Duke Energy® Carolinas

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September 30, 2009

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Duke Energy Carolinas, LLC (DEC)
Catawba Nuclear Station (CNS), Units 1, and 2
CNS Docket Nos. 50-413, 50-414

McGuire Nuclear Station (MNS), Units 1, and 2
MNS Docket Nos.50-369, 50-370

Oconee Nuclear Station (ONS), Units 1,2, and 3
ONS Docket Nos.50-269, 50-270, 50-287

License Amendment Request (LAR) "Catawba and McGuire Containment Spray Nozzle and Oconee Reactor Building Spray and Cooling Systems Technical Specification Surveillance Requirement"

In accordance with the provisions of Section 50.90 of Title 10 of the Code of Federal Regulations, DEC is submitting a request for amendment to the Technical Specifications (TS) for CNS Units 1 and 2, MNS Units 1 and 2, and ONS Units 1, 2, and 3. The proposed license amendment request revises the surveillance frequency associated with containment spray nozzle testing. Currently the testing for nozzle blockage is performed every ten years. DEC is proposing to change this frequency to "following activities that could result in nozzle blockage."

Enclosure 1 provides a description and assessment of the proposed changes. In addition to: Attachment 1 contains the Technical Specifications (Mark-Up) and Attachment 2 contains the Technical Specification Bases (Mark-Up) for all three nuclear sites.

Supporting changes will be made to the TS Bases in accordance with TS 5.5.14 (CNS and MNS), and TS 5.5.15 (ONS), "Technical Specifications (TS) Bases Control Program." The affected TS Bases markup is included in Attachment 2. These pages are being submitted for information only and do not require issuance by the NRC.

DEC requests approval of the proposed license amendment by July 31, 2010 for the upcoming CNS Unit 2 refueling outage. DEC is requesting a standard 30-day implementation grace period to implement this license amendment.

Implementation of this proposed amendment to the Catawba, McGuire, and Oconee TS will not impact each sites respective Updated Final Safety Analysis Report (UFSAR).

A001
NRR

This LAR has been reviewed and approved by the respective CNS, MNS, and ONS Plant Operations Review Committee (PORC), and the Corporate Nuclear Safety Review Board.

In accordance with 10 CFR 50.91, a copy of this application with enclosure and attachments, is being provided to the designated North Carolina and South Carolina state officials.

There are no new regulatory commitments contained in this LAR. Inquiries on this matter should be directed to Adrienne F. Driver at 803.701.3445.

Sincerely,

James R. Morris

James R. Morris
Site Vice President, Catawba Nuclear Station

Enclosure:

1. Basis for Proposed Changes

Attachments:

1. CNS, MNS, ONS TS Changes (Mark-up)
2. CNS, MNS, ONS TS Bases Changes (Mark-Up)

Mr. James R. Morris 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.

James R. Morris, CNS Site Vice President

Subscribed and sworn to me: 9/30/09
Date

Notary Public

My Commission Expires: 1/31/2018
Date

SEAL

BETTY W. ALDRIDGE
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ELL-EC050
RGC Date File
Catawba Document Control File 801.01
McGuire Document Control File 801.01
Oconee Document Control File 801.01

Duke Energy Fleet-Wide Licensing Amendment Request

September

2009

The proposed amendment will modify the surveillance requirements CNS SR 3.6.6.7, MNS SR 3.6.6.7, and ONS SR 3.6.5.8 for each respective nuclear station's containment/reactor building spray system.

Catawba Nuclear Station, Regulatory Compliance

Basis for Proposed Changes

1.0 DESCRIPTION

This is a request to amend Facility Operating Licenses NPF-35, NPF-52, NPF-9, NPF-17, DPR-38, DPR-47, and DPR-55 for Catawba Nuclear Station (CNS) Units 1 and 2, McGuire Nuclear Station (MNS) Units 1 and 2, and Oconee Nuclear Station (ONS) Units 1, 2, and 3 respectively. The proposed changes will allow performance of testing for nozzle blockage following activities which could result in nozzle blockage, rather than a fixed periodic basis. Currently the testing for nozzle blockage is performed every ten years.

