage is 4.5E-06 per train. Therefore, two 9-day NSWS train outage extensions will increase one unit's annual non-seismic CDF by 2 x 4.5 E-06, or 9.0 E-06. These results also reflect an update to the turbine driven auxiliary feedwater pump run failure rate by considering the most recent plant specific experience.

The impact to the seismic CDF was also considered. The Catawba PRA seismic CDF is approximately 8.5 E-06 / yr. Taking a train of NSWS out of service increases the seismic CDF to approximately 1 E-05 / year, an increase of 1.5 E-06 on a yearly basis. The increase on a daily basis is small, and the accumulated increase over the allowed outage extension time period is negligible compared to the increase as a result of the non-seismic initiators.

The reduction in CDF as a result of Catawba's implementation of the modification to provide backup cooling to the "A" CCP is greater than the increase associated with the extended outage extensions for the NSWS loops. For the year in which the NSWS outage occurs, the CDF of the affected unit is projected to be lower than the estimate for the base case PRA calculation of the unmodified plant. Although the plant configuration associated with the NSWS pipe cleaning will result in a temporary risk increase, the annual core damage probability for the one-year period following implementation of the redundant cooling modification should be a net decrease.

It is recognized that when taking a NSWS loop out of service consideration will be given to the protection of the available EDGs, component cooling system, SSF, and the remaining NSWS train during this time. Also, the risk analysis assumes the redundant cooling to the "A" CCP pump is available; thus, no maintenance activities involving this pump are to be performed during the NSWS outage windows.

The Large Early Release Frequency (LERF) for Catawba is dominated by the inter-facing 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 core damage sequences not currently evaluated by the existing PRA model. The frequency of some previously analyzed sequences do increase due to the longer maintenance unavailability of a NSWS loop. Sequences involving containment isolation or containment bypass (potential LERF contributors) have been evaluated to be 1 E-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 outage extension to significantly change the Catawba LERF which was evaluated to be approximately 4.3 E-07/yr. It is concluded that the LERF implications of the proposed NSWS outage extension are insignificant.

Catawba has taken a proactive approach towards proper risk management as demonstrated by the implementation of the modification to provide backup cooling to the "A" CCP pump. 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. 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 in the range of 1.8 E-06, a low-to-moderate increase in the CDF for consideration of permanent changes to the licensing basis.

Precedent Licensing Actions

This proposed license amendment was modeled after similar license amendments previously granted by the NRC. These amendments were granted for the North Anna Power Station in support of their service water system refurbishment. The NRC granted separate SERs for Amendments Nos. 194 and 172 on October 11, 1995, for Amendments 205 and 186 on July 17, 1997.

ATTACHMENT 4

NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

No Significant Hazards Consideration Determination

Catawba is currently pursuing a project to clean and modify 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, clean, 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 the refueling outage 1EOC12 and during power operation on Unit 2. The specific change is to extend the TS required action time from 72 hours to 288 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 cleaning and modification 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 cleaning 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 cleaning and modification project will increase the available flow margin in the NSWS system. This increase in margin will ensure that each NSWS header has an increased flow margin to enhance its ability to comply with design basis requirements. This will allow Catawba to reduce the amount of unavailability for the NSWS system in the future and increase the overall reliability for many years.

Currently, Catawba periodically performs flow tests to ensure that the required design flow is maintained from the NSWS to the AFW system. This has resulted in an increase in the unavailability of the AFW system. By completing this project, Catawba will be able to increase the NSWS flow margin for the AFW system and reduce the amount of flow testing that will be required in the future. This will result in a decrease in the unavailability of the AFW system and improvement in its overall reliability. This will result in an improved safety margin for Catawba.

The increased NSWS train unavailability that results from 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 headers are out of service for cleaning. Considering this small time frame for each NSWS train outage with the increased reliability and the decrease in unavailability of the NSWS and AFW systems 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 288 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 and AFW systems along with their decreased unavailability in the future because of the cleaning and modification project will result in an overall increase in the safety of both Catawba units. Therefore, the consequences of the accident remain 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, CSS, CVIWS, NSWS, AFW, CCW, CRAVS, ABFVES, or EDG systems. The only change is increasing the required action time frame

from 72 hours to 288 hours (ECCS, CSS, NSWS, AFW, CCW, and EDG) or from 168 hours to 288 hours (CVIWS, CRAVS and ABFVES). 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 outages for each NSWS header, 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 change in CDF 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.