This change is being requested to reflect industry operating experience and plant specific experience and practices.

The proposed amendment will modify the surveillance requirement (SR) CNS SR 3.6.6.7, MNS SR 3.6.6.7, and ONS SR 3.6.5.8 for each respective nuclear station's containment/reactor building spray system as follows:

Current

SURVEILLANCE	FREQUENCY
SR Verify each spray nozzle is unobstructed.	10 years

Revised

SURVEILLANCE	FREQUENCY
SR Verify each spray nozzle is unobstructed.	**Following activities which could result in blockage.**

Basis for Proposed Changes

2.0 Background

Currently the surveillance requires verification every ten years that the containment spray nozzles are unobstructed. The NRC has recognized that nozzle flow testing at this frequency is not necessary due to the design of the system. In the development of NUREG-1366 "Improvements to Technical Specifications Surveillance Requirements", the NRC found that problems in pressurized water reactor containment spray systems were construction related. In response to this conclusion, many nuclear power plants have requested, and the NRC has granted, license amendments to revise their containment spray nozzles surveillance frequency to "following activities which could result in nozzle blockage."

2.1 System Description

<u>CNS Containment Spray System Description</u>
The containment spray system is designed to remove thermal energy from the containment atmosphere in the event of a loss-of-coolant accident (LOCA) and maintain containment pressure below the containment design limit of 15 psig after all the ice in the ice condenser has melted. The containment spray system consists of two independent trains. The containment spray nozzles are located on six spray ring headers which are located high in the upper containment to maximize the spray fall height.

The containment spray system consists of two spray pumps and two spray heat exchangers in parallel, with associated piping, valves, and spray ring headers per unit. One train is defined as one spray pump with spray heat exchanger and partial flow from one Residual Heat Removal (RHR) pump with a heat exchanger.

The stainless steel nozzles are of hollow cone ramp bottom design. These nozzles have an approximately 3/8 inch spray orifice and are not subject to clogging by particles less than 1/4 inch in maximum dimension. During the recirculation phase of operation, fluid is screened through perforated plates with 3/32 inch openings and pumped to the nozzles. The nozzles and ring headers are positioned to maximize coverage of the Containment volume from each set of spray ring headers.

MNS Containment Spray System Description

The containment spray system is designed to remove thermal energy from containment in the event of a LOCA or a main steam line break (MSLB). It performs this function in conjunction with the Emergency Core Cooling System (ECCS), which subcools the reactor by direct injection. The heat removal capability of the spray system keeps the containment pressure below the design pressure of 15 psig after all the ice has melted, while steam generation in the core continues to enter the containment. The system also serves to remove fission product iodine from the post-accident containment atmosphere.

The containment spray system consists of two spray pumps and two spray heat exchangers in parallel, with associated piping, valves, and spray ring headers per unit. One spray train is defined as one spray pump with spray heat exchanger and partial flow from one Residual Heat Removal (RHR) pump with a heat exchanger.

The stainless steel nozzles are of hollow cone ramp bottom design. These nozzles have an approximately 3/8 inch spray orifice and are not subject to clogging by particles less than 1/4 inch in maximum dimension. During the recirculation phase of operation, fluid is screened through perforated plates with 3/32 inch openings and pumped to the nozzles. The nozzles and spray ring headers are positioned to maximize coverage of the Containment volume from each set of spray ring headers.

ONS Reactor Building Spray System Description

The ONS Unit 1, 2 and 3 Reactor Building Spray (RBS) Systems are designed to activate upon receipt of high Reactor Building pressure. The RBS system removes sensible and latent heat from the containment atmosphere; additionally, operation of the RBS system serves to entrain fission product iodine into the spray water, thereby reducing possible iodine leakage to the environment.

Basis for Proposed Changes

The RBS consists of two independent trains. Each train consists of one RBS pump, which initially takes suction from the Borated Water Storage Tank (BWST) via the Low Pressure Injection (LPI) suction piping, and discharges through a throttle valve to its respective RBS nozzle header at the Reactor Building dome following a high energy line break. Upon depletion of the BWST level to a specified setpoint, the Reactor Building Sump will provide water for the spray pumps by manual operator action.

The RBS spray headers are two full-coverage, overlapping stainless steel headers located near the Reactor Building dome. Each header size reduces from eight inches to six inches to four inches as it spreads across the Reactor Building dome. The containment spray nozzles are stainless steel sized and can pass particles up to approximately 1/8 inch diameter.

3.0 Foreign Material Exclusion (FME) Program

The fleet-wide FME program at Duke Energy Carolinas, LLC (DEC) is governed by approved work control procedures. These procedures ensure that the appropriate precautions are taken as needed to minimize the inadvertent and uncontrolled introduction of foreign materials into plant systems and components.

FME training is required for all personnel performing work planning activities, maintenance, modifications, repairs, testing, or inspections on plant equipment and components. Breached fluid or piping systems are required to be covered when not being directly accessed for inspection or maintenance. Administrative FME controls also delineate program requirements for maintaining cleanliness of plant systems and components. For example, for maintenance activities that create debris, cleanliness inspections are required. For safety class systems and components, the final cleanliness inspection is performed by quality control inspectors.

Basis for Proposed Changes

If FME integrity is lost through the intrusion or discovery of foreign material, procedures direct the worker(s) to enter the issue into the Corrective Action Program.

4.0 Technical Evaluation

The proposed amendment will modify CNS SR 3.6.6.7, MNS SR 3.6.6.7, and ONS SR 3.6.5.8 to change the frequency for verifying spray nozzles are unobstructed. Currently, the surveillance requires the verification of containment spray nozzle operability to be performed every ten years and the CNS and MNS Technical Specification Bases describe the operability verification is performed by blowing low pressure air or smoke through the nozzles, or using a vacuum blower to verify flow. Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation," dated September 27, 1993, and NUREG-1366 "Improvements to Technical Specifications Surveillance Requirements", dated December 1992 were used as the basis for requesting a change to the CNS, MNS, and ONS 10-year surveillance frequency due to the stainless steel construction of the nozzles and piping. No coating material which could potentially cause clogging of the spray nozzles, similar to that used on carbon steel piping, is used in the piping or nozzles at CNS, MNS, and ONS. DEC proposed to revise the current periodic frequency for spray nozzle operability verification with a qualifying statement that would identify that operability verification is required following "activities that could cause nozzle blockage." Since containment spray header or nozzle activities occur infrequently, the proposed surveillance frequency should result in less spray nozzle testing.

The spray nozzles are a passive system. The greatest potential for introduction of debris that could result in blocking of the nozzles is during maintenance activities on the spray header or nozzles. The nozzles are located at the upper elevations of containment, further reducing the potential of foreign material intrusion. However, the FME program contains the appropriate level of controls to provide a high level of confidence that foreign materials will not be introduced when containment spray system boundaries are breached for maintenance or testing activities on the spray header or nozzles. The need to test for nozzle blockage following maintenance activities is currently addressed by the post-maintenance testing program which evaluates work scope to determine appropriate retests. However, unanticipated activities such as inadvertent spray actuation, a major configuration change, or a loss of foreign material control when working within the respective system boundary, may require surveillance performance.

The containment spray headers are maintained dry above the FWST (CNS, and MNS) and BWST (ONS) static height. Additionally, during pump testing, the spray nozzles are isolated from system flow, therefore minimizing the potential for boric acid accumulation. However, should there be inadvertent fluid flow through the nozzles, such as the result of spurious actuation; DEC would evaluate testing to determine if the nozzles have remained unobstructed.

4.1 Testing

The inspection and testing requirements for the containment spray system are described in their respective Updated Final Safety Analysis (UFSAR) section, CNS 6.2.2.4, MNS 6.5.4, and ONS 6.2.2.4.

For the initial spray header flow verification pre-operational test, each spray nozzle in all the spray headers was checked for unobstructed flow. The tests were performed using low pressure air blown through the test connections or a vacuum blower to verify flow. Actual flow rate is measured using an air velocity meter for MNS periodic testing in addition to visual observation. CNS and ONS continue to perform visual observation with low pressure air blown through test connections.

Periodic air flow tests through the spray nozzles have been conducted at the interval specified in TS. Air flow is then verified through each associated spray nozzle.

Basis for Proposed Changes

The spray nozzle test history for CNS, MNS and ONS is as follows:

Station	Unit	Test Date	RFO/Pre-OPS
MNS	1	1980	Pre-operational
MNS	2	1983	Pre-operational
MNS	1	1986	PERIODIC
MNS	2	1987	Periodic
MNS	1	1990	Periodic
MNS	2	1992	Periodic
MSN	1	1998	Periodic
MNS	2	2000	Periodic
MNS	1	2007	Periodic
CNS	1	1983	Pre-operational
CNS	2	1985	Pre-operational
CNS	1	1988	Periodic
CNS	2	1990	Periodic
CNS	1	1999	Periodic
CNS	2	1998	Periodic
ONS	1	1972	Pre-operational
ONS	2	1973	Pre-operational
ONS	3	1974	Pre-operational
ONS	1	1977	Periodic
ONS	2	1978	Periodic
ONS	3	1979	Periodic
ONS	1	1981	Periodic
ONS	2	1982	Periodic
ONS	3	1984	Periodic
ONS	1	1990	Periodic
ONS	2	1990	Periodic
ONS	3	1992	Periodic
ONS	1	1994	Periodic
ONS	2	1999	Periodic
ONS	3	2001	Periodic
ONS	1	2002	Periodic
ONS	2	2008	Periodic
ONS	3	2004	Periodic

The results of each test demonstrated unobstructed flow through each nozzle.

4.2 Maintenance History

CNS Maintenance History

On January 3, 1984 for pre-operational testing, flow was inadvertently established through the 1B train of the Containment Spray Ring. The question was addressed as to whether that spray ring should be retested to verify a flow path to each nozzle due to the possible crystallization of the boric acid solution that was sprayed. Analysis was performed and it was determined that there was no possibility of flow blockage of the 1B train due to this inadvertent spray and a retest was not required to verify this. Following this inadvertent spray, all subsequent testing of the containment spray nozzles were met satisfactorily and there has been no blockage of any kind.

During performance of surveillance on December 6, 1988 no flow was detected on nozzle #39 on the 1B header. Maintenance inspected the nozzle and found no blockage. The nozzle was retested successfully two days later. The discrepancy sheet states that the test equipment may not have been oriented properly during the first attempt to verify air flow. The next surveillance showed no indication of any blockage.

In the aforementioned event of inadvertent spray described above for CNS Unit 1, all subsequent testing of the containment spray nozzles has been satisfactory, and there has been no identified blockage of any kind. There has been no history of events identified of inadvertent spray through the containment spray nozzles on Unit 2 at CNS.

A review of the maintenance history of the CNS Unit 1 and Unit 2 containment spray nozzles and spray ring headers was performed to determine the work that took place since the most recent surveillance tests on the system. A review of the maintenance work orders identified no work activities

Basis for Proposed Changes

on the containment spray nozzles and spray ring headers since the most recent flow tests were performed. There have been no occurrences of inadvertent flow through the spray nozzles subsequent to the performance of the last nozzle flow tests.

MNS Maintenance History
A review of the maintenance history of the MNS Unit 1 and Unit 2 containment spray nozzles and spray ring headers was performed to determine the work that took place since the most recent surveillance tests on the system. A review of the maintenance work orders identified no maintenance or modification activities were conducted which could have introduced foreign material into the containment spray nozzles and spray ring headers since the most recent flow tests were performed. There have been no historic work activities beyond the most recent periodic test that identified the potential for foreign material intrusion. There have been no occurrences of inadvertent flow through the spray nozzles subsequent to the performance of the last nozzle flow tests.

ONS Maintenance History
On October 17, 1974, ONS Unit 2 was in cold shutdown with the LPI system in service for decay heat removal (DHR) operations. Preparations were being made to begin Reactor Coolant System (RCS) heat up. These preparations included placing Reactor Building Spray in Engineered Safeguards (ES) alignment. After opening 2BS-4, the Unit 2 Reactor Building fire alarm activated in the Unit 2 Control Room. Control Room Operators subsequently noted a sharp decrease in Pressurizer level and an increase in Reactor Building Normal Sump level. Operator actions were taken to close 2BS-3 and 2BS-4 to stop the loss of inventory. Subsequent investigation found valve 2BS-2 (B RBS train discharge valve) partially open although it indicated fully closed in the control room. The erroneous indication was due to an improperly configured limit switch in valve 2BS-2. The Reactor Building fire alarm activated when water from the spray header shorted out detector units. Approximately 200 gallons of water was sprayed into the Unit 2 Reactor Building.

Basis for Proposed Changes

On March 29, 1977, technicians were performing online testing of ES Channel 5 on ONS Unit 3 when ES Channel 7 inadvertently tripped. Actuation of ES Channel 7 caused the 3A RBS pump to start and the normally-closed downstream isolation valve (3BS-1) to open. The pump operated for approximately 41 seconds before being secured by control room operators. Operators were dispatched to the reactor building to check for water damage. No signs of water damage were noted. Approximately 1300 gallons of water was sprayed into the Unit 3 Reactor Building.

On November 9, 1989, ONS Unit 3 was being shutdown for refueling and preparations were being made to begin decay heat removal (DHR) with LPI system. At the time DHR was being initiated, the suction of the 3A RBS train was still aligned to the LPI system through open valve 3BS-3 (3A Reactor Building Spray Pump Suction Isolation valve). During alignment of the LPI system to the RCS, Control Room Operators identified indications of RCS leakage. Subsequent investigation determined that valve 3BS-1 (3A RBS Header Discharge Isolation valve); located on the discharge of the 3A RBS train was partially open when it indicated closed. RCS pressure forced water through the 3A RBS train, through partially open valve 3BS-1, and out the spray nozzles of the 3A RBS train. It was determined that valve 3BS-1 had not been fully closed following stroke testing on October 12, 1989 due to problems with valve position indications. Approximately 2000 gallons of water was sprayed into the Unit 3 Reactor Building.

In the aforementioned three events of inadvertent spray described above for ONS Units 2 and 3, all subsequent testing of the containment spray nozzles has been satisfactory, and there has been no identified blockage of any kind. There has been no history of events identified of inadvertent spray through the reactor building containment spray nozzles on Unit 1 at ONS. Additionally, there have been no occurrences of inadvertent flow through the spray nozzles subsequent to the performance of the last nozzle flow tests.

Basis for Proposed Changes

Modifications were performed during refueling outages 1EOC21 fall 2003, 2EOC19 fall 2002, and 3EOC20 spring 2003. These modifications plugged approximately half of the nozzles on each train to improve RBS pump net positive suction head. Upon completion of the modifications, FME controls were credited along with double verification to ensure no FME was introduced into the spray header(s). Nozzle locations that were not deactivated were not disturbed during the modification implementation.

A review of the maintenance history of the ONS Unit 1, 2 and 3 RBS system was performed to determine the work that took place since the most recent surveillance tests on the system. With respect to the aforementioned modifications, there has been no work activities conducted on the containment spray nozzles and spray headers.

The proposed amendments are expected to reduce unneeded surveillance testing of the spray nozzles. Thorough inspection and flow testing were performed for the spray systems during the preoperational tests. Subsequent periodic flow test results have indicated no nozzles were obstructed. The spray nozzles are a passive component and the most likely introduction of nozzle blockage would occur during maintenance activities. FME controls provide assurance that the potential for nozzle obstruction will continue to be low by providing protection against the introduction of foreign materials into open piping. Should foreign material with the potential to obstruct the spray nozzles be discovered in a portion of the system, the corrective action program will direct that the extent of condition be evaluated, and cleanliness restored and determine if surveillance testing is required.

4.3 Summary

In review of the maintenance history, testing and system modifications above in section 4.2 there have been no significant maintenance or modification activities that have been identified which could have potentially caused nozzle blockage, thus requiring continual periodic testing at CNS, MNS, or ONS. This change is being requested based on industry and plant experience which indicates blockage of the containment spray nozzles during normal plant operation is unlikely. This proposed change eliminates unnecessary testing of the spray nozzles. Testing would be performed based on activities or conditions that could potentially cause nozzle blockage. The surveillance requires workers to verify air flow at each nozzle located at high elevations inside containment, and the potential reduction in the frequency of performance should enhance personnel safety. Similarly, the proposed changes are expected to result in a reduction in personnel exposure and outage costs associated with performing airflow tests. Industry and plant specific experience has shown that the proposed change more accurately reflects when verification of spray nozzle operability is appropriate.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

The proposed amendment will modify CNS SR 3.6.6.7, MNS SR 3.6.6.7, and ONS SR 3.6.5.8 to change the frequency for verifying spray nozzles are unobstructed. The surveillance is being changed from a 10 year interval to a performance-based frequency. Specifically, the verification of no nozzle obstruction would only be performed following activities that could subject the system to possible sources of nozzle blockage. The proposed change is considered to be more reflective of plant operating experience, which has demonstrated that the introduction of spray nozzle blockage during normal plant operation is unlikely.

Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Basis for Proposed Changes

No. The proposed amendment will modify CNS SR 3.6.6.7, MNS SR 3.6.6.7, and ONS SR 3.6.5.8 to change the frequency for verifying spray nozzles are unobstructed. The proposed change modifies the frequency for performance of a surveillance test which does not impact any failure modes that could lead to an accident. The proposed frequency change does not affect the ability of the spray nozzles or spray system to perform its accident mitigation function as assumed and therefore there is no effect on the consequence of any accident. Verification of no blockage continues to be required, but now verification will be performed following activities that could result in nozzle blockage. Based on this discussion, the proposed amendment does not increase the probability or consequence of an accident previously evaluated.

Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

No. The proposed amendment will modify CNS SR 3.6.6.7, MNS SR 3.6.6.7, and ONS SR 3.6.5.8 to change the frequency for verifying spray nozzles are unobstructed. The spray systems are not being physically modified and there is no impact on the capability of the system to perform accident mitigation functions. No system setpoints are being modified and no changes are being made to the method in which borated water is delivered to the spray nozzles. The testing requirements imposed by this proposed change to check for nozzle blockage following activities that could cause nozzle blockage do not introduce new failure modes for the system. The proposed amendment does not introduce accident initiators or malfunctions that would cause a new or different kind of accident. Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

Does the proposed change involve a significant reduction in a margin of safety?

No. The proposed amendment will modify CNS SR 3.6.6.7, MNS SR 3.6.6.7, and ONS SR 3.6.5.8 to change the frequency for verifying spray nozzles are unobstructed. The proposed change does not change or introduce any new setpoints at which mitigating functions are initiated. No changes to the design parameters of the spray systems are being proposed. There are no changes in system operation being proposed by this change that would impact an established safety margin. The proposed change modifies the frequency for verification of nozzle operability in such a way that continued high confidence exists that the spray systems will continue to function as designed. Therefore, based on the above, the proposed amendment does not involve a significant reduction in a margin of safety.

5.2 Applicable Regulatory Requirements/Criteria

Catawba, McGuire and Oconee Nuclear Station facility operating licenses complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I , and all required notifications to other agencies or bodies duly made. The Principle Design Criteria (PDC) for Oconee Units 1, 2, and 3 were developed in consideration of the seventy General Design Criteria for Nuclear Power Plant Construction Permits proposed by the Atomic Energy Commission in a proposed rule-making published for 10 CFR Part 50 in the Federal Register of July 11, 1967.

Catawba and McGuire Nuclear Station's applicability and compliance is in accordance with 10 CFR 50 Appendix A, General Design Criteria (GDC) for Nuclear Plants. The table below provides the GDC or PDC associated with the containment spray systems for CNS, MNS, and ONS that are applicable to the proposed changes within this license amendment request.

General Design Criterion	*Principle Design Criterion*
#16- "Containment Design"	#70 - "Control of Releases of Radioactivity to the Environment" (Category B)

Basis for Proposed Changes

#38 - "Containment Heat Removal"	#52 - "Containment Heat Removal Systems" (Category A)
#39 - "Inspection of Containment Heat Removal System"	#45 - "Inspection of Emergency Core Cooling Systems (Category A)
#40 - "Testing of Containment Heat Removal System"	#46 - "Testing of Emergency Core Cooling Systems (Category A)
#42 - "Testing of Containment Atmosphere Cleanup Systems"	
#50 - "Containment Design Basis"	#49 - "Containment Design Basis" (Category A)

In review of the GDCs and PDCs the proposed amendment to the surveillance requirement frequency change does not impact the conformance to the above applicable design criteria.

5.3 NRC Commitments

There are no new regulatory commitments contained in this LAR.

5.4 Conclusions

DEC has evaluated the aspects of the proposed changes to the Technical Specifications to determine whether or not the change involves a significant hazards consideration under the standards set forth in 10 CFR 50.92. Accordingly, DEC concludes that the changes do not meet any of the three criteria for a significant hazards consideration.

5.5 Precedents

The NRC has modified the technical specifications of other United States nuclear power reactors to revise their containment spray nozzles surveillance frequency to "following activities which could result in nozzle blockage", as noted in the following table.

Reactor	NRC Approval Date	Accession No.
Millstone Power Station Unit 2	March 2008	ML070880705
Ginna Nuclear Power Station	July 31, 2006	ML061980055

6.0 ENVIRONMENTAL EVALUATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c) (9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

Basis for Proposed Changes

7.0 REFERENCES

1. Catawba Nuclear Station Updated Final Safety Analysis, Chapter 6 "Engineered Safety Features", November 15, 2007

2. McGuire Nuclear Station Updated Final Safety Analysis, Chapter 6 "Engineered Safety Features", April 13, 2008

3. Oconee Nuclear Station Updated Final Safety Analysis, Chapter 6 "Engineered Safeguards", December 31, 2007

4. NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements", December 1992

5. Generic Letter 93-05 "Line-Item Technical Specifications Improvements For Testing During Power Operation", September 27, 1993

ATTACHMENT 1:

TECHNICAL SPECIFICATIONS (MARK UP)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.2	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.6.3	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.6.6.4	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.6.5	Verify that each spray pump is de-energized and prevented from starting upon receipt of a terminate signal and is allowed to start upon receipt of a start permissive from the Containment Pressure Control System (CPCS).	18 months
SR 3.6.6.6	Verify that each spray pump discharge valve closes or is prevented from opening upon receipt of a terminate signal and is allowed to open upon receipt of a start permissive from the Containment Pressure Control System (CPCS).	18 months
SR 3.6.6.7	Verify each spray nozzle is unobstructed.	~~10 years~~ Following Activities which could result in nozzle blockage

SURVEILLANCE		FREQUENCY
SR 3.6.6.2	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.6.3	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.6.6.4	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.6.5	Verify that each spray pump is de-energized and prevented from starting upon receipt of a terminate signal and is allowed to start upon receipt of a start permissive from the Containment Pressure Control System (CPCS).	18 months
SR 3.6.6.6	Verify that each spray pump discharge valve closes or is prevented from opening upon receipt of a terminate signal and is allowed to open upon receipt of a start permissive from the Containment Pressure Control System (CPCS).	18 months
SR 3.6.6.7	Verify each spray nozzle is unobstructed.	~~10 years~~ Following activities which could result in nozzle blockage

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.5.5	---------------------NOTE------------------------- Applicable for RB cooling system after the completion of the LPSW RB Waterhammer Modification on the respective Unit. -- Verify each automatic reactor building spray and cooling valve in each required flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.6.5.6	Verify each required reactor building spray pump starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.5.7	Verify each required reactor building cooling train starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.5.8	Verify each spray nozzle is unobstructed.	Following activities which could result in nozzle blockage. ~~10 years~~

ATTACHMENT 2:

TECHNICAL BASES SPECIFICATIONS (MARK UP)

BASES

SURVEILLANCE REQUIREMENTS (continued)

testing in this fashion.

SR 3.6.6.6 deals solely with containment spray header containment isolation valves NS12B, NS15B, NS29A, and NS32A. It must be shown through testing that: (1) each valve closes when the CPCS permissive is removed, OR (2) each valve is prevented from opening in the absence of a CPCS permissive. In addition to one of the above, it must also be shown that each valve opens when given a CPCS permissive.

The 18 month Frequency is appropriate based on the reliability of the components.

SR 3.6.6.7

With the containment spray inlet valves closed and the spray header drained of any solution, low pressure air or smoke can be blown through test connections. The spray nozzles can also be ~~periodically~~ tested using a vacuum blower to induce air flow through each nozzle to verify unobstructed flow. ~~This SR ensures that each spray nozzle is unobstructed and that spray coverage of the containment during an accident is not degraded. Because of the passive design of the nozzle, a test at 10 year intervals is considered adequate to detect obstruction of the spray nozzles.~~ This SR requires verification that each spray nozzle is unobstructed following activities that could cause nozzle blockage. Normal plant operation and activities are not expected to initiate this SR. However activities such as inadvertent spray actuation that causes fluid flow through the nozzles, major configuration change, or a loss of foreign material control when working within the respective system boundary may require surveillance performance.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 38, GDC 39, GDC 40, GDC 41, GDC 42, and GDC 43.
2. UFSAR, Section 6.2.
3. 10 CFR 50.49.
4. 10 CFR 50, Appendix K.
5. 10 CFR 50.36, Technical Specifications, (c)(2)(ii).
6. ASME, Boiler and Pressure Vessel Code, Section XI.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.6.3 and SR 3.6.6.4

These SRs require verification that each automatic containment spray valve actuates to its correct position and each containment spray pump starts upon receipt of an actual or simulated Containment Pressure High-High signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. The 18 month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillances were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillances when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

The surveillance of containment sump isolation valves is also required by SR 3.6.6.3. A single surveillance may be used to satisfy both requirements.

SR 3.6.6.5 and SR 3.6.6.6

These SRs require verification that each containment spray pump discharge valve opens or is prevented from opening and each containment spray pump starts or is de-energized and prevented from starting upon receipt of Containment Pressure Control System start and terminate signals. The CPCS is described in the Bases for LCO 3.3.2, "ESFAS." The 18 month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage.

SR 3.6.6.7

With the containment spray inlet valves closed and the spray header drained of any solution, low pressure air or smoke can be blown through test connections. The spray nozzles can also be ~~periodically~~ tested using a vacuum blower to induce air flow through each nozzle to verify unobstructed flow. ~~This SR ensures that each spray nozzle is unobstructed and that spray coverage of the containment during an accident is not degraded. Because of the passive design of the nozzle, a test at 10 year intervals is considered adequate to detect obstruction of the spray nozzles.~~ This SR requires verification that each spray nozzle is unobstructed following activities that could cause nozzle blockage. Normal plant operation and activities are not expected to initiate this SR. However activities such as inadvertent spray actuation that causes fluid flow through

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the nozzles, major configuration change, or a loss of foreign material control when working within the respective system boundary may require surveillance performance.

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SURVEILLANCE REQUIREMENTS

SR 3.6.5.8

With the reactor building spray header isolated and drained of any solution, station compressed air is introduced into the spray headers.~~ to verify the availability of the headers and spray nozzles. Performance of this Surveillance demonstrates that each spray nozzle is unobstructed and provides assurance that spray coverage of the containment during an accident is not degraded.~~ This SR requires verification that each spray nozzle is unobstructed following activities which could cause nozzle blockage. Normal plant operation and activities are not expected to initiate this SR. However activities such as inadvertent spray actuation that causes fluid flow through the nozzles, major configuration change, or a loss of foreign material control when working within the respective system boundary may require surveillance performance. ~~Due to the passive nature of the design of the nozzles, a test at 10 year intervals is considered adequate to detect obstruction of the spray nozzles.~~

REFERENCES

1. UFSAR, Section 3.1.
2. UFSAR, Section 6.2.
3. 10 CFR 50.36.
4. ASME, Boiler and Pressure Vessel Code, Section XI.